GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

ACCT—ARCHITECTURAL DRAWING

PATHWAY: Architectural Drawing & Design

COURSE: Architectural Drawing & Design I

UNIT 9: Elevations

INTRODUCTION

Annotation:

Students will draw scaled exterior and interior elevations to match a floor plan.

Grade(s):

X	9th
X	10th
X	11th
X	12th

Time:

20 hrs

Author:

Connie Highnote

Additional Author(s):

Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards:

ACT-ADDI-4 Students will prepare elevations for residential drawings.

a. Students will explain the purpose of elevations.
b. Students will draw exterior elevations.
c. Students will draw interior elevations.

GPS Academic Standards:

SCSh4. Students will use tools and instruments for observing, measuring and manipulating scientific equipment and materials.
MMIP4. Students will make connections among mathematical ideas and to those of other disciplines.
ELA9RL5. Students will understand and acquires new vocabulary and use it correctly in reading and writing.

National / Local Standards / Industry / ISTE:

UNDERSTANDINGS & GOALS

Enduring Understandings:

Students should understand the concept of multi-view drawing and understand that exterior elevations are compared to front and right view. Exterior elevations also include rear and left view. Interior elevations are detail drawings of the interior millwork and are also like front views.

Essential Questions:

What is the purpose of an exterior elevation of a home? Are the exterior elevations required to build a home? Why is it important to draw interior elevations? What would happen if you do not provide interior elevations?

Knowledge from this Unit:

Students will explain the purpose of exterior and interior elevations.

Skills from this Unit:

Students will be able to create interior and exterior elevations for a residential floor plan.

ASSESSMENT(S)

Assessment Method Type:

_____ Pre-test
x Objective assessment - multiple-choice, true- false, etc.
__ Quizzes/Tests
_x_ Unit test
_____ Group project
x Individual project
x Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
_x_ Self-check rubrics
__ Self-check during writing/planning process
__ Journal reflections on concepts, personal experiences and impact on one's life
__ Reflect on evaluations of work from teachers, business partners, and competition judges
__ Academic prompts
__ Practice quizzes/tests
_____ Subjective assessment/Informal observations
__ Essay tests
__ Observe students working with partners
__ Observe students role playing
_____ Peer-assessment
__ Peer editing & commentary of products/projects/presentations using rubrics
__ Peer editing and/or critiquing
_____ Dialogue and Discussion
__ Student/teacher conferences
_ _ Partner and small group discussions
__ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
_____ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
__ Application of skills to real-life situations/scenarios
_____ Post-test

Assessment(s) Title:

Purpose of an exterior elevation.

Assessment(s) Description/Directions:

After reviewing exterior and interior elevations, students will determine the elements included and their purpose.

Attachments for Assessment(s):

Elevation Terms Assessment.doc
Elevation test.doc

LEARNING EXPERIENCES

Sequence of Instruction

1. **Identify the Standards. Standards should be posted in the classroom for each lesson.**
   ACT-ADDI-4 Students will prepare elevations for residential drawings.
   a. Explain the purpose of elevations.
   b. Draw interior elevations.
   c. Draw exterior elevations.

2. **Review Essential Questions.**
   What is the purpose of an exterior elevation of a home? Are the exterior elevations required to build a home? Why is it important to draw interior elevations? What would happen if you do not provide interior elevations?

3. **Identify and review the unit vocabulary.**

Construction lines	Fireplace	Cornice
Center lines	Elevation labels	Casings
Wall symbols	Orthographic projection	Mantels
Interior wall	Asphalt shingles	Bookshelves
Exterior wall	Wood shakes	Backsplash
Brick veneer	Tile	Toe space
Guardrail	Stucco	Soffit
Schedules	Grade line	Newel post
Cabinets	Baseboards	Balusters
Millwork	Wainscots	
Stairs	Chair rail	

4. **Interest approach – Mental set**
   The same principles are used when drafting a floor plan whether the students are using the traditional method or CAD. It is most important that students understand what they are drafting. It is also important that students understand the appropriate symbols, how to measure and the concept of scale. Have students start with copying the exterior and interior elevations of a simple floor plan and after some experience, design their own. It is best to check off each step as students complete them. This makes assigning a grade easier and it is best to correct mistakes early.

Lesson 1

Discussion

1. Divide the vocabulary words among the class.
2. Have each student locate a visual representation of the vocabulary word.
3. Have each student present his/her visual to the class.
4. Display the words and visual representations on the wall or bulletin board.
5. Given a list of terms, have students write a summary of elevations using at least 20 of the terms in context.

Lesson 2

Discussion

1. Given a simple floor plan, proper tools and a checklist, demonstrate to students how to draft an exterior elevation and then have them complete their elevation drawings as follows:
2. Tape the vellum to a clean drafting table making sure it is aligned with the parallel bar, wall section and a floor plan.

3. Layout the exterior walls using a construction line, making sure the home is centered in the drawing area.
4. Layout the ground line.
5. Locate doors and windows projecting construction lines from the floor plan.
6. Locate and draw the fireplace if included in the floor plan.
7. Locate and draw steps, patios and or decks.
8. Add material symbols such as siding, brick or stucco. Add lines to represent details of overhangs and trim.
9. Add dimensions and notes. (Text should be 1/8" high and ALWAYS USE GUIDELINES!) Be sure to use proper dimension techniques.
10. Add material and identification symbols. Darken lines and remember all lines should be dark and only vary in thickness with the exception of construction and guidelines. Keep hidden and center lines thin.
11. Draw the border, title block and add the scale. (1/4"=1'-0)
12. Do a self-check the entire drawing then have a peer check the drawing before turning it in.

