Drafting III

8532 36 weeks / 280 hours

Table of Contents

Acknowledgments ......................................................................................................................................... 1
Course Description........................................................................................................................................ 2
Task Essentials List....................................................................................................................................... 2
Curriculum Framework ................................................................................................................................. 3
Practicing Safety ........................................................................................................................................... 4
Performing Architectural Drafting and Design Operations with Extensive Use of Computer-Aided Design and Drafting (CADD) ........................................................................................................... 5
Preparing a Career Portfolio ....................................................................................................................... 26
SOL Correlation by Task ............................................................................................................................ 28
Entrepreneurship Infusion Units ................................................................................................................. 29
Appendix: Credentials, Course Sequences, and Career Cluster Information ............................................. 30

Acknowledgments

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Course Description

Suggested Grade Level: 11 or 12
Prerequisites: 8531

Building on competencies taught in Drafting I and II, students are taught the theory and the manipulative skills necessary to produce and complete accurate drawings based on the ideas and sketches of engineers, architects, and designers. Students focus on performing architectural drafting and design operations, using manual drafting techniques and Computer Aided Drafting and Design (CADD), and exploring careers in drafting, including industry certification options.

“Drafting III” may be offered as a complement to an existing concentration sequence in any CTE program area. In some instances, where noted, it may be combined with specific courses to create concentration sequences.

Task Essentials List

- Tasks/competencies designated by plus icons (➕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (⚪) are optional
- Tasks/competencies designated by minus icons (➖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8532</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>🍀</td>
<td>Follow general safety procedures.</td>
</tr>
<tr>
<td>40</td>
<td>🍀</td>
<td>Adjust equipment for maximum comfort and usability.</td>
</tr>
<tr>
<td>41</td>
<td>🍀</td>
<td>Describe ergonomic considerations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performing Architectural Drafting and Design Operations with Extensive Use of Computer-Aided Design and Drafting (CADD)</td>
</tr>
<tr>
<td>42</td>
<td>🍀</td>
<td>Describe key developments in the history of architecture.</td>
</tr>
<tr>
<td>43</td>
<td>🍀</td>
<td>Use reference materials.</td>
</tr>
<tr>
<td>44</td>
<td>🍀</td>
<td>Identify reasons for building codes.</td>
</tr>
<tr>
<td>Task Number</td>
<td>8532</td>
<td>Tasks/Competencies</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>45</td>
<td>☑</td>
<td>Apply architectural symbols to a drawing.</td>
</tr>
<tr>
<td>46</td>
<td>☑</td>
<td>Identify items which comprise a set of working drawings.</td>
</tr>
<tr>
<td>47</td>
<td>☑</td>
<td>Design a site plan.</td>
</tr>
<tr>
<td>48</td>
<td>☑</td>
<td>Prepare a site plan.</td>
</tr>
<tr>
<td>49</td>
<td>☑</td>
<td>Design a floor plan.</td>
</tr>
<tr>
<td>50</td>
<td>☑</td>
<td>Prepare a floor plan.</td>
</tr>
<tr>
<td>51</td>
<td>☑</td>
<td>Design a foundation/basement plan.</td>
</tr>
<tr>
<td>52</td>
<td>☑</td>
<td>Prepare a foundation/basement plan.</td>
</tr>
<tr>
<td>53</td>
<td>☑</td>
<td>Design a wall section.</td>
</tr>
<tr>
<td>54</td>
<td>☑</td>
<td>Prepare a wall section.</td>
</tr>
<tr>
<td>55</td>
<td>☑</td>
<td>Design a roof plan.</td>
</tr>
<tr>
<td>56</td>
<td>☑</td>
<td>Prepare a roof plan.</td>
</tr>
<tr>
<td>57</td>
<td>☑</td>
<td>Design an electrical plan.</td>
</tr>
<tr>
<td>58</td>
<td>☑</td>
<td>Prepare an electrical plan.</td>
</tr>
<tr>
<td>59</td>
<td>☑</td>
<td>Design a plumbing plan.</td>
</tr>
<tr>
<td>60</td>
<td>☑</td>
<td>Prepare a plumbing plan.</td>
</tr>
<tr>
<td>61</td>
<td>☑</td>
<td>Select doors and windows to match the style of the house.</td>
</tr>
<tr>
<td>62</td>
<td>☑</td>
<td>Prepare a door and window schedule.</td>
</tr>
<tr>
<td>63</td>
<td>☑</td>
<td>Design interior elevations.</td>
</tr>
<tr>
<td>64</td>
<td>☑</td>
<td>Prepare interior elevations.</td>
</tr>
<tr>
<td>65</td>
<td>☑</td>
<td>Design a set of stairs.</td>
</tr>
<tr>
<td>66</td>
<td>☑</td>
<td>Prepare a detailed drawing of a set of stairs.</td>
</tr>
<tr>
<td>67</td>
<td>☑</td>
<td>Design a fireplace.</td>
</tr>
<tr>
<td>68</td>
<td>☑</td>
<td>Prepare a detailed drawing of a fireplace.</td>
</tr>
<tr>
<td>69</td>
<td>☑</td>
<td>Design exterior elevations.</td>
</tr>
<tr>
<td>70</td>
<td>☑</td>
<td>Prepare exterior elevations.</td>
</tr>
<tr>
<td>71</td>
<td>☑</td>
<td>Estimate material quantities.</td>
</tr>
<tr>
<td>72</td>
<td>☑</td>
<td>Prepare a rendered presentation drawing.</td>
</tr>
<tr>
<td>73</td>
<td>☑</td>
<td>Design a HVAC plan.</td>
</tr>
<tr>
<td>74</td>
<td>☑</td>
<td>Prepare an HVAC plan.</td>
</tr>
<tr>
<td>75</td>
<td>☑</td>
<td>Create a physical or 3-D CADD presentation model.</td>
</tr>
<tr>
<td>76</td>
<td>☑</td>
<td>Prepare a title sheet.</td>
</tr>
</tbody>
</table>

