

Exploration 17

Climate and Building Design

To be successful, architecture must respond to and protect itself from the surrounding climate. Architects usually take climate into consideration in 2 basic ways before designing a building.

First, they think about the safety of the building and how people will feel in the building. Architectural and structural design decisions regarding layout, window orientation, roof pitch, overhangs, shading, and ventilation can all be influenced by climate.

Architects also consider the ways in which the climate in densely built areas can differ from surrounding regional climactic conditions, for example, in temperature, wind speed, and humidity. They would think about the effects of site design elements, such as density and building height, on a city's outdoor climate and how their building may benefit from it.

For this exercise, we will look at the climate considerations with two buildings in the Laurel Highlands:

Nixon Tavern, Fairchance Road, Fairchance—a vernacular building
Private Residence, 519 East Main Street, Uniontown—an Art Moderne house

Materials:

- Something to write and draw on
- Something to write or draw with
- Topographic map
- Weather map
- Road map
- Soil map
- Images of Nixon Tavern and 519 East Main Street

Objective:

Using inquiry, students will investigate of the ramifications of a building's relationship to its site and its geographic location.

Standards:

- Arts: NA-VA 4
- English: NA-ENG 6, 12

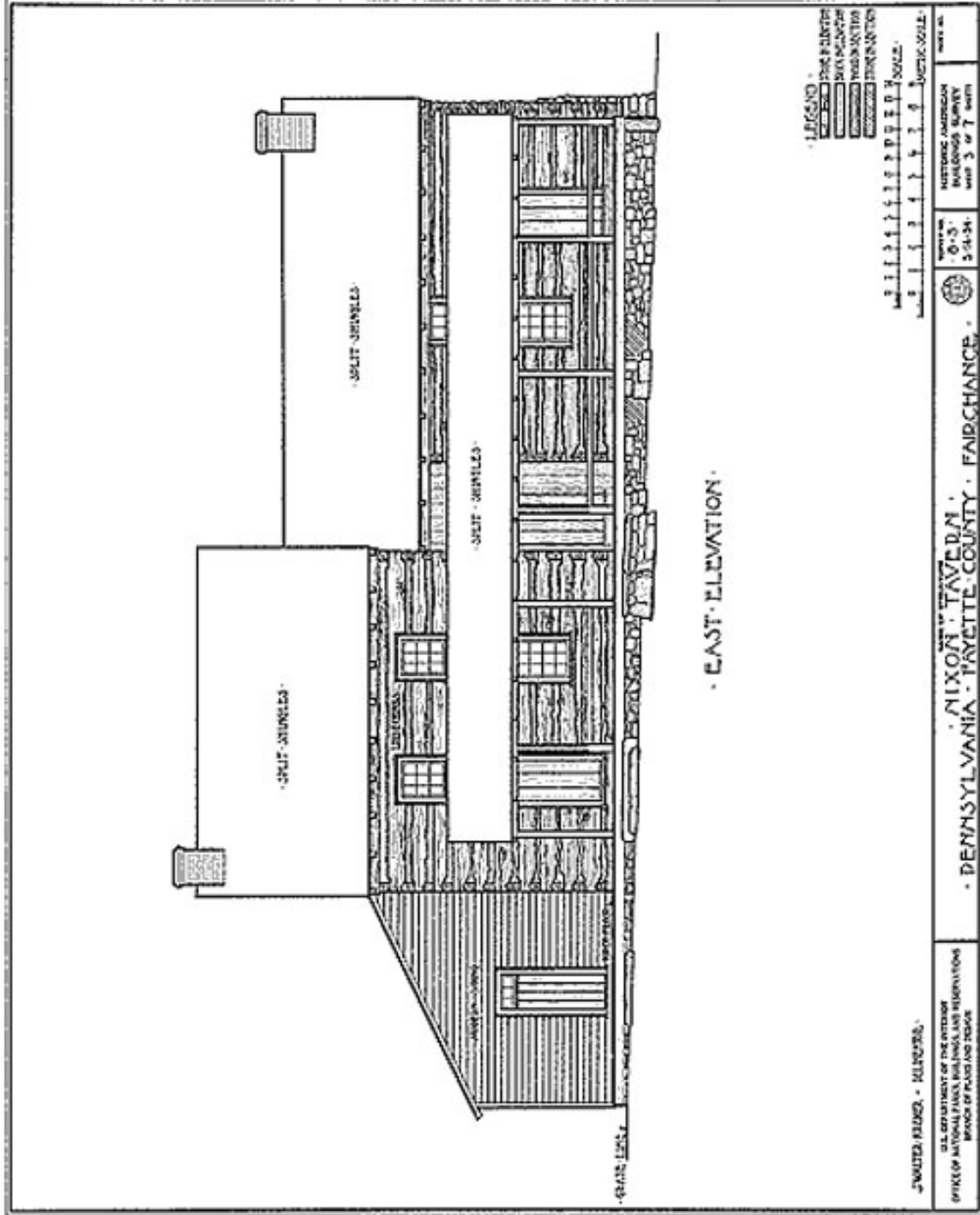
- Mathematics: NM-NUM 3; NM-GEO 4, NM-MEA 3; NM-PROB.CONN 3
- Science: NS 1, 2, 3, 4, 5, 6, 7
- Social Studies: NSS-G 1, 2, 4, 5, 6

