

Rocks and Trees: Adirondack Building Materials

The Adirondack Mountains are formed of a still rising dome of rock and covered with trees, providing a nearly limitless supply of building materials. The High Peaks in the center of the Park are anorthosite—an incredibly durable igneous rock that is 90% or more plagioclase feldspar and visually resembles granite. Granite bedrock—also an igneous rock composed of feldspar and other minerals—dominates in the remainder of the Park. There are also areas of sandstone, such as the distinctive red Potsdam sandstone found on the northern edge, and several areas of coarse medium gray dolomitic limestone, which looks nothing like the familiar pale, fine-grained Indiana limestone. On the surface are glacial erratics: loose boulders left behind by retreating glaciers that may be different from the bedrock. Thus, every Adirondack builder had access to durable building stone, in at least one of three forms: fieldstone, cobblestone, or quarried stone.

Plowing fields would turn up loose stone—hence the eponymous “fieldstone”—or it could be intentionally gathered from the ground. By its nature fieldstone varies considerably in shape and size; it could be used as found, broken up, split from rock outcroppings, or shaped as needed with chisel and hammer. It included both sharp-edged stones and those rounded by erosion, which were together often mixed in the masonry. Even a relatively unskilled builder could fit the stones together for a well-interlocked wall without an excess of mortar, which the builder generally had to buy, due to the limited limestone available locally to produce lime for mortar. Virtually all foundations for Adirondack buildings in the 1700s and 1800s were built of fieldstone, as were fireplaces and chimneys. Though there was limited local production of brick in the Adirondacks, where clay was available, no Adirondacker in his right mind would pay to buy and transport brick from any distance when stone, a better material, was free and at hand. In the late 1800s the exploitation of fieldstone for its natural characteristics and variations became a key design principle of the emerging Adirondack Rustic style of architecture.



Fieldstone



Cobblestone



Quarried Stone

Cobblestones, or river rocks, could also be gathered from creeks and riverbeds. These rounded stones, however, did not bond as well as the more irregular fieldstone and skilled masons still used square-edged fieldstone for the corners of walls. Cobblestone masonry also required more mortar. Cobblestone, therefore, was more an aesthetic than practical choice and only became popular with the Craftsman movement in the early 1900s.

Commercial stone quarries opened fairly early near Adirondack communities with sufficient population and wealth to provide a market for cut stone, primarily in the eastern region of the Park. Several companies still quarry granite in this region today, though primarily producing smaller and more irregular shapes than historically. Stone from a commercial quarry was typically cut and sawn into rectilinear blocks and laid up in a coursed or random ashlar pattern. Coursed ashlar has continuously aligned horizontal joints, and random ashlar has discontinuous joints both horizontally and vertically. The exposed surface of the stone could be left as it came from the quarry, or dressed individually by the mason to the desired finish. Even a very rough finish, aptly called “rusticated,” could be produced for a rustic aesthetic. The cost of quarried stone would suggest it was primarily used in the Adirondacks for major buildings, but it was not exclusively so. For example, all around the Warrensburg area foundations of large cut granite blocks appear on ordinary houses within the period of the quarry operations. Local availability apparently made quarried stone competitive with other options, at least until concrete block arrived.

Trees were initially used for construction in their elemental form—as logs and branches—not for any aesthetic reason but because it was easiest. Logs could be cut, cleaned of branches, notched and stacked using only an axe and manpower. Three methods of log construction were used in the Adirondacks: stacked log construction, vertical log construction, and structural framing with logs. Settlers typically used horizontally stacked logs, with



A. P. Morse house, Minerva, c. 1814

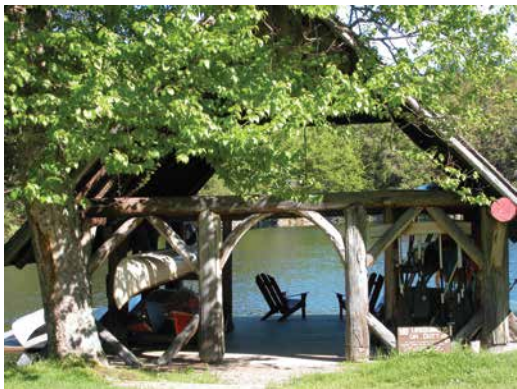
interlocking corners, for their first houses. Most early sportsmen’s camps were built with the same method. Logs were usually hewn square (using an adze) for the former buildings and left round for the latter. The reason for the difference is significant. It reflects the dual log cabin narratives in the Adirondacks: the log cabin as shelter and the log cabin as symbol. For settlers, a log house was a primitive, first shelter which the owner would naturally wish to modify or replace as soon as he was financially able to do so. Until then, neat squared logs presented a more finished appearance, and they were also ready to receive milled and painted clapboard. Eventually the vast majority of these first homes were replaced. One rare example of an 1800s Adirondack log house still stands at the Adirondack Museum, which was constructed around it (**A.61**); another is still in use at Timberlock (**E.58**). On the other hand, seasonal camp builders in the late 1800s saw the log building as an aesthetic choice of rusticity, using logs in their natural round form and typically exaggerating the log ends in various ways. Interestingly, the same dichotomy played out in other types of log buildings, with the few log churches, hotels, or other building types built only by outsiders. From the 1920s onward the log cabin experienced a significant revival in the Adirondacks (and in the United States) as a symbol of American pioneer architecture.

Standing logs on end side by side to form solid walls, known as palisade construction, was far less common than stacking. This method was likely introduced to the Adirondacks by lumberjacks from Quebec who immigrated in substantial numbers in the 1800s to work in the logging industry. The logs ends are toe nailed into a flattened log sill plate and a top plate; second floor or roof framing laterally braces these structural walls. While occasional palisade construction buildings appear elsewhere in the Adirondacks, there is a concentration around Big Moose (**Tour C-2**).