**Preparing a Career Portfolio**

| 77          | ☑    | Complete a professional drafting portfolio. |
| 78          | ☑    | Gather material for a portfolio. |
| 79          | ☑    | Organize a portfolio. |
| 80          | ☑    | Present a portfolio. |

Legend: ☑ Essential  ☑ Non-essential  ☐ Omitted
Practicing Safety

Task Number 39

Follow general safety procedures.

Definition

Following safety procedures includes

- safe handling of all tools, equipment, and furniture
- adherence to safety precautions regarding Computer-Aided Design and Drafting (CADD) electrical equipment
- adherence to classroom regulations
- familiarity with school emergency plans.

Process/Skill Questions

- How does safe handling of tools, equipment, and furniture benefit job performance?
- What potential safety hazards exist with electrical equipment?
- What are some consequences of ignoring conduct regulations in the workplace?

Task Number 40

Adjust equipment for maximum comfort and usability.

Definition

Adjustment for comfort and usability includes a routine check of equipment settings. Students should know when it is necessary to make adjustments to the

- computer monitor
- drawing table
- lights
- chair.

Process/Skill Questions

- What are some consequences of improperly adjusted equipment?
- Why is it necessary to perform routine checks of equipment settings?
- How can an improperly adjusted chair affect the work of a drafter?
**Task Number 41**

**Describe ergonomic considerations.**

**Definition**

Description should address comfort, fatigue, and health-related concerns, and should include classroom considerations such as

- keyboard position
- chair position
- screen position
- lighting levels
- adaptable lighting control
- body posture and position of arms, wrists, and hands when using the keyboard, mouse, and other equipment.

**Process/Skill Questions**

- What medical problems can result from a lack of ergonomic considerations?
- How do the ergonomic considerations of a manual drafter differ from those of a CADD operator?
- Can a setting that a person considers comfortable be harmful ergonomically? Explain.

**Performing Architectural Drafting and Design Operations with Extensive Use of Computer-Aided Design and Drafting (CADD)**

**Task Number 42**

**Describe key developments in the history of architecture.**

**Definition**

Description should include

- influential styles
• notable architects
• historical periods, including Roman, Gothic, and Colonial.

Process/Skill Questions

• Why is it beneficial for a drafter to know the characteristics of different architectural styles?
• Who are some of the most influential architects of the 20th century?
• How have different trends in architecture evolved?

Task Number 43

Use reference materials.

Definition

Use should include

• building codes
• American Standard American Drafting (ASAD)
• National Fire Protection Association (NFPA).

