

# HIGH PERFORMANCE METAL SELECTION CRITERIA

Before selecting architectural metals for any project, it is first necessary to define the environment in which the building will be located. Among the factors that must be considered are:

- Atmospheric contaminants/pollution
- Proximity to salt water
- Nearby application of deicing salts
- Airborne abrasives (sand, soil, debris)
- Ultraviolet exposure
- Humidity range
- Externally induced fire risk (airborne sparks or brush fires)
- Frequency of maintenance on the part of the owner



Central LA High School #9 – Product: InvariMatte® Stainless Steel

## STAINLESS STEEL

As a rule, stainless steel is extremely durable, corrosion resistant and fire resistant. It is available in a variety of grades and finish treatments. When properly specified, fabricated and installed, stainless steel will last indefinitely with little maintenance in all but the most severe environments. If there is any doubt as to the suitability of a given grade of stainless steel in your application, please contact us. In general, the following grades are suitable in the environments as described:

- Type 304 is sufficient for most exterior applications.
- Type 316 should be used within 10 miles of saltwater bodies. However, if the building will be subjected to saltwater spray, a nobler grade of stainless steel or titanium should be specified.
- In close proximity to deicing salt use, even on nearby roadways where vehicle traffic can create airborne particles, Type 316 should be used. If periodic rinsing from rains will not occur on all exterior surfaces, these areas must be washed each spring. If dependable maintenance is not predicted, a nobler grade of stainless steel or titanium should be used.
- Specify Types 304L or 316L if extensive welding will be employed. Lean duplex stainless steel grades like AL 2003™ are readily welded with the proper selection of filler material.
- AL 2003™ lean duplex is suggested in severe marine environments like the Persian Gulf, Hawaii, and parts of Southeast Asia where greater pitting resistance is required. More can be learned about this alloy at [www.alleghenyludlum.com](http://www.alleghenyludlum.com)
- Any grade, including Type 430 may be used in interior applications.

**(STAINLESS STEEL - continued)**

Once a grade has been selected, a finish choice can be made to create the desired visual effect. We recommend the use of uncoated material that will last for many years without degradation. Our Invari products have been designed to provide the flattest, most visually uniform surfaces possible. While there is variability in any manufactured product, even painted panels, our products provide a higher degree of consistency than commonly available metals.

**TITANIUM**

Grade 1 Titanium, which offers a good balance between formability and strength, is suitable for most applications. However, other grades with higher mechanical properties may be considered, as design requirements should warrant. Once a grade has been selected, a finish choice can be made to create the desired visual effect. We recommend the use of uncoated material that will last indefinitely without degradation. Typically, Titanium has a variable, grainy surface that lacks visual consistency. This may be desirable in pursuit of a random "tile" effect in building panels, in which case a mill finish should be specified. However, if uniformity is desired, our InvariSand™ product has been designed to provide the flattest, most visually uniform surfaces possible. While there is variability in any manufactured product, even painted panels, our products provide a higher degree of consistency than commonly available metals.

**ZINC**

Zinc, which is alloyed with small amounts of copper and titanium, is appropriate for most applications. While the beauty of commercially pure zinc is appreciated by many, there are important installation procedures that must be followed to reduce the risk of metallic corrosion (refer to Ventilation of Zinc panel systems).

*For additional information relating to properties, size ranges, fabrication, installation and maintenance, please refer to the Invari Product Data Sheets in this binder or on our website at [www.metalresources.net](http://www.metalresources.net).*



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