



# **DIMENSION STONES**

## OF MENDENHALL LABORATORY



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ARTS AND SCIENCES

**SCHOOL OF EARTH SCIENCES**  
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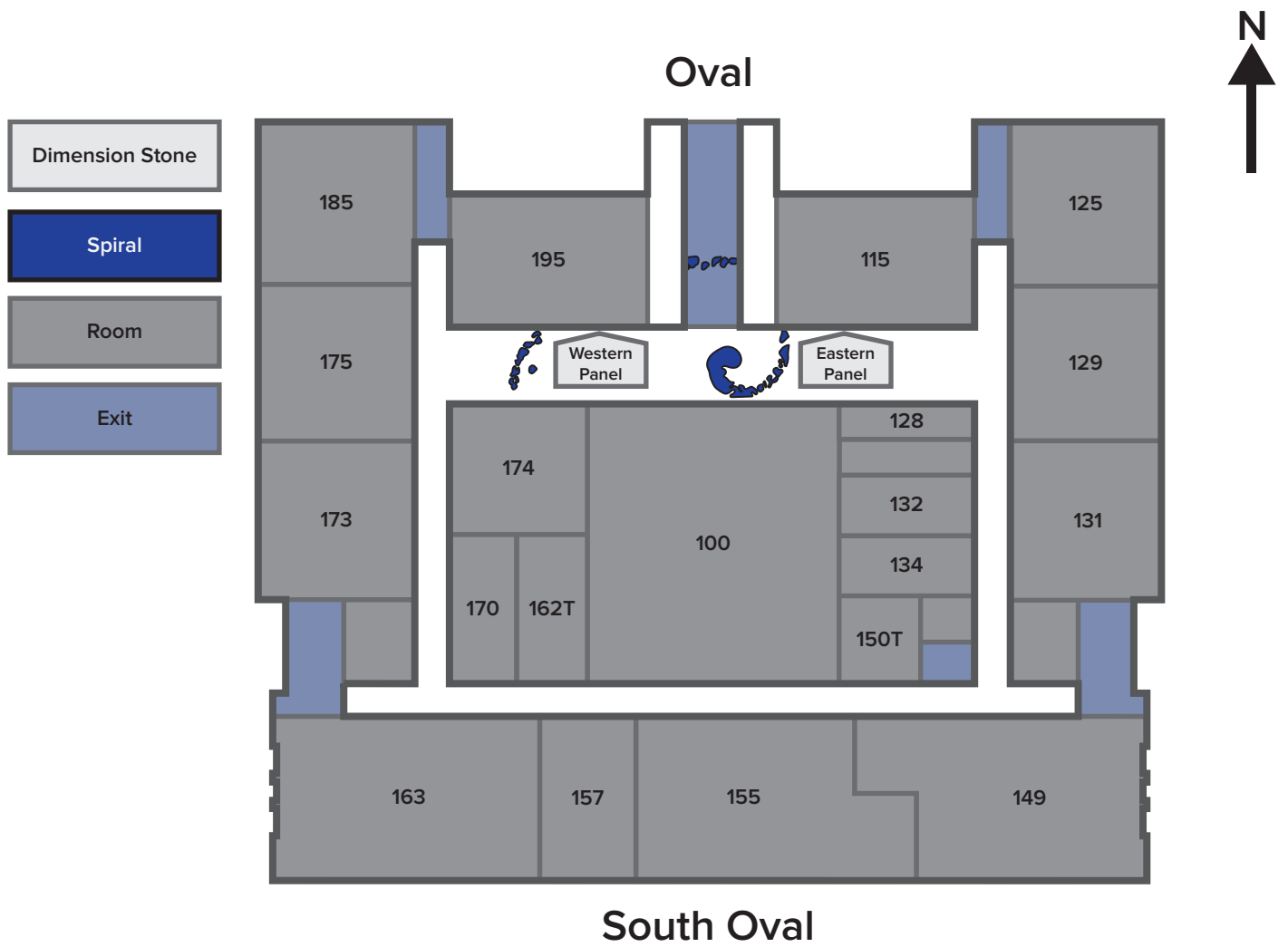
# Mendenhall Laboratory

First opened in 1905, Mendenhall Laboratory is noted for the “fossil-like” artwork on the first floor.