Process/Skill Questions

• When might it be necessary to consult reference material?
• What are some successful methods of using reference materials?

Task Number 44

Identify reasons for building codes.

Definition

Identification of the underlying reasons for codes should include

• safety
• consumer protection
• legal requirements (e.g., Americans with Disabilities Act [ADA] provisions)
• standardization of fixtures (e.g., electrical; plumbing; heating, ventilation, and air conditioning [HVAC]; cabinets)
• fire prevention.

Process/Skill Questions

• Why do building codes exist?
• Why is ADA important when working with building codes?
• Who is responsible for writing and enforcing building codes?

Task Number 45

Apply architectural symbols to a drawing.

Definition

Application of architectural symbols serves to represent construction elements and should include

• electrical elements
• plumbing elements
• appliances
• doors
• windows
• HVAC elements
• other materials.

Process/Skill Questions

• How do architectural symbols contribute to drawings?
• Why is it beneficial to use standard architectural symbols on drawings?
• What are some consequences of the incorrect use of symbols?

Task Number 46

Identify items which comprise a set of working drawings.

Definition

Identification may include

• cover sheet
• presentation drawing
• site plans
• floor plans
• foundation plans
• elevations
• electrical plans
• plumbing plans
• HVAC plans
• wall sections
• fireplace details
• stair details
• cabinet details
• framing plans
• roofing plans
• schedules.

Process/Skill Questions

• When might it be permissible to omit an item from a set of working drawings? Provide an example.
• What are some consequences of providing an incomplete set of working drawings?
• How is a set of working drawings presented to a client?

Task Number 47

Design a site plan.

Definition

Design should include freehand sketches. The following influences should be considered:

• Site survey
• Site contour
• Structure locations
• Setback requirements
• Benchmark locations
• Adjacent property restrictions
• Zoning restrictions

Process/Skill Questions

• Why is a site plan necessary?
• What is the role of setback requirements in the design of the site plan?
- What are some consequences of not knowing zoning restrictions?

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**Task Number 48**

**Prepare a site plan.**

**Definition**

Preparation should begin with setting the scale and include

- locating the benchmark
- drawing property lines
- drawing contour lines
- drawing and locating structure(s)
- adding symbols and dimensions
- adding landscaping
- adding elevation callouts, such as corners of structures, corners of lots, and centers of streets.

**Process/Skill Questions**

- What are some consequences of not setting the scale?
- What is the purpose of property lines?
- Why are elevation callouts necessary?

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**Task Number 49**

**Design a floor plan.**

**Definition**

Design should include freehand sketches illustrating walls, doors, and windows. Considerations should include

- consumer needs, such as budget, family size, and lifestyle
- foot-traffic patterns
- kitchen functionality requirements
- geography of the site
- building code guidelines for room sizes
- other building code requirements.
Process/Skill Questions

- Why is it beneficial to consider the consumer’s budget?
- How does a sketch of the foot-traffic pattern contribute to the design of the floor plan?
- What is the kitchen triangle, and how does it influence the design of the kitchen?

Task Number 50

Prepare a floorplan.

Definition

Preparation should begin with

- locating and drawing the wall
- drawing the openings
- drawing casework, appliances, and fixtures
- annotating the plan (notes, dimensions, and symbols).

Process/Skill Questions

- Why is necessary to annotate symbols and dimensions?
- What are some consequences of improperly locating walls?

Task Number 51

Design a foundation/basement plan.

Definition

Design should include freehand sketches and consultation of architectural product catalogs. The designer must consider geographic influences and building code restrictions and make decisions regarding

- pier or post locations
- wall locations
- chimney locations, if applicable
- stair locations, if applicable
- wall makeup and levels of thickness
- room sizes for basement, if applicable
• door and window locations for basement, if applicable
• vent and access door locations for crawl space, if applicable.

Process/Skill Questions

• How can geography influence the design of a foundation/basement plan?
• What are some consequences of improperly located piers or posts?
• What is the purpose of including vents and an access door in a crawl space?

Task Number 52

Prepare a foundation/basement plan.

