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FRANKE KINDRED CANADA: Stainless Steel Sinkware

Franke Kindred's stainless steel sinkware contributes to a high performance sustainable building in the following ways:

- A. Improve Building Durability**
- B. Reduce Demand for Raw Materials**
- C. Improve Indoor Environmental Quality**

Green-Buildings believes that this line of products may contribute meaningfully to green building projects, such as those that pursue a LEED® Certification or other green rating systems.



EXECUTIVE SUMMARY

Franke Kindred Canada Limited has been an active leader in design, production and distribution of stainless steel sinkware in North America and around the world for more than 60 years. Product families include applications for use in homes, commercial applications such as schools, hospitals, prisons, restaurants, washrooms and public facilities.

Midland, Ontario based Franke Kindred Canada Limited worked with Green-Buildings to complete a review of their stainless steel sinkware products.

Green-Buildings' team of LEED® Accredited Professionals performed a benchmark analysis of Franke Kindred's sinkware and determined that these products may:

- A. Improve Building Durability**
- B. Reduce Demand for Raw Materials**
- C. Improve Indoor Environmental Quality**

Green-Buildings believes that several characteristics of Franke Kindred's sinkware are congruent with green building principles and, as such, these products may be considered applicable to high-performance buildings and also may contribute meaningfully to green building projects that pursue a LEED® Certification.

DETAILS

Franke Kindred Canada Limited manufactures a number of stainless steel sinkware products including commercial, residential, laboratory, kitchen, vanity and securityware sinks, as well as numerous other products. The focus of this report will be its stainless steel sinkware products.

A. Improve Building Durability

A key green building principle is the improvement of building quality and durability to reduce or eliminate the frequency of building maintenance, replacement and repair. Often, the greenest buildings are those that do not need to be replaced. Products that help promote a durable design and ongoing performance enhancements may result in a building that will last longer, thereby avoiding future downstream waste.

Stainless steel is one of the strongest and most durable materials available and also has a very long life span due to the chrome oxide layer that protects the steel from corrosion. This is known as a "self-healing" surface, where if the surface is scratched and exposed to air/oxygen, a new chrome oxide layer is immediately formed to protect the material. This feature is what makes

Stainless steel so very durable, more so than simple carbon steel. Stainless steel also resists nicking and denting as well as withstands shock and abrasions. The material does not require coating, painting, or any maintenance other than simple cleaning.

Stainless steel does not have a flash point or burning rate and is considered non-flammable. Its melting point is 2795°F and has a HMIS (Health Material Identification system) health, fire and hazard classification of zero, meaning there is no significant risk to health, it will not burn and is a stable material. This provides increased fire resistance and improved life safety in the facilities in which it is used.

B. Reduce Demand for Raw Materials

By incorporating recycled content into building materials, green builders may not only reduce the impact that results from the extraction and processing of raw materials, but also reduce the volume of solid waste that is produced as a byproduct of our built environment.

Steel is the most recycled material in North America and in the world. In the United States alone, almost 83 million tons of steel were recycled or exported for recycling in 2007¹. Individual company statistics are not applicable or instructive because of the open loop recycling capability that the steel and iron industries enjoy, with available scrap typically going to the closest melting furnace². Steel is also considered a self sustainable material since it is entirely recyclable at the end of its lifespan and can go back into the production process as scrap material. This conserves natural resources as well as reduces energy consumption in the metal mining/refining process.

The supplier of the stainless steel used in Franke Kindred's sinkware (FS Supplier) uses Electric Arc Furnace (EAF) technology at its manufacturing facilities. In 2007, the American Iron and Steel Institute (AISI) calculated the recycled content of steel made in the EAF process and determined that it is comprised of 31.4% pre-consumer and 56.9% post-consumer.

FS Supplier uses recycled scrap (both stainless and carbon steel) to produce stainless steel, including pre-consumer, post-consumer and home scrap. FS Supplier doesn't specify an exact percentage of recycled content in its stainless steel but states that it was over 90% between January to October 2009.

C. Improve Indoor Environmental Quality

¹ (Steel Recycling Institute, www.recycle-steel.org)

² (American Institute of Steel Construction, www.aisc.org)

Providing a comfortable thermal environment while improving indoor environmental quality enhances occupant health, productivity and well-being and is an essential goal for any green building. The U.S. Environmental Protection Agency (EPA) estimates that indoor pollution and/or contaminant levels may be two to five times (and potentially up to one hundred times) greater than outdoor levels. Potential threats to indoor environmental quality include the presence of hazardous chemicals, high concentrations of airborne fibers, and smoke, mildew, mold and/or fungus contamination.

Stainless steel contains no asbestos or chemical additives. Neither the raw materials used in manufacturing nor the finished product contain any ozone depleting chemicals. Also, steel products are not classified as, nor do they contain, hazardous air pollutants. Steel products are not listed as carcinogenic by the International Agency for Research on Cancer (IARC) or the Occupational Safety and Health Administration (OSHA).

