# Cabinetmaking Standards and Skills

JANUARY 2025



## Table of Contents

[Contents 2](#_Toc160538606)

[Health & Safety Standards 3](#_Toc160538607)

[Standard 1: Safety and Health in a Cabinetmaking Environment 3](#_Toc160538608)

[Technical & Integrated Academic Standards 3](#_Toc160538609)

[Standard 2: Wood Technology 3](#_Toc160538610)

[Standard 3: Blueprint Reading and Project Layout 4](#_Toc160538611)

[Standard 4: Cabinetmaking Joinery Fabrication 4](#_Toc160538612)

[Standard 5: Hand Sanding, Gluing, and Clamping 5](#_Toc160538613)

[Standard 6: Stationary Power Equipment 5](#_Toc160538614)

[Standard 7: Hand and Portable Power Tools 6](#_Toc160538615)

[Standard 8: Woodwork Quality Standards 7](#_Toc160538616)

[Standard 9: Casework and Furniture Fabrication 7](#_Toc160538617)

[Standard 10: Countertops 8](#_Toc160538618)

[Standard 11: Finishing, Hardware and Fasteners, and Architectural Millwork 8](#_Toc160538619)

[Employability Standards 8](#_Toc160538620)

[Standard 12: Employability Skills 8](#_Toc160538621)

[Entrepreneurship Standards 9](#_Toc160538622)

[Standard 13: Entrepreneurship 9](#_Toc160538623)

[Digital Literacy Standards 9](#_Toc160538624)

[Standard 14: Digital Literacy 9](#_Toc160538625)

## Health & Safety Standards

### Standard 1: Safety and Health in a Cabinetmaking Environment

Students will be able to demonstrate shop and job site health and safety practices and procedures, including the management of tools and equipment, use of personal protective equipment (PPE), and workspace ergonomics.

* Aligned Industry Recognized Credentials: OSHA10 – General Industry

#### Skills:

1. Explain various safety concerns and issues in the cabinetmaking field.
2. Complete safety training on equipment, tools, and materials related to cabinetmaking.
3. Identify and comply with Occupational Safety and Health Administration (OSHA) standards pertaining to the cabinetmaking field.
4. Demonstrate safe use, storage, and maintenance of cabinetmaking hand tools, power tools, and equipment according to OSHA standards.
5. Demonstrate safe dress and use of relevant safety gear, personal protective equipment (PPE) and jobsite ergonomics, (e.g., safety equipment, gloves, proper footwear, knee pads, earplugs, eye protection, and breathing apparatus).
6. Demonstrate appropriate safe body mechanics, including appropriate lifting techniques and ergonomics aimed at minimizing injury.
7. Appropriately document and communicate safety risks and equipment maintenance needs.
8. Identify, describe, and demonstrate the effective use of Safety Data Sheets (SDS).
9. Explain dangers associated with finishes and finishing operations.
10. Explain handling, storage, and proper disposal or recycling of hazardous, flammable, and combustible materials, according to EPA, OSHA, and product specifications.
11. Locate emergency equipment, first aid kit, emergency action and response plan, including labels and signage that follow OSHA Hazard Communication Program (HAZCOM).
12. Demonstrate first aid procedures according to policy and OSHA standards.

## Technical & Integrated Academic Standards

### Standard 2: Wood Technology

Students will be able to describe the properties of wood, evaluate project specifications and select appropriate materials to meet project goals.

#### Skills:

1. Describe properties of wood.
2. Identify wood species, growth, and characteristics.
3. Discuss wood harvesting, drying, and defects.
4. Define wood grading and ordering procedures.
5. Explain criteria needed to classify the species of an unidentified sample of wood.

### Standard 3: Blueprint Reading and Project Layout

Students will be able to read and interpret all aspects of technical drawings, blueprints, and specifications enabling them to plan, layout, and execute cabinetmaking projects.

#### Skills:

1. Interpret print terms, abbreviations, symbols, line types, symbols, and notes of technical drawings and blueprints.
2. Read working, perspective, cabinet, and shop drawings.
3. Read and explain written instructions in job-related specification documents.
4. Determine true measurements from print using Architect’s Scale.
5. Develop and complete material quantity takeoff sheets.
6. Demonstrate the techniques used in developing the layout for a project using a materials list and the creation of a layout rod.
7. Layout woodwork for fabrication.
8. Demonstrate different methods of measurement.
9. Read a ruler in sixteenths of an inch.
10. Identify and use layout, measuring, and checking devices.
11. Design and draw a small cabinet to scale and develop required material list from drawing.

