Module 27501-15 introduces advanced trainees and experienced carpenters to the construction of high-quality finished products such as cabinets and furniture. Many companies build and install custom cabinets designed to fit into a specific area or serve a particular need. Custom cabinets are common in both residential and commercial construction. Custom entertainment centers, bookcases, and kitchen cabinets are all examples of work done by cabinetmakers. Like trim carpentry, this craft requires great precision, attention to detail, an eye for design, and the ability to use a variety of specialized tools that are unique to cabinet fabrication and construction.

Teaching Time: 35 Hours
(Fourteen 2.5-hour Classroom Sessions)
Session time may be adjusted to accommodate your class size, schedule, and teaching style.

Prerequisites
Core Curriculum; Carpentry Levels One and Two.

Before You Begin
As you prepare for each session, allow sufficient time to review the course objectives, content, visual aids (including the accompanying PowerPoint® presentation), and these lesson plans, and to gather the required equipment and materials. Consider time required for demonstrations, laboratories, field trips, and testing.

Using your access code, download the written examinations and Performance Profile sheets from www.nccerirc.com. The passing score for submission into NCCER’s Registry is 70% or above for the written examination; all Performance Tasks are graded pass or fail.
Safety Considerations
This module requires that trainees work with and around numerous power tools and equipment capable of causing serious personal injury. Safety must be emphasized at all times. Trainees should be carefully observed to ensure that they wear the proper PPE, follow safe practices, and give due respect to unseen hazards related to power tools and the cabinet-shop environment. Any deficiencies must be corrected to ensure the future safety of all trainees. All practice sessions and Performance Tasks must be completed under your direct supervision.

Classroom Equipment and Materials
Whiteboard
Dry-erase markers
(a variety of standard marker sizes)
Pencils and paper
Poster board
Flip chart
LCD projector and screen
Computer (Internet access optional)
Samples of various hardwoods
Samples of plywood with different core types
Samples of particleboard, MDF, and melamine
A variety of sandpapers with different abrasives and grit values
Module Review answer key
Copies of the Module Examination and answer key
Performance Profile sheets
The following tools are optional for classroom sessions:
  Table saw
  Radial arm saw
  Compound miter saw
  Jointer
  Planer
  Shaper
  Router and router table
  Drum sander
  Belt-disc sander
  Belt and pad sanders
  Drill press
  Brad gun
  Biscuit joiner and biscuits

Laboratory Equipment and Materials
Minimum Safety Equipment:
  Safety glasses
  Face shields
  Work gloves
  The following items as directed by the instructor or training facility provider:
    Respiratory protection
    Proper footwear
    Hearing protection
    Hard hat
  Table saw with both cutting and dado blade sets
  Radial arm saw
  Compound miter saw
  Scroll or band saw
  Jointer-planer
  Thickness planer
  Shaper with assorted cutting blades
  Router with assorted bits
  Router table
  Laminate trimmer (or appropriate router bit)
  Drum sander
  Disc sander
  Belt sander
  Random-orbit sander
  Appropriate abrasives and sandpaper for all sanding equipment
  Drill press and assorted bits
  Brad gun and brads
  Biscuit joiner
  Biscuits and dowels
  Squares
  Level
  Block plane
  Assortment of clamps
  Wood files and/or rasps
  Tape measures and steel rulers
  J-rollers
  Paint rollers and/or brushes for applying contact cement
  Contact cement
  Wood glue
  Wood sealers
  Wood filler
  Various wood stains
  Finish coat products, such as varnish or polyurethane
  Brushes and rags for applying finishes
  Assortment screws and similar assembly hardware
  Appropriate scrap lumber for joint-fabrication demonstration and trainee practice
  Countertop base and backsplash
  Sufficient laminate material to cover the countertop base
Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


There are a number of online resources available for trainees who would like more information on cabinetmaking and related finish carpentry skills. A search for additional information may be assigned as homework to interested trainees.

Instructors should view any videos that may be identified in the lesson plan before using them to ensure their suitability. The videos can provide teachable moments in both proper and improper work processes and behaviors. Be prepared to stop the videos at appropriate times to point out and discuss both proper and improper conduct and techniques.

Numerous videos related to the topic are available on the Internet. These can be located by searching “custom cabinets”, “cabinetmaking”, or similar terms and using the Video tab on the results page of your preferred search engine.

Instructors are encouraged to locate additional audiovisual aids available on the Internet, make personal videos, and take still pictures related to the subject matter and add them to the presentations throughout the program.
The lesson plan for this module is divided into fourteen 2.5-hour sessions. Each session includes 10 minutes for administrative tasks and one 10-minute break.

**SESSION ONE**

Session One introduces trainees to a wide variety of cabinet woods. The session concludes with an introduction to shop saws. This session covers Sections 1.0.0 through 2.1.3.

1. Open the Session One presentation.
2. Use the Kickoff Activity to encourage discussion and learn more about the trainees.
3. Introduce hardwoods and softwoods used in cabinetmaking.
5. Open the topic of shop power tools with an introduction to shop saws.
6. Use the Section Review questions to review the topics of this session.

**SESSION TWO**

Session Two presents the remaining power tools to be covered in this module and introduces trainees to common wood joints used in cabinetmaking. This session covers Sections 2.2.0 through 3.1.11.