Mendenhall Laboratory was named for Dr. Thomas C. Mendenhall, a professor of physics and mechanics, was one of the first seven professors at the University when it first opened in 1873. The laboratory was originally constructed for the Department of Physics. On April 5, 1905, The Lantern reported that the building was officially “dedicated” when final exams were held on March 28. The original portion of the building is the center section; the east wing – in which the Department of English took up residence after its building burned down – was completed in 1914. The west wing was finished in 1922. An unofficial memorial to a quirky professor is also in Mendenhall: About 50 feet up the south wall is a lighter-colored brick marking what used to be a hole. Professor Benjamin Franklin Thomas, who helped plan the design of the building, ordered for it to have the hole in that location and for the building to be turned at an angle in relation to Orton Hall so sunlight could fall directly onto his demonstration table. A wooden door was used to prevent rain from coming in—until the hole was permanently filled during renovations in 1929. In 1950 as the Department of Physics moved out to new quarters, the need for more space prompted the Department of Geology’s consideration of acquiring Mendenhall Laboratory, which they successfully obtained in the years 1951 through 1960.

Mendenhall Laboratory was renovated to its current state in 1995, when the newly re-named School of Earth Sciences commissioned artist David Culver to give the building its characteristic geologic flair. “Spiral”, located in the first floor lobby, is composed of inlaid stone along the floor, a stone wall, and a series of geology panels with samples of stones and minerals incorporated along the walls of the building.

# First floor



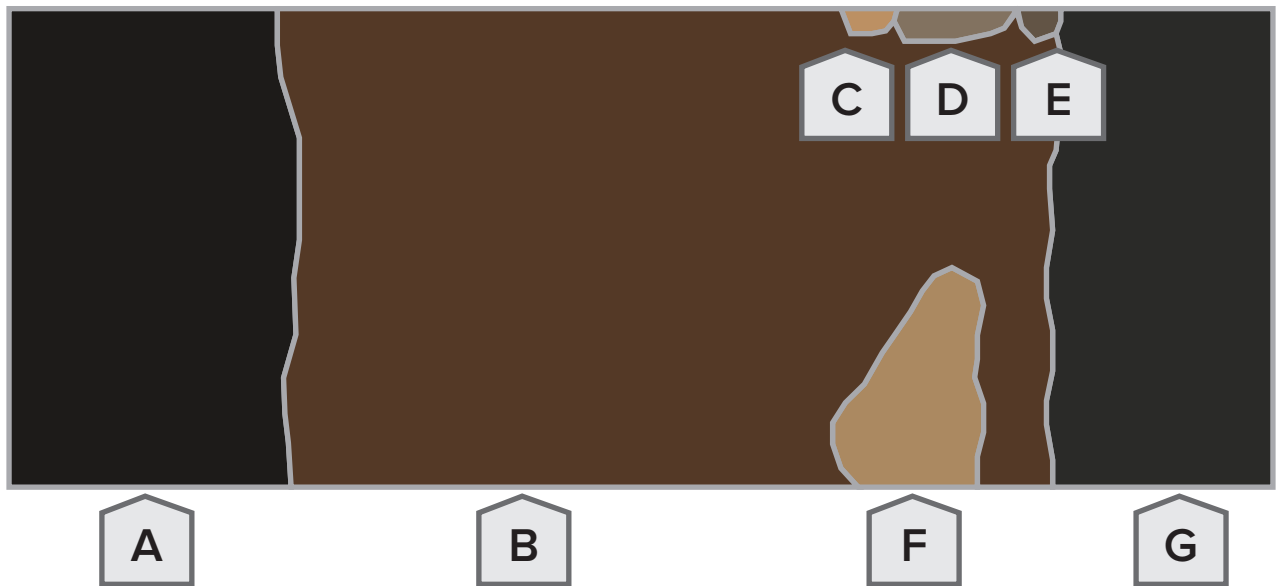
# Spiral on lobby floor

“Spiral” is made up of small slabs of rocks that are on display in the lobby and hung on the walls on the second and third floors.



## Western Panels

- A. Cambrian Black, St. John, Quebec. Anorthosite, Middle Proterozoic (ca. 1.1 Ga). Visible dark plagioclase laths with interstitial pyroxenes and oxides (with metallic polish). From the Grenville Province which is exposed from Labrador, along the north shore of the St. Lawrence River down into the Adirondack Mountains of upstate New York.
- B. Slate. Minnesota. Proterozoic.
- C. Sandstone.
- D. Granite.
- E. Granite.
- F. Granite, medium grained, with interlocking fabric and visible quartz, feldspars, biotite, and hornblende.
- G. Same as Panel A.



## Eastern Panels

H. Mountain Green (Cold Spring Green), Jay, NY. Anorthosite, Middle Proterozoic (ca. 1.1 Ga). Anorthosite displaying a metamorphic fabric. Granular, mottled, light-colored part of the rock consists of plagioclase; the dark areas are made up of pyroxenes with conspicuous red garnet grains, which commonly form rims enclosing pyroxenes. From the southwestern exposures of the Grenville Province in the Adirondack Mountains.