### Standard 4: Cabinetmaking Joinery Fabrication

Students will be able to identify and fabricate various woodworking joints and develop and create a joint tree.

#### Skills:

1. Layout and fabricate joinery.
2. Layout and fabricate lap joints.
3. Layout and fabricate dovetail.
4. Layout and fabricate mortise and tenon joints.
5. Layout and fabricate tongue and groove joints.
6. Layout and fabricate miter joints.
7. Layout and fabricate spline.
8. Layout and fabricate bridle.
9. Layout and fabricate dado joints.
10. Layout and fabricate dowel joints.
11. Layout and fabricate rabbet joints.
12. Layout and fabricate cope and stick joints.
13. Layout and fabricate scarf joints.
14. Layout and fabricate biscuit joints.
15. Layout and fabricate butt joints.

### Standard 5: Hand Sanding, Gluing, and Clamping

Students will be able to demonstrate proper hand sanding, gluing, and clamping of project materials to meet the goals of job specifications.

#### Skills:

1. Identify and demonstrate hand sanding equipment and procedures.
2. Identify and select appropriate sandpaper for a specific application.
3. Demonstrate sanding a project by hand using ascending grits.
4. Demonstrate flat and curved sanding.
5. Describe and apply adhesives.
6. Identify types and uses of glues.
7. Identify types and uses of clamps.
8. Demonstrate flat and curve clamping procedures.

### Standard 6: Stationary Power Equipment

Students will be able to safely set up, operate, and maintain stationary power equipment.

#### Skills:

1. Set up and operate a jointer.
2. Demonstrate face and edge jointing, and tapering.
3. Flatten a face of a board on the jointer.
4. Demonstrate the use of a planer according to industry and OSHA standards.
5. Demonstrate operation of a planer to plane stock to specified thickness.
6. Demonstrate squaring stock using a planer.
7. Demonstrate operation of a band saw and change the saw blade.
8. Use a band saw to cut curves, rip using a fence, and re-saw stock.
9. Demonstrate the set up and operation of a table saw using the crosscut and ripping techniques.
10. Demonstrate how to safely change the blade on a table saw.
11. Perform specialty cuts including dado, rabbet, groove, chamfer, and miter.
12. Demonstrate the operation of a drill press using various drill jigs and fixtures according to industry and OSHA standards.
13. Demonstrate drilling a hole to given depth.
14. Demonstrate drilling multiple holes using stops.
15. Set up and safely operate a grinder.
16. Grind cutting tools including chisels and planes.
17. Demonstrate the grinding techniques for sharpening tool bits according to industry and OSHA standards.
18. Demonstrate the set up and operation of a lathe.
19. Perform spindle, faceplate, and duplicate turning.
20. Set up and operate a shaper, including identification and installation of shaper cutters.
21. Demonstrate the operation of a shaper for edge and face shaping.
22. Demonstrate the operation of various types of sanding equipment, both electrical and air operated according to industry and OSHA standards.
23. Perform sanding of stock using wide belt sander, an edge sander, and/or a spindle sander.
24. Identify and demonstrate the use of computer numerically controlled machines.
25. Describe the fundamentals of design software.
26. Produce a drawing using design software.
27. Use CAD/CAM equipment to manufacture a product or component.
28. Demonstrate the operation of an electric miter box using crosscut and compound miter techniques.
29. Perform multiple cuts using stops.
30. Demonstrate the safe use of production equipment according to OSHA and industry standards.
31. Demonstrate the use of a 32mm machine.
32. Demonstrate the use of a horizontal boring machine.
33. Demonstrate the use of an edge bander.
34. Demonstrate the use of a power feeder.
35. Demonstrate the use of a panel saw.
36. Demonstrate the use of a radial arm saw.

### Standard 7: Hand and Portable Power Tools

Students will be able to demonstrate safe use and maintenance of hand and portable power tools.

#### Skills:

1. Demonstrate safe use of hand tools.
2. Demonstrate use and maintenance of sharp edge tools (i.e., saws, chisels, and boring tools).
3. Demonstrate use and maintenance of pounding and prying tools.
4. Demonstrate the ability to use a pistol drill including selection of correct drill bit.
5. Drill holes to a given dimension.
6. Identify the methods of using an oscillating sander.
7. Identify sandpaper according to grit.
8. Sand surfaces with an oscillating sander.
9. Demonstrate the operation of a router to rout edges.
10. Identify types of router bits.
11. Demonstrate the ability to make specialty cuts using guides and templates.
12. Demonstrate the use of a belt sander on a given surface.
13. Change belt on a belt sander.
14. Demonstrate the use of a sabre saw to cut curved and straight lines.
15. Change blade of a sabre saw.
16. Demonstrate operation of a circular saw according to industry and OSHA standards.
17. Demonstrate the use of a biscuit joiner.
18. Demonstrate the operation of pneumatic fasteners according to industry and OSHA standards.