Rubric for Exterior Elevations

Description	Front	Back	Left	Right
Exterior Walls represented	4	4	4	4
Porch, patio and deck	4	4	4	4
Windows and Doors represented	4	4	4	4
Roof shown correctly	4	4	4	4
Exterior Materials shown	4	4	4	4
Dimensions and notes	5	5	5	5
Totals	/25	/25	/25	/25

Lesson 3

Discussion

Distribute Exterior Elevations Rubric.doc to students. Discuss the process of drafting exterior elevations of a home. Have students follow the steps below as they create their drawings.

1. Set-up units and layers. Lay out the exterior walls on the elevation layer.
2. Layout the ground line.
3. Insert a wall section and establish the floor and ceiling line.
4. Project the doors and windows from the floor plan.
5. Create or insert blocks that represent the door and window symbols.
6. Draw detail of roof overhang, chimney and porches or decks.
7. Create exterior material details using a hatch pattern.
8. Add dimensions and notes. Be sure to use continued dimension.
9. Change to layout 1 and insert title block in paper space. Use the view port toolbar to zoom the drawing to ¼”=1’-0
10. Print a check plot and make any corrections. Final drawing should be printed on C or D size paper.

Lesson 4

Discussion

1. Have students sketch or photograph the exterior of their homes for homework.
2. Students will follow the same steps listed above.
3. Have students take a print home to have parents evaluate and verify accuracy.
4. Students will revise as needed.

Lesson 5

Discussion

Given a simple floor plan, proper tools, rubric, Cabinet Section.pdf and Drawing Cabinet Elevations.doc, have students draft interior elevations using the steps below:

1. Tape the vellum to a clean drafting table making sure it is aligned with the parallel bar, and the kitchen section of the floor plan.
2. Layout the vertical lines representing the kitchen walls using a construction line, making sure the kitchen wall is centered in the drawing area.
3. Layout the floor and ceiling lines horizontally.
4. Locate the base and wall cabinets, windows and appliances projecting construction lines. Refer to the textbook for standard dimensions.
5. Divide the remaining spaces to determine door and drawer sizes.
6. Add material detailing and hardware.
7. Add dimensions, notes and elevation labels. (Text should be 1/8" high and **ALWAYS USE GUIDELINES**!) Be sure to use proper dimension techniques.
8. Add material and identification symbols. Darken lines and remember all lines should be dark and only vary in thickness with the exception of construction and guide lines. Keep hidden and center lines thin.
9. Draw the border, title block and add the scale. (1/4"=1'-0)
10. Check the entire drawing. Then have a peer check the drawing.

Lesson 6

Discussion

Given a simple floor plan, proper tools, rubric, Cabinet Section.pdf and Drawing Cabinet Elevations.doc, have students draft interior elevations using the steps below:

1. Set-up units and layers. Lay out the kitchen walls, floor and ceiling line on the appropriate layer.
2. Insert blocks for appliances and standard cabinets. Determine the location and size of doors and windows and draw on plan.
3. Modify cabinet blocks to meet the arrangement of the kitchen or bathroom plan.
4. Add dimensions, notes and elevation labels.
5. Add title block and print. Note that interior elevations can be drawn to various scales, ¼”=1’, 3/8”=1’ and ½”=1’.
6. Check the entire drawing then have a peer check the drawing before turning in.

Lesson 7

Discussion

1. Have students sketch or photograph the interior elevations of the millwork in their homes for homework.
2. Students will follow the same steps listed above.
3. Have students take a print home to have parents evaluate and verify accuracy.
4. Students will revise as needed.

Rubric for Interior Elevations of Kitchen and Baths

Description	Elevation A	Elevation B	Elevation C	Elevation D
Interior walls , floor and ceiling represented	5	5	5	5
Cabinets represented w/ doors, drawers and shelves	5	5	5	5
Windows and Doors represented	5	5	5	5
Appliances and fixtures included	5	5	5	5
Dimensions and notes	5	5	5	5
Totals	/25	/25	/25	/25

Attachments for Learning Experiences:

Notes & Reflections:

While lessons are included for traditional and 2D drafting exercises, these can easily be modified for using 3D cad software. The theory of creating exterior and interior elevations is the same regardless of the tools used. Web resources are included for the use with Revit. Most software includes tutorials. Students may demonstrate mastery of this standard through the use of many tools. It is the instructor's decision based on the availability of tools.

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title:

Design a home.

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

Given the client summary and rubric.doc, have students draft exterior elevations for the home designed based on the scenario.

Remind students that the elevation should include columns and bricks.

Attachments for Culminating Performance Task:

UNIT RESOURCES

Web Resources:

http://www.delmarlearning.com/companions/content/1401867154/videoclips/index.asp?isbn=1401867154
(multiview sketches)
http://students2.autodesk.com/
http://revit.downloads.autodesk.com/download/RAC2009/Documents/ENU/GSGArchitectureENU.pdf
http://images.autodesk.com/adsk/files/rac_2008_curriculalecturenotes_final.pdf
http://www.qualitycabinets.com/
http://www.rivieracabinets.com/
http://www.ambrico.com/
http://www.vinylinfo.org/

Attachment(s):.

Drawing Cabinet Elevations.doc
Exterior Elevations Rubric.doc
Interior Elevations Rubric.doc
Cabinet Section.pdf

Materials & Equipment:

Traditional drafting tools, cad software

What 21st Century Technology was used in this unit?

	Slide Show Software	x	Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System		Desktop Publishing		Image File(s)
	Web Design Software		Blog		Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email	x	Website		