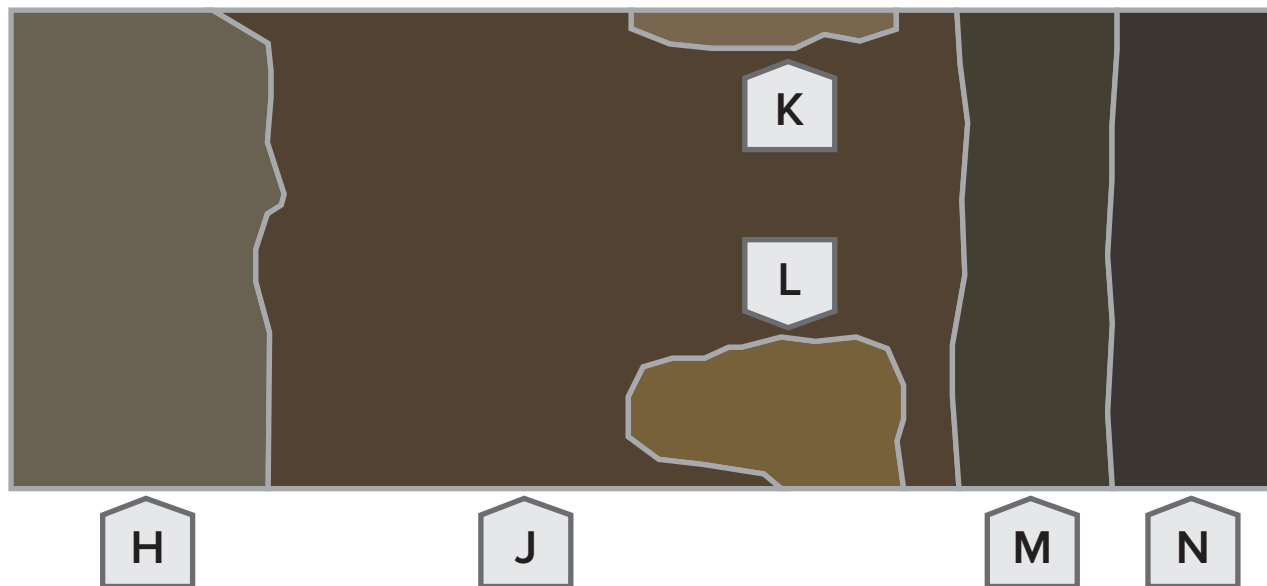
J. Same as Panel Bin Western Panels.

