# Pavilion Model

## Purpose:

The pavilion model serves as a larger scale model of what the students are building. By investigating the model, students can get a good sense of the shape and structure that they are building and can become familiar with each of the components and their names. This model is enlarged to make it easier to feel each of the individual components. It is also used to illustrate the difference between roof surface area and tributary area, along with cardboard cutouts for each of those areas.

In the original offering of this curriculum, students went on a field trip to experience early colonial post-and-beam structures.

## Functionality:

When used, the model is placed on a table and a group of one to three students can explore the various aspects of the construction with their hands. The model is intended to be sturdy enough to be easily transported, touched, and manipulated without falling apart.

Labels in large print and Braille are adhered to at least one of each: rafter, beam, column, and ridge board. This allows students to learn the vocabulary of the structure as they become familiar with its shape.

## Construction:

All pieces are cut from wood sticks of the appropriate widths. This could be balsa, as is used in the student models. But a harder wood, such as birch or basswood, etc., would be better if you could find the correct sizes of sticks.

Joints can be connected with hot glue or another glue that is effective on the wood used.

First the long beams and short beams are connected in a rectangle to form the base of the roof. Next the end rafters and the ridge board are connected on top of the base rectangle. Then the middle rafters can be placed in and glued to the long beams and the ridge board.

Note that the end rafters have a straight angled cut on the end since they sit flat across the short beam, but all other rafters have a notched end so that they sit more snugly on the long beam. Details of what this looks like are shown on pages 6-8 of the plan drawing.

Four columns are glued to the bottom of the base rectangle to support the whole structure.

Finally, sticky labels are attached to the appropriate wood sticks for students to read the names of the components.

## Graphics:

Page 1: 1:8 scale, orthographic projection of assembled model

Page 2: list of all balsa sticks to be cut

Page 3: 1:4 scale top view of model

Page 4: 1:4 scale right view of model

Page 5: 1:4 scale front view of model

Page 6: diagram of end rafter, showing correct angles for cuts on each end

Page 7: diagram of middle rafter, showing correct angles and notches for cuts on each end

Page 8: diagram of how the rafters sit on the base rectangle. The middle rafter is shown on the left, and the end rafter is shown to the right.