1. Open the Session Two presentation.
2. Use the Kickoff Activity to introduce trainees to the jointer and its proper adjustment.
3. Identify and describe jointer-planers, thickness planers, shapers, and routers.
4. Identify and describe sanders, drill presses, and brad guns.
5. Introduce a variety of wood joints used in cabinetmaking.
6. Use the Section Review questions to review the topics of this session.

**SESSION THREE**

Session Three presents the components of cabinets as well as the necessary hardware. The session concludes with a discussion of cabinet assembly and finishing processes. This session covers Sections 3.2.0 through 4.3.3.

1. Open the Session Three presentation.
2. Use the Kickoff Activity to introduce trainees to the extensive variety of cabinet pulls, knobs, and related hardware available on the market.
3. Review the construction details of cabinet doors, drawers, and shelves.
4. Identify and describe different types of hinges, catches, knobs, pulls, and fasteners.
5. Review the steps in cabinet assembly.
6. Discuss the application of sealers, wood fillers, stains, and finish coatings.
7. Use the Section Review questions to review the topics of this session.

**SESSION FOUR**

Session Four reviews the process of installing countertop laminates. In addition, this session includes a review of the complete module and the module exam is administered. This session covers Sections 5.0.0 through 5.3.2.

1. Open the Session Four presentation.
2. Use the Kickoff Activity to introduce the installation of laminates through a video presentation.
3. Review the process of cutting and applying laminates.
4. Use the Section Review questions to review the topics of this session.
5. Go over the Module Review to prepare trainees for the module exam.
6. Administer the module exam. Record the testing results on the Registration of Training Modules form and submit the form to your Training Program Sponsor.
SESSIONS FIVE THROUGH FOURTEEN

Sessions Five through Fourteen are laboratory sessions that provide an opportunity for trainees to practice and complete the Performance Tasks associated with this module.

1. Note that no slide presentation is associated with these laboratory sessions.
2. Demonstrate how to use a variety of power tools.
3. Demonstrate how to create common wood joints using power tools.
4. Provide trainees with a set of plans to build a cabinet and review the details of its construction.
5. Under your supervision, have trainees practice and complete the requirements of Performance Tasks 1 and 2.
6. Coach trainees through the installation of a laminate on a countertop base.
7. Under your supervision, have trainees practice and complete the requirements of Performance Task 3.
8. Document successful Performance Task completions for each trainee on the Performance Profile sheet and submit the results to the Training Program Sponsor.
### Materials Checklist for Module 27501-15, Cabinetmaking

#### Equipment and Materials

<table>
<thead>
<tr>
<th>Personal protective equipment:</th>
<th>Table saw with both cutting and dado blade sets</th>
<th>J-rollers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses</td>
<td>Radial arm saw</td>
<td>Paint rollers and/or brushes for applying contact cement</td>
</tr>
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<td>Face shields</td>
<td>Compound miter saw</td>
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<td>Work gloves</td>
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<td>The following items as directed by the instructor or training facility provider:</td>
<td>Jointer-planer</td>
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<td>Respiratory protection</td>
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<td>Proper footwear</td>
<td>Shaper with assorted cutting blades</td>
<td>Various wood stains</td>
</tr>
<tr>
<td>Hearing protection</td>
<td>Router with assorted bits</td>
<td>Finish coat products, such as varnish or polyurethane</td>
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<td>Hard hat</td>
<td>Router table</td>
<td>Brushes and rags for applying finishes</td>
</tr>
<tr>
<td>Whiteboard</td>
<td>Laminate trimmer (or appropriate router bit)</td>
<td>Assortment screws and similar assembly hardware</td>
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<td>Appropriate scrap lumber for joint-fabrication demonstration and trainee practice</td>
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<td>Pencils and paper</td>
<td>Disc sander</td>
<td>Countertop base and backsplash</td>
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<td>Poster board</td>
<td>Belt sander</td>
<td>Sufficient laminate material to cover the countertop base</td>
</tr>
<tr>
<td>Flip chart</td>
<td>Random-orbit sander</td>
<td>Tools for classroom sessions (optional):</td>
</tr>
<tr>
<td>LCD projector and screen</td>
<td>Appropriate abrasives and sandpaper for all sanding equipment</td>
<td>Table saw</td>
</tr>
<tr>
<td>Cabinetmaking PowerPoint® Presentation Slides</td>
<td>Drill press and assorted bits</td>
<td>Radial arm saw</td>
</tr>
<tr>
<td>Computer (Internet access optional)</td>
<td>Brad gun and brads</td>
<td>Compound miter saw</td>
</tr>
<tr>
<td>Module Review answer key</td>
<td>Biscuit joiner</td>
<td>Jointer, planer, shaper</td>
</tr>
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<td>Copies of the Module Examination and answer key</td>
<td>Biscuits and dowels</td>
<td>Router and router table</td>
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<td>Performance Profile sheets</td>
<td>Squares</td>
<td>Drum sander</td>
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<td>Samples of various hardwoods</td>
<td>Level</td>
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<td>Samples of plywood with different core types</td>
<td>Block plane</td>
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<td>Samples of particleboard, MDF, and melamine</td>
<td>Assortment of clamps</td>
<td>Drill press</td>
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<td>Variety of sandpapers with different abrasives and grit values</td>
<td>Wood files and/or rasps</td>
<td>Brad gun</td>
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<td>Tape measures and steel rulers</td>
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To the extent possible, and as required for performance testing, provide a selection of the tools listed for each session; alternatively, photos may be used to teach tool identification.