Definition

Preparation should begin with setting the scale and include

• drawing piers, posts, walls, and chimney foundations, if applicable
• drawing footings for piers, posts, walls, and chimneys
• locating and drawing support beams
• indicating size, direction, and spacing of floor joists or trusses
• locating vents, access door, doors, and windows
• locating stairs, if applicable
• dimensioning the plan
• applying any necessary symbols
• adding basement room names, if applicable.

Process/Skill Questions

• Why is it necessary to begin by setting the scale?
• What are some consequences of failure to correctly dimension the plan?
• How do symbols enhance the foundation/basement plan?

Task Number 53

Design a wall section.

Definition
Design should include freehand sketches and consultation of architectural product catalogs. The designer must consider building code guidelines and make decisions regarding

- footing and wall size for foundation wall
- ceiling height for crawl space or basement
- floor framing design
- type of subflooring and finished flooring
- wall framing design
- interior wall and ceiling materials
- wall, floor, and roof insulation
- roofing system design, including rafter and ceiling joist construction, truss design, and slopes and pitches
- roofing materials, including types of sheeting and shingles
- cornice and guttering design
- exterior siding materials.

Process/Skill Questions

- How does a steep roof slope affect water drainage? A shallow slope?
- What considerations should influence the choice and amount of insulation?
- What are some consequences of a poorly designed floor framing in relation to the construction of a structure?

Task Number 54

Prepare a wall section.

Definition

Preparation should begin with setting the scale and include sectional drawings of the

- footings and foundation walls
- floor framing design with subflooring
- stud walls, interior wall covering, exterior wall materials, ceiling materials, finished floor, and necessary moldings
- roof framing system
- cornice with gutters.

Preparation should also include dimensioning and labeling all elements of the wall section and adding grade lines and all necessary symbols.

Process/Skill Questions
• What are some consequences of inaccurate dimensioning on a wall section?
• Why is it necessary to include sectional drawings in the wall section?
• Why is it necessary to represent some items of the wall section with symbols?

Task Number 55

Design a roof plan.

Definition

The design should include freehand sketches and consultation of architectural product catalogs. The designer must consider building code guidelines and make decisions regarding the following:

• Location of walls below
• Roof slope
• Roof overhang
• Components that protrude through the roof (e.g., chimney)
• Roof style
• Location of gutters and downspouts

Process/Skill Questions

• How do protrusions affect drainage?
• How does the roof style and slope affect drainage?
• How will overhang affect the windows and rooms into which they open?

Task Number 56

Prepare a roof plan.

Definition

Preparation should include choosing a proper scale and placing the following items on the drawing:

• Edge of roof
• All peaks and valleys
• Exterior and bearing walls, shown as hidden lines
• Protrusions through the roof (e.g., chimney)
• Slope of each roof section
• Location of gutters and downspouts
• Notes and labels to include appropriate symbols

Process/Skill Questions

• Why is it necessary to show the exterior walls on a roof plan?
• Why is it necessary to show components that protrude through the roof?
• How can a hip roof have two different slopes?

Task Number 57

Design an electrical plan.

Definition

Design should include freehand sketches and consultation of architectural product catalogs. The designer must consult the given floor plan and the National Electrical Code (NEC) and calculate

• the number of general lighting circuits and required wattage
• the number of special appliance circuits and required wattage
• the number of individual appliance circuits and required wattage
• total wattage and amperage requirements.

Design should also include selecting

• a distribution panel based on amperage requirements
• lights, types of switches, and switch locations
• outlet locations
• location for the distribution panel and meter base.

Process/Skill Questions

• What are some consequences of failing to follow NEC guidelines when designing an electrical system?
• What factors influence the location of switches and outlets?
• How is size and specification of the distribution panel determined?
• What factors influence the location of the distribution panel and meter base?

Task Number 58
Prepare an electrical plan.

**Definition**

Preparation should include

- using an outline of the floor plan as a guide
- setting the scale
- locating outlets
- locating lights and switches
- indicating which outlets and lights the switches control (by drawing connecting lines)
- locating the distribution panel and meter base and indicating the voltage and amperage rating
- drawing a symbol schedule, if required
- drawing a lighting schedule, if required
- adding a circuit data chart
- applying any necessary symbols
- dimensioning the plan, as necessary
- drawing a riser diagram.

**Process/Skill Questions**

- What information does a circuit data chart provide, and what are the possible consequences of neglecting to include one?
- What considerations influence the choice of lighting methods?
- Why might a symbol schedule be necessary?