K. Granite.

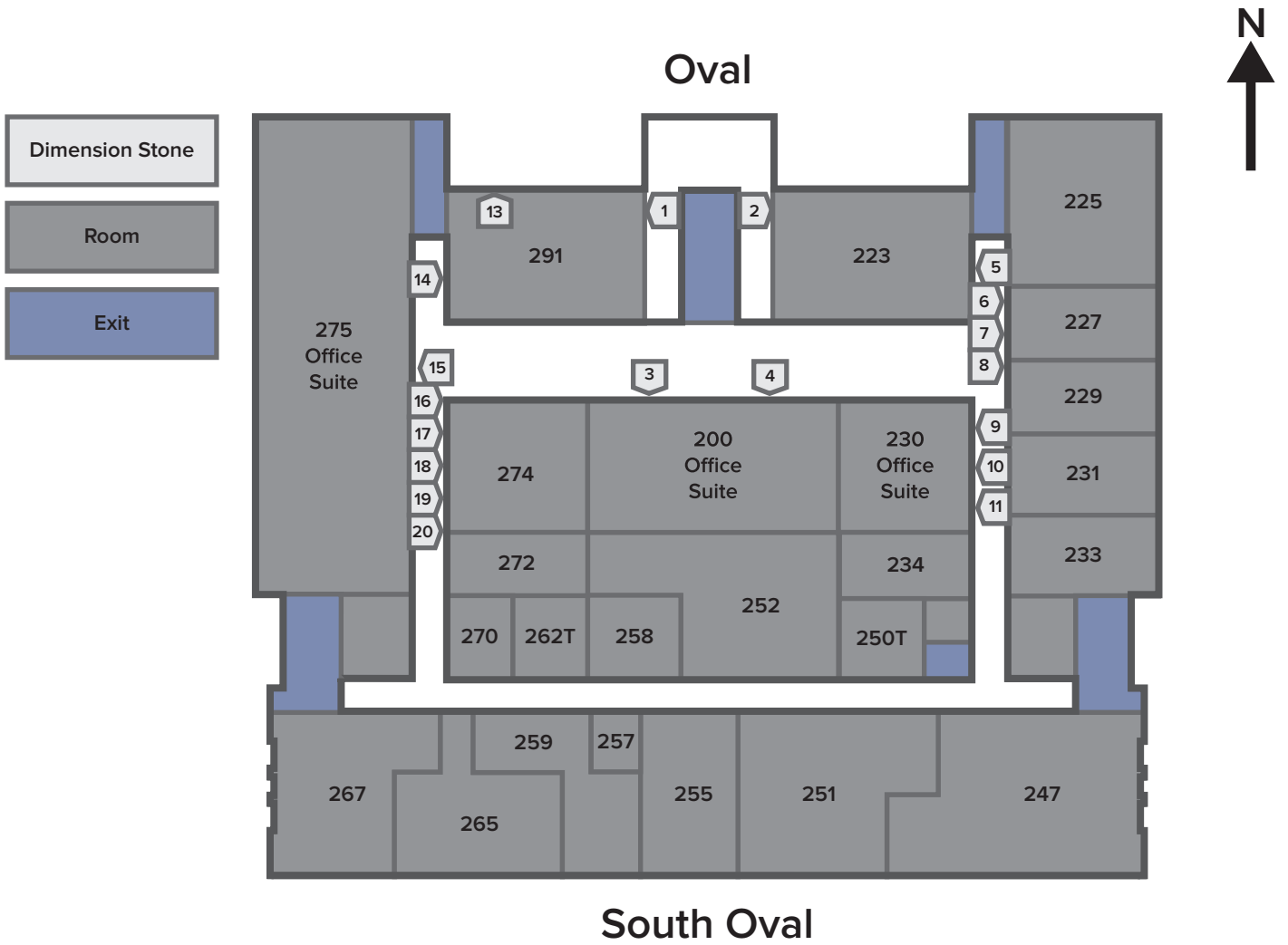
L. Granite, medium-grained, with interlocking fabric and visible quartz, plagioclase, potassium feldspar, and biotite.

M. Granite, dark grey, medium grained, with interlocking fabric and visible, plagioclase, quartz, potassium feldspar, biotite and hornblende.

N. Same as Panel M.



# Second floor



## *Stairwell to the second floor*

### **1. “Quarry Red”. Llano, TX.**

**Name:** Granite.

**Age:** Middle Proterozoic (1.24 Ga).

**Slab:** Granite porphyry with weakly aligned, coarse-grained pink potassium feldspar some of which has visible zoning and simple Carlsbad twins; interstitial gray translucent quartz, white plagioclase and ferromagnesian minerals.

**Microscopy:**

*Fabric:* Hypidiomorphic-granular, with mafic minerals and accessory minerals in clots.

*Texture:* Coarse grained.

*Minerals:* Quartz, potassium feldspar (microcline, orthoclase microperthite), minor plagioclase (oligoclase), sodic amphibole, biotite, accessory sphene, apatite, zircon.

**Geologic setting:** The Precambrian rock exposures in this region of Texas are near the southern end of a belt of Grenvillian age basement. This province extends from Labrador, along the north shore of the St. Lawrence River, and through the Adirondack Mountains, but is cut out by the Appalachian Orogen beneath Ohio. The Grenville Province reappears in Oklahoma and Texas.

### **2. Anorthosite. Locality not known, although likely Southern Ontario or Quebec.**

**Age:** Middle Proterozoic.

**Slab:** Coarse-grained rock with euhedral labradorite showing iridescent colors and albite twinning; interstitial ferromagnesian minerals (pyroxenes) and opaques.

**Geologic setting:** From one of the numerous anorthosite bodies in the Grenville Province.

## *Main second floor*

### **3. “Rainbow Gneiss”. Morton, MN.**

**Name:** Granite gneiss (Morton Granite Gneiss).

**Age:** Archean (2.6 Ga or older).

**Slab:** The slab is a fine example of a migmatite. Visible minerals include quartz, feldspars and biotite. Strong gneissic foliation wrapping around large clots of dark ferromagnesian minerals and elongated lenses of igneous-textured coarse grained “granite” with large quartz and potassium feldspar. These “granite” lenses constitute anatectic melts produced at relatively high metamorphic conditions ( $T \approx 650^{\circ}\text{C}$ ,  $P \approx 4\text{-}8\text{ kb}$  or  $13\text{-}26\text{ km}$  depth).

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Gneissic foliation.

*Minerals:* Quartz, plagioclase, potassium feldspar (microcline), biotite, trace of green hornblende, accessory apatite, zircon, opaques.