Procedures:

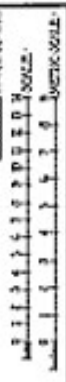
- Ask the students to locate the buildings on different kind of maps. Use MapQuest or the library and ask students to look at topographic maps, weather maps, geologic maps, road maps, etc. Have them locate the building on maps and imagine being on the site at different times of year.
- Next, identify elements of each building that were designed, and decisions that were made, to address issues of the site such as climate, sun exposure, site steepness, soil geology, surrounding buildings, vegetation, etc. This would include issues such as roof pitch, number and orientation of windows, shutters, basements, tree locations, etc. Use these as a springboard to discuss how the appearance and location and orientation on the site relate to the issues they have identified.
- Finally, ask the students if either building would be suitable for another location on the maps. Have students identify the conditions of other sites and propose changes that would need to be made to the building in order to move it/locate it there.



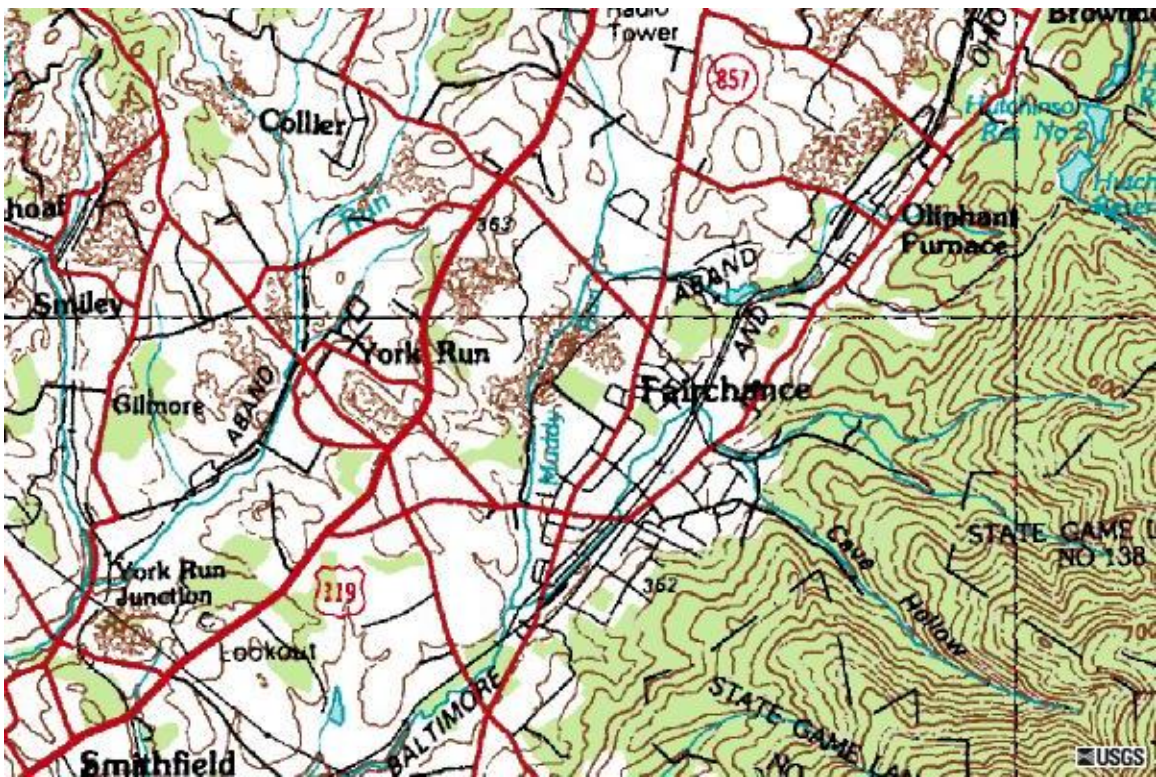
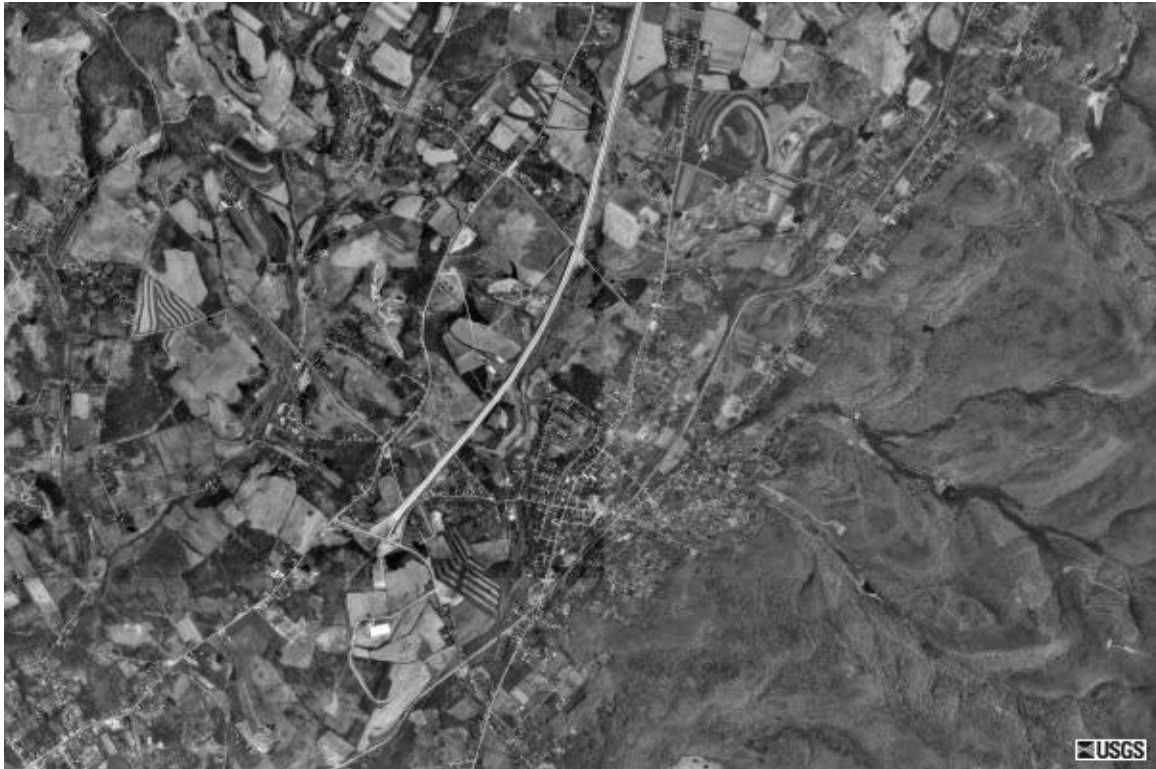
Nixon Tavern
Fairchance



