

Course: Architecture and Drafting (10234PB-2016)  
Grade level: 10-12  
Sources: Mississippi Architecture and Drafting Instructors

## **The Home Sweet Home Project Teacher Instructions**

All student work on the assessment is to be performed during the testing window of February 1 – March 23, 2018. The PBA project is designed to be embedded into normal instruction, meaning that course instructors can guide students through the project during class time. All student products are due to the RCU by 5:00 PM on Friday, March 23, 2018. Instructions for submitting student products can be found in the PBA Manual for Revision Programs (<http://rcu.msstate.edu/Assessment/Performance-Based-Assessment.aspx>).

**Essential Questions:** How do spatial requirements affect the design of a house? How does square footage play a role in architecture?

### **Overview:**

The students will create a floor plan and elevation for a house as part of a client request. They will need to make all modifications as appropriate and contact the client to share the plans.

### **Alignment:**

- 21<sup>st</sup> Century Skills
  - CS 7: Critical Thinking and Problem Solving (Reason Effectively, Use Systems Thinking, Make Judgments and Decisions, Solve Problems)
  - Indirectly (CS6, 8, 11-13)
  
- College and Career Readiness Standards
  - RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
  
- CTE Curriculum Unit
  - Units 13-15 as specified on the assessment blueprint

### **Time requirements**

4-6 weeks in class

**Materials and resources**

- Picture of house and floor plan
- PBA Template (set up by teacher)
- Computers with CAD program
- Plotter
- Classroom resources
- Calculators

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## **The Home Sweet Home Project Student Instructions**

**Essential Questions:** How do spatial requirements affect the design of a house? How does square footage play a role in architecture?

### **Overview:**

You are an architectural drafter at a small architectural firm. A client has come to the firm with a plan that they found for a starter home at

<https://www.houseplans.com/plan/1050-square-feet-3-bedrooms-2-bathroom-southern-house-plans-1-garage-6390>. They would like the plan modified somewhat. Your responsibilities are to create a floor plan, exterior elevations (front, one side), and electrical plan (lights, switches, and outlets) with the requested modifications.

### **General Directions**

- Use the PBA Template that is on the computer desktop.
- The final plan should be plotted at 1/4" - 1'-0" scale.
- Provide necessary dimensions, label fixtures/appliances, and room titles.
- Drawings may be plotted on separate sheets or on one sheet.

### **Modifications**

Keep a written record of all modifications and adjustments in order to communicate this information to your client.

- Omit the fireplace
- Omit the vaulted ceiling
- Omit the offset in bedroom 3, but leave the window
- Change width of the house to accommodate the following:
  - Make the garage 24' x 24'
  - Add 3' to the master bedroom, kitchen, and dining room walls to align with the master bathroom outside wall
  - Add 1' to the right side of the house
- Remove the patio and the master bedroom exterior door
- Modify the roof to be a gable over the front porch
- Other adjustments to the floor plan as needed to accommodate for modifications

### **Part 1. Floor Plan**

- Wall studs shall be 2x4 unless a plumbing wall, in which case use 2x6
- All windows shall be appropriately sized and noted on the floor plan.
- All interior doors shall be appropriately sized and noted on the floor plan.
- Entry doors shall be 3068 and size noted on the floor plan.
- Garage shall have one 18' door. Student may decide front or side entry.
- Show all necessary dimensions.

### **Part 2. Elevation Plan**

- Floor to ceiling height 9'-0".
- Make all roofs gable with 7:12 pitch.
- Draw 12" overhangs.
- Draw exterior vinyl siding (no brick), asphalt shingles.
- Show all necessary dimensions/notes and label materials.

### **Part 3. Electrical Plan**

- Include all necessary ceiling light fixtures and wall outlets.
- Include all wall switches and switch legs/connections to light fixtures.
- Locate an appropriate number of smoke detectors based on the floor plan.

### **Part 4. Architectural Math**

- Calculate cost for heated at \$115/sq ft.
- Calculate cost for unheated at \$95/sq ft.
- Calculate total cost.

### **Part 5. Communicating with Client**

- Write an email to your client to send the designs and request feedback. Explain any modifications or adjustments resulting from the client's modification requests.

### **Part 6. Submit your work**

- Save copies of your floor plan, elevation, and client email in the PDF format. Name each file as your MSIS ID, last name, and first name (ex. 000123456 Smith John).