**Geologic setting:** Archean Superior Province.



#### 4. “Lake Placid Blue”. Jay, NY.

**Name:** Anorthosite.

**Age:** Middle Proterozoic (1.13 Ga).

**Slab:** The slab shows a weak metamorphic foliation in which aggregates of ferromagnesian minerals are dispersed in granular plagioclase with two contrasting colors corresponding to the two varieties seen microscopically. Scattered relict dark plagioclase megacrysts.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Granoblastic.

*Minerals:* Plagioclase (calcic andesine; one variety shows albite twinning, the other is essentially devoid of twinning and carries prominent oriented opaque exsolution rods), augite, minor brown hornblende (replacing augite), scapolite, accessory zircon, apatite.

**Geologic setting:** The Adirondack Mountains are part of the Grenville Province. The rocks have been metamorphosed to at least the amphibolite-granulite transition, thus causing the recrystallization of the euhedral plagioclase to a granular aggregate.

#### 5. “Cherokee White”. Nelson, GA.

**Name:** Marble.

**Age:** Ordovician.

**Slab:** Coarse grained white marble.

**Geologic setting:** From the Murphy Marble Belt formed during the Taconic Orogeny.

#### 6. “Mountain Green” (Cold Spring Green). Jay, NY.

**Name:** Anorthosite.

**Age:** Middle Proterozoic (1.15 Ga).

**Slab:** Medium to coarse-grained, slightly gneissic rock with granular plagioclase and clots and stringers of ferromagnesian minerals.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Weak gneissic foliation; ferromagnesian clots.

*Minerals:* Plagioclase (andesine; two varieties, one with albite twinning and the other almost devoid of twinning and showing oriented opaque exsolution rods), pale green augite, pleochroic hypersthene, pink garnet, biotite, trace hornblende.

**Geologic setting:** This anorthosite, like Slab 4, comes from a metamorphosed anorthosite in the Adirondack Mountains and is part of the Grenville Province. The rock was metamorphosed to the granulite grade ( $P > 7 \text{ Kb}$  or  $23 \text{ km}$  depth,  $T > 700^\circ\text{C}$ ), as shown by the presence of two pyroxenes.

**7. “Barre Gray”. Barre, VT.**

**Name:** Granodiorite.

**Age:** Devonian.

**Slab:** Medium grained Granodiorite with an interlocking fabric of quartz, feldspars and biotite.

**Geologic setting:** From a pluton emplaced into Lower Devonian staurolite-kyanite grade pelitic and psammitic schists during the Acadian Orogeny.

**8. “Cambrian Black”. St. John, Quebec.**

**Name:** Anorthosite (Lake St. John Anorthosite).

**Age:** Middle Proterozoic (1.15 Ga).

**Slab:** Coarse-grained, black tabular plagioclase crystals with interstitial ferromagnesian minerals and opaques (metallic polish).

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Large plagioclase laths with interstitial pyroxene and opaques.

*Minerals:* Plagioclase (labradorite) with extensive opaque inclusions, augite, pink orthopyroxene (hypersthene), opaques, biotite, apatite.

**Geologic setting:** This rock comes from one of the largest anorthosite bodies of the whole Grenville Province. The dark color of the plagioclase is due to the opaque inclusions.

**9. “Green County” (Thermal finish). Greene. Co., GA.**

**Name:** Biotite granite (Siloam Granite).

**Age:** Early Permian (269 Ma).

**Slab:** Porphyritic biotite granite with phenocrysts of potassium feldspar in a matrix of quartz, potassium feldspar, plagioclase and biotite. The slab has a weak igneous lamination and streaks rich in mafic minerals.

**Microscopy:**

*Fabric:* Hypidiomorphic-granular.

*Texture:* Coarse grained, porphyritic.

*Minerals:* Quartz (strained), plagioclase (oligoclase), potassium feldspar (microcline, orthoclase, perthite), biotite, accessory sphene, zircon.

**Geologic setting:** From a pluton emplaced during the Alleghanian Orogeny into the Charlotte Belt, which is a sequence of Cambrian metasedimentary and metavolcanic rocks metamorphosed during the Acadian Orogeny (425 Ma, Silurian).

**10. “Columbia Pink”. Columbia, NH.**

**Name:** Granite (Conway Granite).

**Age:** Early Jurassic.

**Slab:** Medium to coarse-grained granite with interlocking fabric and visible clear quartz grains, pink potassium feldspar, white plagioclase, and minor biotite.

**Geologic setting:** From a pluton which is part of the White Mountain Magma Series of New England and was emplaced into garnet-grade slates and phyllites of Ordovician age.

