AuroraSurfaces LLC
MINNESOTA MINED • MINNESOTA MADE • USA

Our Story

The Story of Taconite and AuroraStone™

When people learn that AuroraStone is made from taconite tailings we often get quizzical looks and the inevitable question: "What are taconite tailings?" We enjoy relaying the history of taconite mining in Minnesota because it is a story of innovative engineering—and it helps to explain how AuroraStone evolved.

Minnesota's taconite rock (named after similar rock found in New York's Taconic Mountains) is some of the oldest rock in the earth. It is a sedimentary rock, meaning that ancient seas interlaid it with iron ore, quartz and smaller amounts of other silica-like minerals. Since less than 15% of taconite rock contains iron ore, it is considered to be low-grade. When high grade iron resources were plentiful it was not economically feasible to separate and extract iron from taconite rock. However, after World War II the growing demand for steel rapidly depleted existing iron mines. So forward-looking University of Minnesota scientists accepted the challenge and developed new cost-saving iron mining technologies that eventually launched the taconite mining and processing industry.

Taconite processing involves three primary steps. Mining engineers begin by crushing and pulverizing taconite rock. Then they extract the iron particles (primarily finely dispersed magnetite) using magnetism. Finally, they combine the extracted iron with clay, roll it into marble-sized balls and fire them under intense heat. In this form the pellets contain 65% iron and can be further processed to make steel.

The Mesabi Iron Range Region of Northern Minnesota soon became a major producer of iron ore that is mined from sedimentary rock. Its taconite pellets are shipped from Minnesota ports through the Great Lakes to steel producers throughout the world. Innovations in taconite processing essentially revitalized the mining and shipping economy of Northern Minnesota.

It is the aggregate "tailings" that the mining industry casts aside after they extract the iron from taconite rock that has become our treasure. Applying our own skills in innovative engineering and artistry, AuroraSurfaces melts the quartz and other silica-like minerals in a plasma furnace and then casts the melt into molds, encouraging the lustrous shading and luminescence so reflective of the ancient rock and waters of Northern Minnesota that are its source. AuroraStone does not produce dust, is stable and durable, and equally ideal for use in indoor or outdoor spaces.