

## NICKEL'S ROLE IN CITY INFRASTRUCTURE

Approximately 80 percent of primary nickel used in the U.S. in 2011 was used in alloys, like stainless steel. Nickel's properties make it a desirable metal to use in a variety of infrastructure applications because of its resistance to corrosion and staining, its ability to withstand extreme temperatures, and its minimal maintenance requirements. The average life of stainless steel products is 15-25 years or longer, depending on the specific application.



**BRIDGES:** Stainless steel is often used in bridge construction for safety systems like guardrails and handrails, and can be found in structural elements like cables, beams and tie-rods. In these applications, stainless steel improves aesthetics and reduces maintenance needs, even in the most demanding environments like harsh Minnesota winters.

**RAIL CARS:** Due to low maintenance and long life cycle, stainless steel is used in the rail industry for passenger, freight, metro and light rail systems. Stainless steel is used in broad applications from entire rail car superstructures to safety systems and the smallest passenger amenities. Stainless steel provides increased strength at lower weights, which allows for lighter railcars, and more efficient and economic operation.

### TRANSPORTATION STATIONS:

Stainless steel is also used in bus and rail transportation stations, airports and other modal centers for surfaces, fixtures and other applications. Stainless steel is resistant to corrosion and fire, lightweight, and easy to hygienically clean, thereby reducing maintenance costs.

**BUILDINGS:** A stainless steel roof or exterior can reduce the effect of solar heating, reducing the demand for air-conditioning. Stainless steel also ensures low maintenance costs and a long life cycle.

#### Sources:

Nickel Institute, [http://www.worldstainless.org/Files/ISSF/non-image-files/PDF/Team\\_Stainless\\_Stainless\\_Steel\\_for\\_a\\_Sustainable\\_Future.pdf](http://www.worldstainless.org/Files/ISSF/non-image-files/PDF/Team_Stainless_Stainless_Steel_for_a_Sustainable_Future.pdf)

U.S. Geological Survey, <http://pubs.usgs.gov/fs/2012/3024/pdf/fs2012-3024.pdf>