

## Canada's National Building Stone: Tyndall Stone from Manitoba

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Tyndall Stone is a distinctively mottled and highly fossiliferous dolomitic limestone that belongs to the Selkirk Member of the Red River Formation, of Late Ordovician (Katian) age. It has been quarried at Garson, Manitoba, 37 km northeast of Winnipeg, since 1895, although other quarries in the area go back to 1832. Tyndall Stone, so named because it was shipped by rail from nearby Tyndall, is currently produced by Gillis Quarries Limited. It has various uses as a dimension stone. Large slabs, most often cut parallel to bedding, face the exterior or interior of many important buildings such as the Parliament Buildings and the Canadian Museum of Civilization in the Ottawa area, the Empress Hotel in Victoria, and the provincial legislatures in Winnipeg and Regina, as well as many commercial buildings especially in the Canadian prairies.

At the quarries, the stone is cut vertically, using eight foot (2.44 m) diameter saws mounted on one hundred foot (30.5 m) tracks, then split into 6–8 tonne blocks that are moved using front-end loaders. Gillis Quarries operates a large finishing plant with an area of about 4000 m<sup>2</sup>. Stone is processed along advanced cutting lines that feature eight primary saws and six gantry saw stations, allowing it to be made into a variety of sizes, shapes, and finishes. The Selkirk Member is 43 m thick and the stone is extracted from a 6–8 m thick interval within the lower part. The upper beds tend to be more buff-coloured than the grey lower beds due to weathering by groundwater. The stone is massive, but extracted blocks are less than ~1m thick due to splitting along stylolites. Consisting of bioturbated wackestone to packstone, the Tyndall Stone was deposited in a shallow-marine environment within the photic zone, in the central part of the vast equatorial epicontinental sea that covered much of Laurentia. Scattered thin, bioclastic grainstone lenses record brief, low-energy storm events. The distinctive mottles are formed by dolomitized burrows belonging to *Thalassinoides*, which were interconnected galleries likely made by arthropods after the sediment became somewhat consolidated.

Slabs bearing fossils are typically avoided in construction for esthetic reasons and because some impart weaknesses. Such slabs have, however, become increasingly popular for decorative surfaces not exposed to the elements, since the macrofossil content is so striking. Most common are receptaculitids, followed by solitary rugose corals, stromatoporoid sponges, colonial rugose and tabulate corals, brachiopods, bryozoans, gastropods, cephalopods, and trilobites; echinoderm ossicles are common in the muddy matrix. Fossil relative abundances vary stratigraphically, suggesting that subtle environmental changes took place over time.