LEGEND
 DASHED LINE
 SOLID LINE
 DOTTED LINE
 DASHED LINE
 SOLID LINE
 DOTTED LINE



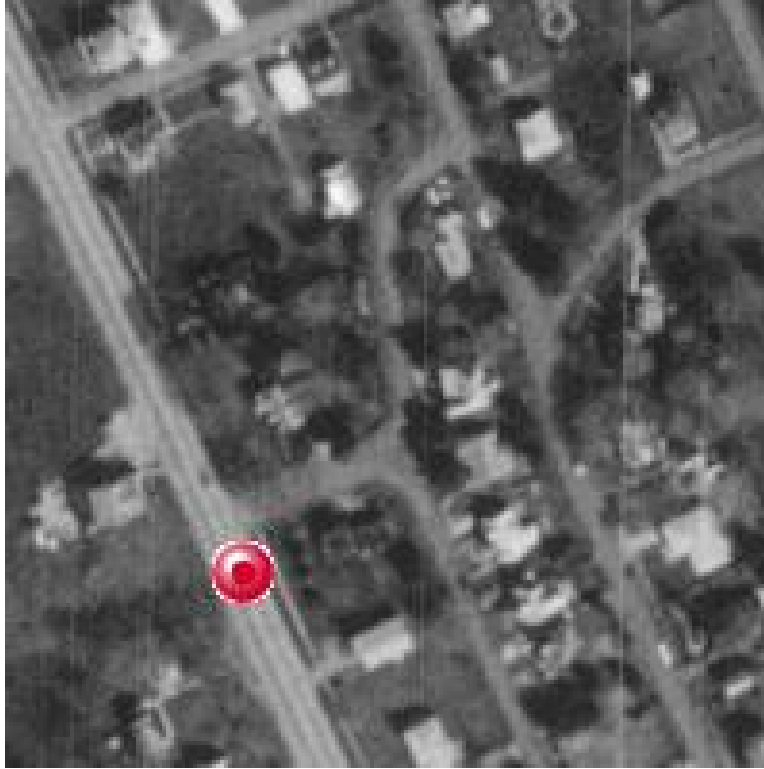
UNITED STATES - BELLEVILLE
 U.S. DEPARTMENT OF THE INTERIOR
 OFFICE OF NATIONAL PARKS, HISTORIC LANDS AND RECREATION
 BRANCH OF PLANS AND DESIGN
 PROJECT NO. 10-31
 3-14-34
 NIXON TAYLOR
 PENNSYLVANIA - FAYETTE COUNTY - FAIRCHANCE
 HISTORIC LANDMARK
 NATIONAL MONUMENT
 UNIT 3 OF 7 SHEETS
 SHEET NO.