### Standard 8: Woodwork Quality Standards

Students will be able to identify quality standards of woodworking and woodworking materials.

#### Skills:

1. Identify quality standards of woodworking materials.
2. Identify and differentiate between sheet goods.
3. Evaluate the relative costs and benefits of purchasing decisions and choose the most appropriate materials.
4. Identify and describe the characteristics of solid woods.
5. Identify millwork.
6. Conduct tests and inspections of products to evaluate quality.

### Standard 9: Casework and Furniture Fabrication

Students will be able to demonstrate planning, measuring, and layout techniques for furniture and casework to meet project specifications.

#### Skills:

1. Machine parts and assemble components according to job specifications.
2. Describe and demonstrate planning, measuring, and layout of furniture/casework for a specified area.
3. Layout, machine, and perform assembly and installation of furniture/casework.
4. Identify complex problems related to assembly and installation and review relevant information to develop and evaluate solutions.
5. Construct and install doors and drawers.
6. Design, cut parts, and assemble a base cabinet.

### Standard 10: Countertops

Students will be able to fabricate and install countertops to meet project specifications.

#### Skills:

1. Measure and create template for fabrication of countertops.
2. Identify countertop materials according to project specifications.
3. Demonstrate fabrication of countertops.
4. Remove worn, damaged, or outdated materials from work area.
5. Demonstrate installation of countertops.

### Standard 11: Finishing, Hardware and Fasteners, and Architectural Millwork

Students will be able to select and apply finishes, install hardware and fasteners, and fabricate architectural millwork to meet project specifications.

#### Skills:

1. Identify and use stains, sealers, and topcoats.
2. Mix substances or compounds needed for finishing activities.
3. Prepare a surface for finishing, including application of filler when determined necessary.
4. Identify and use appropriate methods for application of finishes.
5. Apply finish to a project using spray equipment.
6. Research the use of HVLP spray equipment describe its applications.
7. Apply decorative or textured finishes or coverings.
8. Identify types and describe uses of hardware and fasteners.
9. Layout and install hardware and fasteners.
10. Design, fabricate, and install architectural millwork according to job specifications.
11. Identify and fabricate trim and molding.
12. Install base, chair rail, and crown molding on a wall.

## Employability Standards

### Standard 12: Employability Skills

Students will understand and demonstrate the roles of professional communication, critical thinking, problem solving, professionalism, teamwork, and collaboration within the context of cabinetmaking.

#### Skills:

1. Demonstrate the impact of both oral and written communication skills on the process of laying out and executing a plan for constructing cabinets.
2. Describe appropriate methods of oral and written communication at each stage of the process from initial customer meeting to layout of the cabinet project to completion.
3. Evaluate the communication skills used in a hypothetical customer consultation.
4. Build a team-based project plan that includes assigning teammates assigning roles of sales, planning, production, and installation.
5. Examine the role of cabinetmaking in society, particularly in terms of its significance for employability and career opportunities.

## Entrepreneurship Standards

### Standard 13: Entrepreneurship

Students will be able to describe opportunities for entrepreneurship and be able to evaluate the value proposition of business ownership in the cabinetmaking field.

#### Skills:

1. Describe the role of a cabinetmaker in a company.
2. Describe the business model of a cabinetmaking company.
3. Convey in a brief hypothetical conversation what you do as a cabinetmaker and what your hypothetical employer offers.
4. Evaluate the licensing, regulatory and tax implications of self-employment and business ownership as a cabinetmaking professional compared to W-2 employment.

## Digital Literacy Standards

### Standard 14: Digital Literacy

Students will be able to demonstrate the use of common digital technology in a modern cabinetmaking shop environment.

#### Skills:

1. Demonstrate the use of a common ticketing/case management system for cabinetmaking services.
2. Demonstrate the use of common scheduling, resource management, and customer relationship software systems.
3. Understand where to find online resources that support effective cabinetmaking work and how to be a safe and ethical consumer and creator of digital content.
4. Apply strategies for using digital tools and technology to drive business and commerce.