Task Number 59

Design a plumbing plan.

**Definition**

Design should include freehand sketches and consultation of architectural product catalogs. The designer must follow plumbing codes, consider the needs of the consumer (i.e., budget, family size, lifestyle) and make decisions regarding

- types of fixtures and their location, including
  - sinks
  - tubs, showers, and hot tubs
  - water closets (commodes)
- design of the water-supply system, including
• supply source (e.g., private well, municipal water)
• types of supply pipe, valves, tanks
• water heater
• water-treatment devices
• design of water/waste-removal system, including
  • removal method (e.g., septic system, sewer system)
  • types of water/waste-removal pipe, valves, and septic tank, if applicable.
• design of riser diagram.

Process/Skill Questions

• How does family size influence the design of a plumbing system?
• What are the benefits and shortcomings associated with well water and municipal water systems?
• What are some consequences of a poorly designed septic drain field?

Task Number 60

Prepare a plumbing plan.

Definition

Preparation should include

• using the floor plan as a guide
• setting the scale
• drawing symbols for all plumbing fixtures
• locating and drawing drain and soil-vent stacks
• drawing the connection of all fixtures and floor drains to the house drain
• locating and drawing the building main for the water supply system
• drawing hot and cold water mains and branch lines
• identifying each element of the plumbing system and showing sizes
• adding a plumbing-fixture schedule, a symbol legend, and general notes as required.

Process/Skill Questions

• What are some consequences of an inaccurate plumbing plan?
• What information does a plumbing-fixture schedule provide?
• What factors influence the location of soil-vent stacks?
Task Number 61

Select doors and windows to match the style of the house.

Definition

Selection should include consultation of architectural product catalogs and code books about the following components and choices:

- Styles of doors and windows
- Sizes of doors and windows
- Allowable glass area for doors, including lite or decorative glass
- Restrictions by wall length and thickness
- Matching and complementing other exterior design features (e.g., fireplace/chimney, vents)
- Minimum opening requirements for sleeping areas
- Determining if specific types of glass (e.g., tempered) are required

Process/Skill Questions

- Why should the styles of doors and windows match the exterior style of the house?
- Why is there a restriction on glass size in doors?
- In what location(s) would a window be required to have tempered glass?

Task Number 62

Prepare a door and window schedule.

Definition

Preparation requires consultation of architectural product catalogs and should include placing symbols on the floor plan. The door and window schedule should consist of door and window

- symbols
- quantities
- types
- rough openings
- nominal sizes
- manufacturer names
- manufacturer part or stock numbers
- general descriptions.
Process/Skill Questions

- Why are rough opening sizes included on a door and window schedule?
- Why is it useful to place door and window symbols on the main floor plan?
- What are some consequences of neglecting to include the manufacturer’s name or a part or stock number?

Task Number 63

Design interior elevations.

Definition

Design should include freehand sketches and consultation of architectural product catalogs and standards literature (e.g., Architectural Graphics Standards). The designer must consider building code guidelines and make decisions regarding

- spacing of casework, plumbing fixtures, appliances, and other features (e.g., fireplace)
- size of casework
- style of casework
- size and location of openings (e.g., doors, windows, cased openings)
- materials for casework and countertops
- wall coverings and materials.

Process/Skill Questions

- If a cabinet is not quite wide enough to fit a space (e.g., 1/2 inch too small), what can the installer do?
- What is the minimum base cabinet width necessary to accommodate a double-basin kitchen sink?
- What are the different exterior finish options for casework?
- What are the advantages and disadvantages of using laminate, concrete, granite, or marble as countertop materials?

Task Number 64

Prepare interior elevations.

Definition

Preparation should include labeling and annotation of elevation views with height dimensions and appropriate symbols. Preparation should include choosing an appropriate scale and interior elevations of the following:
• Kitchen
• Baths
• Other interior areas which require an elevation view for clarity

Process/Skill Questions

• What factors determine if an interior elevation or elevations are required for an area?
• Why is it necessary for height dimensions to be included on an interior elevation?
• How do interior elevations assist the builder? The owner?

Task Number 65

Design a set of stairs.