Stainless steel is also a very hygienic material, and is usually the first material of choice in settings where hygiene is most important, such as restaurants, schools or hospitals. It has no pores or cracks for dirt and bacteria, and can be easily cleaned with soap and hot water.

The acidic/alkaline contents in food create pitting in most materials which can become a harboring place for bacteria. Stainless steel is inert to most of the acids/alkalines released by foods and does not normally get pitted.³ The corrosion resistance of stainless steel also increases its hygienic level over other materials. Stainless steel's cleanability was shown to be similar to that of glass and china and much better than various plastic materials in tests at the University of Michigan in 1953.⁴ Stainless steel's bacteria count was ten times lower than that of the other materials after only five seconds of washing.

³ "Hygienic importance of stainless steel in developing countries", Mohan, V. <http://www.worldstainless.org/NR/rdonlyres/98AEC2C7-2C00-44BE-83B3-DE0BD6BE8100/2413/Hygienicimportanceofstainlesssteelindevelopingcoun.pdf>

⁴ "Sinks of stainless clean best, beat bacteria", Holah, Dr. John T. http://www.nickelinstitute.org/index.cfm/ci_id/3197/la_id/1/document/1/re_id/0

LEED® CREDITS

To earn certification under the Leadership in Energy and Environmental Design (LEED®) rating systems, projects must not only satisfy all LEED system prerequisites, but also earn a minimum number of points. Projects may earn a range of sequentially higher LEED certification ratings as determined by their compliance, as well as exemplary performance, in the credit categories within each system. Major credit categories include:

- I. Sustainable Sites
- II. Water Efficiency
- III. Energy & Atmosphere
- IV. Materials & Resources
- V. Indoor Environmental Quality
- VI. Innovation in Design

When applied properly, Green Buildings believes that Franke Kindred's stainless steel sinkware will contribute toward earning points in a LEED certification in the following prerequisite(s) and/or credit(s) under the following LEED rating systems:

- I. LEED for New Construction & Major Renovations
- II. LEED for Healthcare

The LEED for Healthcare rating system was built on the foundation of the LEED for New Construction rating system, however, it is designed to recognize the unique nature of healthcare facilities, their regulatory requirements, 24/7 operations and need for unique healthcare-specific credits. For instance, the LEED for Healthcare rating system modified its Indoor Environmental Quality credits to protect patients from contaminants, optimize ventilation levels and other green building strategies.

Note that no individual material or product enables a building to earn certification within the LEED rating system. Earning points in each LEED credit category is dependent on the aggregate of all materials and their proportionate relationship to the total dollar cost, and other factors, of all materials.

Table 1: LEED BD+C (New Construction & Major Renovations, Core & Shell, Commercial Interiors and Schools) Contribution Chart

LEED Credit and Category	LEED Requirement	Product contribution
Materials & Resources (MR)		
MR Credit 4: Recycled Content (1-2 points)	Use materials with recycled content such that the sum of post-consumer recycled content plus ½ of the pre-consumer content constitutes at least 10 or 20%, based on cost, of the total value of the materials in the project.	Pre-consumer recycled content of steel made in the EAF process the recycled content is 31.4% pre-consumer and 56.9% post-consumer

LEED Credit and Category	LEED Requirement	Product contribution
MR Credit 5: Regional Materials (1-2 points)	Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10 or 20%, based on cost, of the total materials value.	For the products which are manufactured in Midland Ontario, Canada, Franke Kindred procures its steel from North American Stainless located in Ghent, KY. Projects located within 500 miles of extraction and manufacturing facilities may be eligible for LEED Regional Materials credit. Site distances would have to be calculated for eligible points.

Table 2: LEED for Healthcare Contribution Chart

LEED Credit and Category	LEED Requirement	Product contribution
Materials & Resources (MR)		
MR Credit 3: Sustainable Sourced Materials and Products (1-4 points)	One point and up to a maximum of four will be awarded for each 10% of the total value of all building materials and products used in the project (based on cost) that meet the criteria listed in the LEED for Healthcare reference guide for salvaged/reused material, recycled material, regionally sourced material, rapidly renewing material and certified wood.	Pre-consumer recycled content of steel made in the EAF process the recycled content is 31.4% pre-consumer and 56.9% post-consumer. For the products which are manufactured in Midland, Ontario, Canada, Franke Kindred procures its steel from North American Stainless located in Ghent, KY. Projects located within 500 miles of extraction and manufacturing facilities may be eligible for LEED Regional Materials credit. Site distances would have to be calculated for eligible points.

CONCLUSION

Franke Kindred’s Stainless steel sinkware products meet three significant criteria used in green building initiatives. Through its sustainable sourcing, recycled materials, fire resistant material qualities and hygienic properties, Franke Kindred’s Stainless steel sinkware can improve building durability, improve indoor environmental quality and minimize impact on the environment through decreased usage of raw materials for building construction.

All of these characteristics suggest that Franke Kindred’s Stainless steel sinkware are products that Green-Buildings.com would recommend for any project with sustainable design or performance goals or any project that is pursuing LEED® certification.

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