

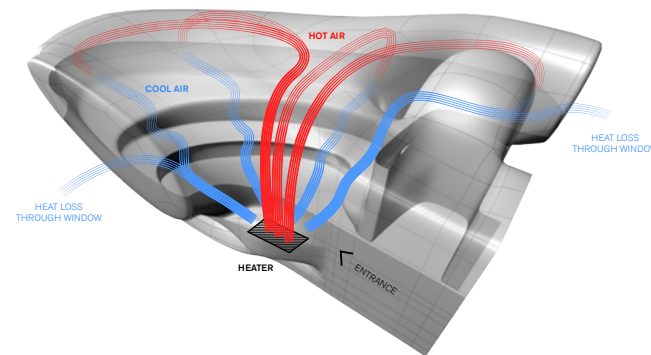
Grotto Sauna

Client: Withheld
Area: 800 ft² (75 m²)
Budget: Withheld
Type: Residential, Spa
Location: Georgian Bay, Canada

Perched on an island's edge in Georgian Bay, Ontario, the Grotto Sauna is a feat of old-world craftsmanship and new-world sustainability made possible by cutting-edge software and fabrication technology. It is a sculpted space, a sensual experience, and a sophisticated exercise in building science.

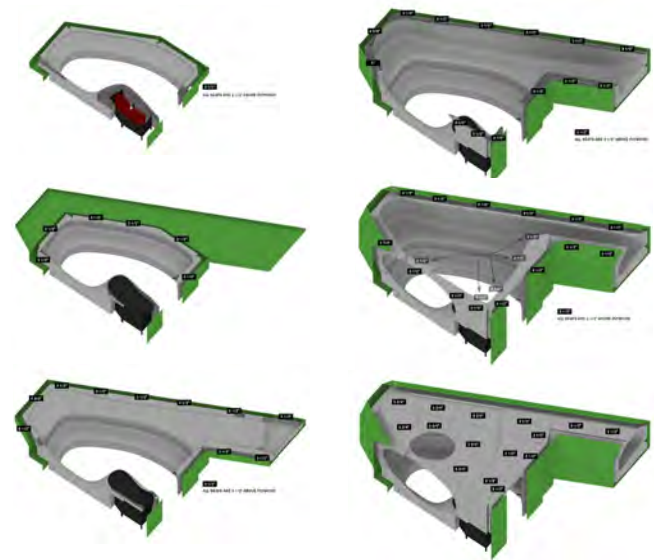
Inspired by an Italian grotto, our design pays homage to the rugged extremities of the northern Canadian landscape. To the extent that the objective was to tell an architectural story of escape and refuge, we conceived of a design that marries contrasts to transport visitors into an otherworldly sanctum. A simple but dignified exterior built from charred cedar prepared using the traditional Japanese Shou Sugi Ban method conveys a weathered appearance; it's as if the building has been hidden in plain sight for centuries. By contrast, the warm, curved interior simultaneously emulates Lake Huron's waves and mirrors the Precambrian shield—a soft, undulating rock surface that has been worn over billions of years. The luminous glow of the interior wood enhances the sun-kissed sauna experience, while the pre-aged exterior veils the intimacy of that experience from the world.

Importantly, the Grotto established a successful methodology for addressing the challenges of building ambitious architecture in remote and environmentally sensitive regions. Prefabricating the sauna components off-site minimized the effects of construction on the environment. Site impact was further minimized by a 3D scan of the landscape, which enabled optimal positioning of the structure in the rock while retaining optimum views of the sunset. We collaborated directly with our fabrication partner to develop new prototyping and milling methods to achieve the aesthetic vision and maximize the available wood.



3D Laser Scans

The remote and rocky site conditions posed logistical and ecological challenges that required inventive solutions. In order to understand and work with the site's rigorous requirements, we conducted a 3D laser scan of the rock that became integral to design development as well as the fabrication and construction phases. The scan provided a meticulously accurate blueprint from which to generate physical prototypes and digital models; it also facilitated off-site fabrication, thereby minimizing the environmental impact of construction.



CNC Milling

We collaborated directly with our fabrication partner, MCM Inc., to develop new prototyping methods and with engineers to develop novel software patches for the toolpaths. The latter enabled the fabricators to override the automated limitations of the CNC machinery and ultimately use it as a sculpting tool to achieve the aesthetic vision, all the while maximizing the available wood and milling along the grain so that the pieces would match one another. The successful production of the panels also had to anticipate the method by which they would be sequentially assembled. This required our team to develop a sophisticated installation plan in tandem with the fabrication process.