Definition

Design should include freehand sketches and consideration of consumer needs. The home’s architectural style influences the designer’s choice(s) for type(s) of stairs; options include

• straight run
• L stairs
• double L stairs
• U stairs
• winder stairs
• spiral stairs.

The designer should select materials for treads, stringers, risers, railings, balusters, and newel posts. The designer calculates

• total stair rise, based on material used in the home
• stair unit rise and run, based on standard rise/run formulas, the desired slope, and building codes
• total run
• total headroom
• stairwell opening.

Process/Skill Questions

• Why is it important that all unit risers are exactly the same in a set of stairs?
• How do unit rise and unit run determine the slope of a set of stairs?
• Why must building codes be consulted when designing a set of stairs?
Task Number 66

Prepare a detailed drawing of a set of stairs.

Definition

Preparation should include

- setting the scale of the drawing
- laying out the total rise, total run, and stairwell opening as an elevation
- laying out the unit rise and unit run on the stringers in the elevation
- drawing the treads and risers
- drawing the rails, balusters, and newel posts
- drawing a plan view of the stairs
- applying all necessary symbols to the stair detail
- dimensioning the stairs.

Process/Skill Questions

- What are some possible consequences of incorrect dimensions on a stair detail?
- Why is the layout of the total rise one of the first calculations when drawing a stair detail?
- How does the layout of the unit rise and the unit run affect the set of stairs?

Task Number 67

Design a fireplace.

Definition

Design should include freehand sketches, consultation of building codes, and consideration of consumer needs. The home’s architectural style influences the designer’s choice for materials, type of hearth (raised or floor-level), and type of fireplace. Fireplace types include

- freestanding
- wall-hung
- single-face
- two-sided (adjacent and opposite)
- three-sided.

Design should also include determining the opening size, height, and depth of the fireplace and calculating the size of the damper and flue.

Process/Skill Questions
• How is the required depth of a fireplace determined?
• How is the size of the flue related to the opening of the fireplace?
• What factors influence the choice of fireplace materials?

Task Number 68

Prepare a detailed drawing of a fireplace.

Definition

Preparation should include

• setting the scale of the drawing
• drawing a front view of the fireplace
• drawing a plan view of the fireplace in full section
• drawing a right-side view of the fireplace in full section
• drawing in partial material symbols on fireplace
• dimensioning the fireplace
• applying all material symbols.

Process/Skill Questions

• Why are three views of the fireplace necessary?
• Why is it important to include sectional views on the fireplace detail?
• What are some consequences of incorrect dimensioning on a detail drawing of the fireplace?

Task Number 69

Design exterior elevations.

Definition

Designing of elevations requires using knowledge of various types of home designs to draw freehand sketches of each side of the house, taking into account the grade of the land and the desired roof design. The designer must consider the needs and tastes of the consumer and use the wall sections, floor plan, door and window schedule, and foundation plan to determine

• grade line of the land
• type of outside siding
• roofing material
• heights of finished floor and ceiling
- roof slope
- door and window appearance.

**Process/Skill Questions**

- How does the grade of the land influence the design of elevations?
- Why is knowledge of various types of home designs beneficial when designing elevations?
- Why should a designer refer to other plans for the house (e.g., floor plan, wall sections) when designing elevations?

**Task Number 70**

**Prepare exterior elevations.**

**Definition**

Preparation should include

- setting the scale of the drawing
- using the floor plan to project horizontal lengths of exterior walls, doors, windows, and other elements
- using the wall section to project heights of the grade line, depth and thickness of footings, door and window heights, eaves line, and roof height
- adding details such as railing, window muntins, trim, window wells, and gable ventilators
- adding dimensions, notes, and symbols
- identifying each elevation as front, right, left, or rear immediately below the drawing
- identifying grade lines and finished floor and ceiling levels
- identifying roof features, such as slope, and chimney height and size.

**Process/Skill Questions**

- What is the primary purpose of an elevation drawing?
- What are some consequences of incorrect identification or location of grade lines?
- How is the floor plan used in preparation of an elevation?