**11. “Missouri Red”. Ironton, St. Francois Mountains, MO.**

**Name:** Granite.

**Age:** Middle Proterozoic (ca. 1.48 Ga).

**Slab:** coarse-grained granite with scattered coarser pink potassium feldspar crystals in grey quartz, pink potassium feldspar and minor white plagioclase.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Hypidiomorphic-granular.

*Minerals:* Quartz (strained), potassium feldspar (microcline microperthite), minor plagioclase (oligoclase), accessory opaques, fluorite; secondary chlorite.

**Geologic setting:** The St. Francois Mountains are the result of domal uplift which has exposed rocks belonging to the Eastern Granite-Rhyolite Province of the Proterozoic Transcontinental Province of the U.S.

**12. “Osage”. Granite, OK.**

**Name:** Granite (Wichita Granite Group).

**Age:** Latest Proterozoic-early Cambrian.

**Slab:** Coarse grained granite with visible grey quartz and pink alkali-feldspar.

**Geologic setting:** The small granite outcrops and other plutonic rocks in southwestern Oklahoma form the only known rocks of this age between the Appalachians and the Rocky Mountains. The Wichita Granite Group is an uplifted basement block on the southern flank of the Southern Oklahoma aulacogen and originally formed part of its floor.

**13. Orthoceras-bearing limestone. Erfoud, Morocco.**

**Name:** Orthoceras Limestone.

**Age:** Middle Devonian.

**Slab:** Packstone with dispersed orthoceras.

**Geologic setting:** Southern end of the Anti-Atlas Mountains in the Tafilalet area of the Atlas Mountains of Morocco and form part of a limestone-shale sequence deposited on the southern margin of the Tethys Sea. The beds, dipping 30° – 50°S are part of the south limb of an anticline formed during the Hercynian (Alleghanian) Orogeny as a result of North America/Africa-Europe collision.

**14. “Charcoal Gray”. St. Cloud, MN.**

**Name:** Granodiorite.

**Age:** Early Proterozoic (1.8 Ga).

**Slab:** Medium grained granodiorite with visible quartz, plagioclase, potassium feldspar, minor biotite, and hornblende; small clots of mafic minerals are sparsely distributed through the rock.

**Microscopy:**

*Texture:* Medium grained.

*Fabric :* Hypidiomorphic-granular with clots of mafic minerals.

*Minerals:* Quartz, plagioclase (sericitized oligoclase-andesine), potassium feldspar (microcline, perthitic orthoclase), biotite, green hornblende, accessory, sphene, apatite, zircon, opaques.

**Geologic setting:** From a pluton that is possibly related to the Penokean Orogeny on the east flank of the Mid-Continent Rift system.

**15. Granite. Juperona, Brazil**

**Name:** Pegmatitic granite.

**Age:** Precambrian.

**Slab:** Upper quarter is a coarse grained granite pegmatite with quartz and potassium feldspar, the central part is a coarse grained granite with quartz, potassium feldspar and plagioclase, and the lower quarter is a garnet-bearing granitic rock.

Geologic setting: From the Brazilian shield.

**16. “Cedar Rose”. Concord, NC.**

**Name:** Syenite.

**Age:** Early Devonian ( 404 ± 21 Ma).

**Slab:** Syenite showing abundant coarse potassium feldspar crystals with interstitial potassium feldspar and traces of quartz and ferromagnesian minerals.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Hypidiomorphic-granular.

*Minerals:* Potassium feldspar (microcline microperthite), minor sodic amphibole, clinopyroxene, trace quartz, accessory zircon, opaques.