Pine Knot summer kitchen with sapling frame and bark roofing, S. R. Stoddard, c. 1880

Constructing structural frames from logs was a medieval European method that joined squared logs to one another with mortise-and-tenon joinery secured with wood pegs, making a rigid three-dimensional frame. The common name for this method is heavy timber framing—the timbers are simply logs that have been sized and shaped. Smaller wood members at intervals inside the wall frames are not load-bearing but act as nailers for sheathing and wall finishes. Heavy timber was the sole method for framing wood buildings in the U.S. until the balloon frame began to come into use in the mid-1800s, permitting framing of an entire building using many small, sawn members. Light wood, or stud, framing methods became ubiquitous after the Civil War and most American builders never looked back to the old method if sawn lumber was available—except in the Adirondacks. In the mid- and late 1800s, guides who built camps for sportsmen in the woods or on remote lakes still built with what they could harvest by hand. For temporary camps, small logs and saplings were easily lashed or nailed together to make framed open-sided structures, which they would then roof with sheets of spruce bark. Traditional stacked log construction was better suited for a permanent or multiseason camp structure. Even then, labor was reduced by leaving the stacked logs round since they need never be dressed up with milled siding boards. The rusticity of the guides structures appealed to William West Durant who then used unpeeled logs to frame his dining pavilion at Camp Pine Knot (**C-3.1**), his open Marion River Carry restaurant and other buildings. Natural log framing then became an integral part of the Adirondack Rustic Style for open buildings of all kinds, as well as porches. Forgoing the labor-intensive mortise-and-tenon joinery, logs were simply joined with spikes. Roofs in both open and enclosed buildings were also usually framed with logs, covered with boards and roofed with wood shingles.



Log framed boathouse, Camp Sagamore

Besides the trunks, other parts of the tree were suitable for a variety of mostly nonstructural building uses. Small saplings and cut branches were useful for fences, furniture, railings and decorative “twigwork” that became a signature of the Adirondack Rustic Style. Log cut offs could be used for newel posts, half log steps, or turned into wood shingles or shakes. Whole logs, of course could be turned into just about anything at the local sawmill: light framing members, sheathing and roofing boards, floor boards, siding, and more.

Three distinctively Adirondack types of natural siding merit particular attention: bark sheet, half-log and slab log, and waney-edge boards. The bark used as a quick more or less waterproof siding and roofing material in guides’ shelters was adopted and refined by W. W. Durant at Pine Knot as an artistic material, installed in sheets with horizontal joints covered by half-log battens. It has proved to be a durable natural siding. Half logs—cut in half lengthwise—were also quickly adopted by Durant and others as an easy way to visually mimic actual log construction. Many architecturally significant structures of the late 19th and early 20th centuries that appear to be log construction, such as the Main Lodge at Great Camp Sagamore (**C.82**) and the Church of the Transfiguration (**A.55**) are, in fact, log siding on frame construction. Smaller diameter half-logs are also commonly used to create decorative patterns in log siding. Slab logs are the lengthwise cut offs resulting from squaring up logs at the mill, and thus thinner than a half log. They were used in the same manner as half-log siding but provide a flatter profile. Waney-edge siding, also called “brainstorm siding,” consists of boards milled to present the bark left on one edge. Its first documented use in the Adirondacks was at White Pine Camp in the early 1900s. It became, and remains, very popular as an economically “rustic” siding material.



Cedar Bark Siding



Twigwork



Waney-edge Siding

Adirondack forests are composed of mixed conifers and deciduous trees; different species suited different uses. Spruce was the structural material of choice for log construction and framing generally, due to its physical strength properties. White cedar, which is relatively decay resistant, was ideal for exterior use in various forms. Locally made roof shingles were almost always cedar, until metal roofing made inroads at the end of the 1800s, and asphalt shingles eventually stole the market. Cedar was also used at times for structural log framing—primarily for its good looks—and for components such as porch posts and railings. Both cedar and spruce bark are good siding material, but cedar is more aesthetically refined and more durable (with a feasible 100-year life cycle). Birch bark, being thin and not very durable, was generally reserved for interior and furniture work rather than exterior siding. White pine might also be used for siding, but not in preference to cedar. Birch, ash, maple, and the lowly balsam fir and hemlock woods, were best for interior uses such as flooring, walls, ceilings, millwork, doors and furnishings.

All an early Adirondack settler really needed to own in order to build a shelter was an axe. For a temporary shelter the basics were as follows: collect stones for a fire pit and to rest your logs on, cut logs for a floor, smaller trees or saplings for posts and rafters and lash them together, cover with sheets of bark, cover the floor with balsam boughs to sleep on, and make a support for your cooking pot and any necessary “furniture” from saplings and tree branches. Constructing a permanent, winter-ready log house took more time and work but utilized basically the same materials: fieldstone for foundations and fireplace, logs cut by axe for walls and chinked with moss, logs also for floor framing and roof joists, pit sawn planks for floor and roof boards (if boards cut at a sawmill could not be had), and split wood shingles for the roof. The only things the builder could not readily obtain from the land were masonry mortar, nails and window glass. By the mid 1800s, though, even nails and windows were available from factories right in the Adirondacks. In the later years of the century, the emerging standardization of lumber and other buildings materials, along with the cheap rail transportation of materials greatly diminished the wide reliance of Adirondack builders on their local materials—even entire house kits.

Image credits:

Courtesy of Chapman Historical Museum: Camp Pine Knot summer kitchen, c. 1880
Morse house, photo by Teresa Brannon Haley

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