**Task Number 71**

**Estimate material quantities.**

**Definition**
Estimation should be performed for the following:

- Square yards of concrete for footings
- Number of concrete masonry units (CMUs) or square yards of concrete for masonry foundation wall
- Quantities of various sizes of lumber for floor framing, wall framing, and roof framing
- Quantities of wall and floor coverings and moldings
- Quantities of roofing and siding materials
- Quantities of plumbing and electrical fixtures and materials
- Quantities of decking and porch materials, if applicable

**Process/Skill Questions**

- What are consequences of inaccurate estimates of materials?
- How does a knowledge of standard building materials benefit the estimator?

**Task Number 72**

**Prepare a rendered presentation drawing.**

**Definition**

Preparation should include freehand sketches that consider the consumer’s needs. Rendered presentation drawings should be produced in a one-, two-, or three-point perspective. Other items for consideration include

- presentation media
- drawing materials
- line techniques
- shading.

**Process/Skill Questions**

- When are presentation drawings used?
- What are the consequences of a poorly prepared presentation drawing?

**Task Number 73**

**Design a HVAC plan.**

**Definition**
Design should include freehand sketches using the floor plan(s) and basement plan, should consider the consumer’s needs, and should maintain compliance with building codes. The designer must determine

- type of heating system
- type of cooling system
- size and location of trunk and branch lines and registers
- location of return air duct
- sizes and locations of vents
- location of thermostat.

Process/Skill Questions

- What are the pros and cons of heating a residence with the forced-air method vs. the hot-water method?
- Why is a return air vent and duct necessary for a forced-air system?
- How does a forced-air system compare to an electrical circuit?
- What effect does the insulation in the walls and roof have on the HVAC system?
- In what rooms should a return air duct not be located?

Task Number 74

Prepare an HVAC plan.

Definition

Preparation should include setting the scale of the drawing, using the floor plan as an underlayment and

- creating the duct runs with registers, using a thick line weight and appropriate symbols
- drawing equipment to stand out clearly from the other elements of the floor plan
- labeling duct sizes according to established standards
- labeling equipment and all other components of the HVAC system.

Process/Skill Questions

- Why is it important to label the duct sizes, using the correct format?
- How is a floor supply register distinguished from a wall supply outlet?
- What are the advantages and disadvantages of using single-line vs. double-line in HVAC drawings?

Task Number 75

Create a physical or 3-D CADD presentation model.
Definition

Creation of the model should include choosing a scale and using the floor and foundation plans, sections, and elevations at the same scale as references for

- using the floor plan as an underlay to locate walls and openings (physical model)
- laying out the walls and openings to scale
- setting wall height, using section views
- setting roof style and slope, using section views
- applying wall covering, as specified by elevations
- adding components, as required by owner's or builder's desired level of detail.

Process/Skill Questions

- What materials may be used to construct a physical presentation model?
- How is the information from the floor and foundation plans, sections, and elevations combined to construct a physical or CADD presentation model?
- What benefit would a CADD or physical model offer when making a presentation to a client?

Task Number 76

Prepare a title sheet.

Definition

Preparation should include setting the scale for the drawing on the title sheet, using a one-point, two-point, or three-point perspective to represent the drawing. Other choices may include

- index of drawings
- rendering of drawings
- symbols and legends
- abbreviations
- building code
- data engineer's seal
- title block
- recognition of project team.

Process/Skill Questions

- What is the purpose of a cover sheet?
- Why should landscaping be included in a cover sheet drawing?
Preparing a Career Portfolio

Task Number 77

Complete a professional drafting portfolio.

Definition

Completion should involve work displayed in

- three-ring binder
- bound volume
- diary or journal
- manila folder
- flat portfolio
- slideshow presentation
- web pages.

Discussion of the portfolio should include its role in the hiring process.

Process/Skill Questions

- What are some advantages of including a wide variety of work in the portfolio? What are some disadvantages?
- How does the portfolio represent the history of a student’s development as a drafter?
- How does planning a portfolio for submission to a prospective employer differ from planning a portfolio for submission for a particular project?

Task Number 78

Gather material for a portfolio.

Definition

Gathering products (e.g., drawings, pictures of models) represent a variety of projects to demonstrate the range of the drafter's talent. The portfolio should also include

- résumé
- cover letter
- references
- letters of recommendation
- certifications.
Process/Skill Questions

• What are some strategies for writing a successful cover letter?
• How does one decide which work to include in a portfolio?
• What are some resources for résumé resume writing help?
• Who are good sources for letters of recommendation?