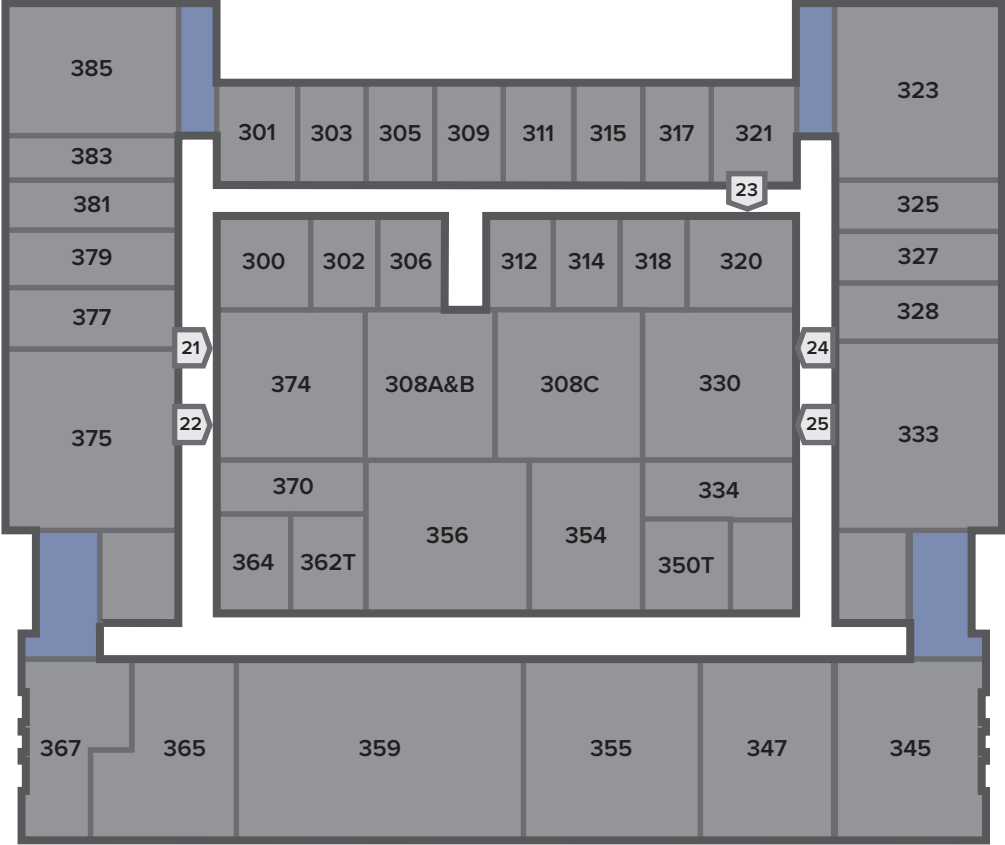
**Geologic setting:** Part of a gabbro-syenite complex emplaced into the Charlotte Belt during the Acadian Orogeny.

# Third floor

Oval



Dimension Stone
Room
Exit



South Oval

**17. “Variegated Pink”. Tate, GA.**

**Name:** Marble.

**Age:** Ordovician.

**Slab:** Pink and gray banded marble with prominent layers of phlogopite and calc-silicate minerals.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Granoblastic with irregular contorted bands and trains of non-carbonate minerals.

*Minerals:* Calcite, minor phlogopite, epidote, spinel, chlorite.

**Geologic setting:** From the Murphy Marble Belt formed during the Taconic Orogeny.

**18. “Dakota Rose”. Milbank, SD.**

**Name:** Granite.

**Age:** Archean (2.6 Ga).

**Slab:** Coarse grained granite with interlocking fabric and visible grey quartz, pink potassium feldspar with sparse Carlsbad twinning, and minor plagioclase and biotite.

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Hypidiomorphic-granular.

*Minerals:* Quartz, potassium feldspar (orthoclase microperthite, microcline), minor plagioclase (oligoclase), biotite, accessory apatite, zircon, opaques; abundant myrmekite.

**Geologic setting:** From the Archean Superior Province.

**19. “Cambrian Black”. St. John, Quebec.**

**Name:** Anorthosite (Lake St. John Anorthosite).

**Age:** Middle Proterozoic (1.1 Ga or older).

**Slab:** Coarse-grained, black tabular plagioclase crystals with interstitial ferromagnesian minerals and opaques (metallic polish).

**Microscopy:**

*Texture:* Coarse grained.

*Fabric:* Large plagioclase laths with interstitial pyroxene and opaques.

*Minerals:* Plagioclase (labradorite), augite, pink orthopyroxene (hypersthene), opaques, biotite, apatite

**Geologic setting:** From one of the largest anorthosite bodies of the whole Grenville Province.

**20. Bethel White. Bethel, VT.**

**Name:** Granite.

**Age:** Devonian.

**Slab:** Medium-grained white granite with visible quartz, feldspars, and minor muscovite; scattered clots of ferromagnesian minerals.

**Geologic setting:** From a pluton emplaced into Lower Devonian garnet-grade pelitic and psammitic schists during the Acadian Orogeny.

**21. “Georgia Grey” (Pewter). Elberton, GA .**

**Name:** Granite (Elberton Batholith).

**Age:** Early Carboniferous (350 Ma).

**Slab:** Medium grained granite with interlocking fabric of quartz, plagioclase and potassium feldspar, and minor biotite.

**Microscopy:**

*Fabric:* Hypidiomorphic granular.

*Texture:* Medium to coarse grained.

*Minerals:* Quartz (commonly strained and recrystallized), potassium feldspar (orthoclase microperthite, microcline), minor plagioclase (oligoclase), biotite, accessory opaques.