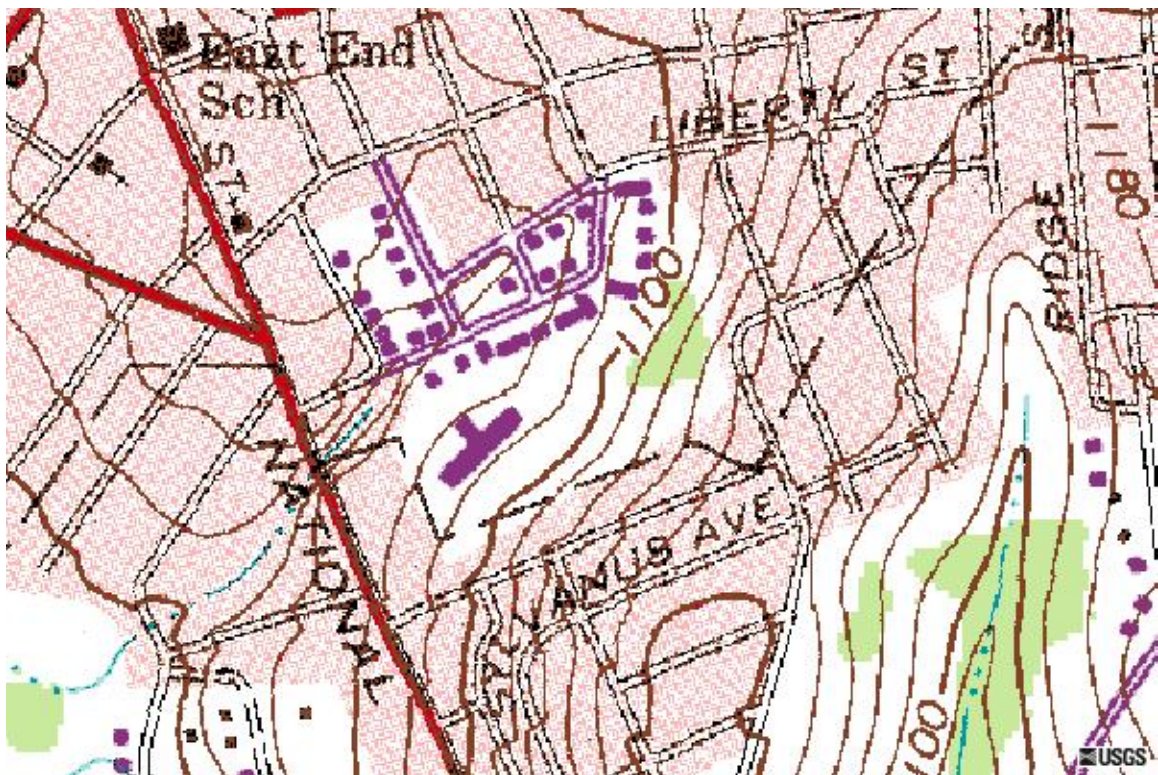
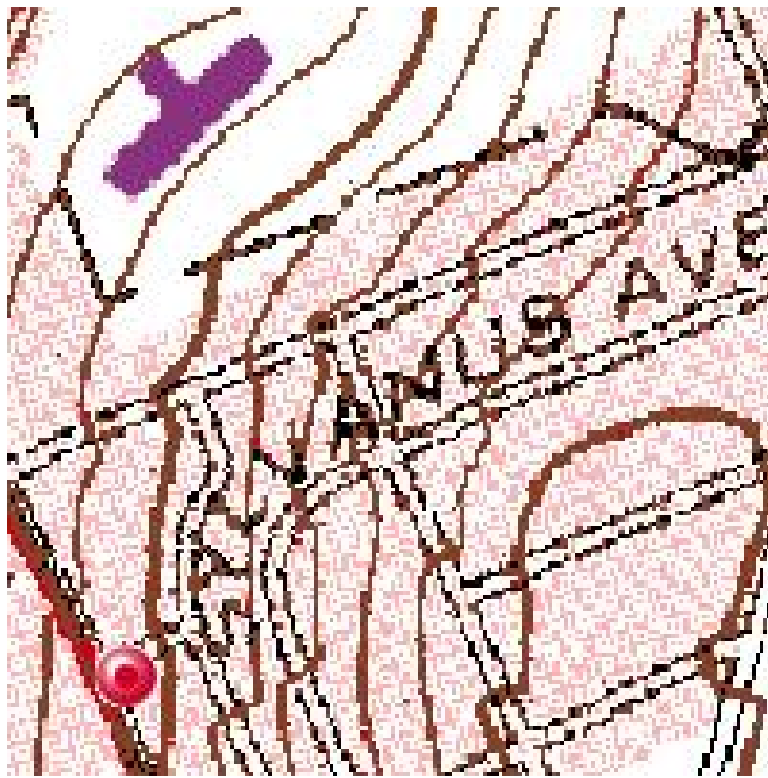
Fairchance



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