Task Number 79

Organize a portfolio.

Definition

The portfolio should include an index, and work should be organized into sections labeled by subject areas. Possible sections include

• architectural drawings
• mechanical drawings
• manual drawings
• projects
• awards and recognition (e.g., SkillsUSA, academic, professional)
• general (résumé, cover letter, letters of recommendation)
• certifications.

Process/Skill Questions

• How can an unorganized portfolio be detrimental to the presentation of its contents?
• What might a disorderly portfolio lead a prospective employer or client to conclude about a candidate?

Task Number 80

Present a portfolio.

Definition

Presentation may involve a variety of methods, including a slide show, web-based presentation, or manual browsing of the portfolio’s contents. The presenter must remain professional and possess strong communication skills.

Process/Skill Questions

• How do strong communication skills improve the portfolio presentation?
• What are some consequences of a lengthy presentation?
What are some considerations when practicing for the presentation?

## SOL Correlation by Task

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Follow general safety procedures.</td>
<td>History and Social Science: GOVT.16</td>
</tr>
<tr>
<td>40</td>
<td>Adjust equipment for maximum comfort and usability.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Describe ergonomic considerations.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>42</td>
<td>Describe key developments in the history of architecture.</td>
<td>History and Social Science: WHI.5, WHI.6, WHI.7, WHI.8, WHI.9, WHI.10, WHI.11, WHI.12</td>
</tr>
<tr>
<td>43</td>
<td>Use reference materials.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>44</td>
<td>Identify reasons for building codes.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>45</td>
<td>Apply architectural symbols to a drawing.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>46</td>
<td>Identify items which comprise a set of working drawings.</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Design a site plan.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Prepare a site plan.</td>
<td>Mathematics: G.3</td>
</tr>
<tr>
<td>49</td>
<td>Design a floor plan.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematics: G.3</td>
</tr>
<tr>
<td>50</td>
<td>Prepare a floor plan.</td>
<td>Mathematics: G.3</td>
</tr>
<tr>
<td>51</td>
<td>Design a foundation/basement plan.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematics: G.3</td>
</tr>
<tr>
<td>52</td>
<td>Prepare a foundation/basement plan.</td>
<td>Mathematics: G.3, G.4</td>
</tr>
<tr>
<td>53</td>
<td>Design a wall section.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematics: G.3</td>
</tr>
<tr>
<td>54</td>
<td>Prepare a wall section.</td>
<td>Mathematics: G.3, G.4</td>
</tr>
<tr>
<td>55</td>
<td>Design a roof plan.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>56</td>
<td>Prepare a roof plan.</td>
<td>Mathematics: G.3, G.4</td>
</tr>
<tr>
<td>57</td>
<td>Design an electrical plan.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>58</td>
<td>Prepare an electrical plan.</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Design a plumbing plan.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>60</td>
<td>Prepare a plumbing plan.</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Select doors and windows to match the style of the house.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>62</td>
<td>Prepare a door and window schedule.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>63</td>
<td>Design interior elevations.</td>
<td>English: 11.5, 12.5</td>
</tr>
<tr>
<td>64</td>
<td>Prepare interior elevations.</td>
<td></td>
</tr>
</tbody>
</table>
Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.” Teachers can find the infusion/unit in the course listing.
Appendix: Credentials and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- Architectural Apprentice Drafter Examination
- Architectural Certified Drafter Examination
- Architectural Drafting Assessment
- Autodesk Certified Professional Examinations
- Autodesk Certified User Examinations
- CAD Assessment
- CAD-CAM Assessment
- Certified SOLIDWORKS Associate (CSWA) Examination
- College and Work Readiness Assessment (CWRA+)
- Customer Service Examination
- Customer Service Specialist (CSS) Examination
- Mechanical Apprentice Drafter Examination
- Mechanical Certified Drafter Examination
- National Career Readiness Certificate Assessment
- Professional Communications Certification Examination
- Technical Drafting Assessment
- Technical Drafting Examination
- Workplace Readiness Skills for the Commonwealth Examination

<table>
<thead>
<tr>
<th>Career Cluster: Architecture and Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway</td>
</tr>
<tr>
<td>Design/Pre-Construction</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Career Cluster: Science, Technology, Engineering and Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway</td>
</tr>
<tr>
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