

Instructional Scenario

Bill of Materials



Course/Duty Area: Livestock Production Management / Using Mechanics in Livestock Production

Scenario: Tim is a local swine producer in need of finishing his barn's walls. The walls must be boarded to accommodate new galvanized swine gates. He currently has an empty structure with concrete floors and running water and electricity. The inside dimensions of the barn are 48' x 30', with external support posts 8' on center. He is looking to have 8' x 6' pens with support posts every 12' down the center alley. The barn has large sliding doors on the short sides of the structure that are 10' wide.

Tim would like the local agricultural program to create an estimate and a bill of materials to calculate the amount of lumber needed to complete this project. He wants the bottom three boards to be pressure treated and the rest of the wall boarded with metal panels (galvanized steel or aluminum) or plastic-coated plywood or PVC panels, so that the wall will be 6' tall. Tim plans to check local agricultural and building material suppliers for price information.

The materials should include:

- 1"x6"x16' Pressure Treated
- 1"x6"x10' Pressure Treated
- 2"x4"x12' Pressure Treated
- 6"x6"x12' Pressure Treated
- Material Common Width x Length x Thickness (Student/Team builder's choice)
 - Corrugated polyvinyl chloride (PVC) liner—38" x (12'2" / 16'4" / 20'4"); typically 3–5 mm
 - Polyboard/high-density polyethylene (HDPE) sheets—4'x8' or 4'x10' $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ "
 - Rigid PVC panel—36" x 8'2" 2 mm
 - Tongue and groove PVC planks—32" width, length per order 1 $\frac{3}{4}$ " thickness
 - Trusscore PVC panels—8–20 ft lengths, ~20" wide for dividers ~ $\frac{3}{8}$ "– $\frac{5}{8}$ " thick composite
 - Hog-slatted galvanized panel—34" x 16' tubing gauge varies
 - Pro-Rib steel siding—36" x 16' Rib ~ $\frac{3}{4}$ ", metal gauge per spec
 - Laminated HDPE plywood—4'x8' $\frac{3}{8}$ "– $\frac{3}{4}$ " plywood + 40–100 mil HDPE
 - PolyMax HDPE wallboard—~4'x8' Not specified

Big Question: How much will it cost to complete the project?

Focused Questions:

- How can the cost of a project be determined using a price sheet or current pricing of materials?
- How many of each type of material is needed for the project?
- How can the estimate sometimes differ from the actual cost? What are factors that affect this?

Project-Based Assessment:

- Create a bill of materials.
- Construct the walls needed for this project.

Scenario submitted by Brandon Strosnider, Wilson Middle School, Augusta County