**Geologic setting:** From a pluton emplaced into amphibolite facies metamorphic rocks during the late stages of the Acadian Orogeny.

**22. “Salisbury Pink” (Carolina Red). Salisbury, NC.**

**Name:** Granodiorite.

**Age:** Early Devonian (414 ± 4 Ma).

**Slab:** Medium grained granodiorite with abundant pink potassium feldspar, quartz, subordinate plagioclase and traces of ferromagnesian minerals; the slab has a suggestion of igneous lamination.

**Microscopy:**

*Texture:* Medium grained.

*Fabric:* Hypidiomorphic-granular with weak alignment of crystals.

*Minerals:* Quartz (strained), plagioclase (sodic andesine), potassium feldspar (orthoclase microperthite, minor microcline), accessory opaques.

**Geologic setting:** From a post-tectonic pluton emplaced during the Acadian Orogeny into the Carolina Slate Belt which is a sequence of metasedimentary and metavolcanic rocks containing Cambrian fossils and metamorphosed (≈ 485 Ma) during the Taconic Orogeny.

**23. “Pennsylvania Black”. St Peters, Chester Co., PA**

**Name:** Diabase.

**Age:** Early Jurassic ( $\approx$  200 Ma).

**Slab:** Medium grained diabase with plagioclase and ferromagnesian minerals (pyroxenes); one of the slabs shows flow textures.

**Microscopy:**

*Fabric:* Diabasic texture.

*Texture:* Medium grained.

*Minerals:* Plagioclase (calcic labradorite), faintly pleochroic orthopyroxene with minor exsolution lamellae, augite with minor exsolution lamellae, minor biotite, opaques, trace granophyre.

**Geologic setting:** From one of the many diabase sills that are part of the tholeiitic flood basalt province associated with opening of the North Atlantic.

**24. “Green County”. Greene Co., GA.**

**Name:** Biotite granite (Siloam Granite).

**Age:** Early Permian (269 Ma).

**Slab:** Porphyritic biotite granite with phenocrysts of potassium feldspar in a matrix of quartz, potassium feldspar, plagioclase and biotite. The slab has a weak igneous lamination and streaks rich in mafic minerals.

**Microscopy:**

*Fabric:* Hypidiomorphic-granular

*Texture:* Coarse grained, porphyritic.

*Minerals:* Quartz (strained), plagioclase (oligoclase), potassium feldspar (microcline, orthoclase, perthite), biotite, accessory sphene, zircon.

**Geologic setting:** From a pluton emplaced during the Alleghanian Orogeny into the Charlotte Belt which is a sequence of metasedimentary and metavolcanic rocks metamorphosed during the Acadian Orogeny (425 Ma, Silurian).

**25. “Barre Gray”. Barre, VT.**

**Name:** Granodiorite.

**Age:** Devonian.

**Slab:** Medium grained granodiorite with an interlocking fabric of quartz, feldspars and biotite.

**Geologic setting:** From a pluton emplaced into Lower Devonian staurolite-kyanite grade pelitic and psammitic schists during the Acadian Orogeny.



**23. “Pennsylvania Black”. St Peters, Chester Co., PA**

Name: Diabase.

Age: Early Jurassic ( $\approx$  200 Ma).

Slab: Medium grained diabase with plagioclase and ferromagnesian minerals (pyroxenes); one of the slabs shows flow textures.

Microscopy:

Fabric: Diabasic texture.

Texture: Medium grained.

Minerals: Plagioclase (calcic labradorite), faintly pleochroic orthopyroxene with minor exsolution lamellae, augite with minor exsolution lamellae, minor biotite, opaques, trace granophyre.

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Slab: Porphyritic biotite granite with phenocrysts of potassium feldspar in a matrix of quartz, potassium feldspar, plagioclase and biotite. The slab has a weak igneous lamination and streaks rich in mafic minerals.

Microscopy:

Fabric: Hypidiomorphic-granular

Texture: Coarse grained, porphyritic.

Minerals: Quartz (strained), plagioclase (oligoclase), potassium feldspar (microcline, orthoclase, perthite), biotite, accessory sphene, zircon.

Geologic setting: From a pluton emplaced during the Alleghanian Orogeny into the Charlotte Belt which is a sequence of metasedimentary and metavolcanic rocks metamorphosed during the Acadian Orogeny (425 Ma, Silurian).

**25. “Barre Gray”. Barre, VT.**

Name: Granodiorite.

Age: Devonian.

Slab: Medium grained granodiorite with an interlocking fabric of quartz, feldspars and biotite.

Geologic setting: From a pluton emplaced into Lower Devonian staurolite-kyanite grade pelitic and psammitic schists during the Acadian Orogeny.

