*Correlation of*

***Modern Cabinetmaking,* Molzahn, DeWerd, Umstattd**

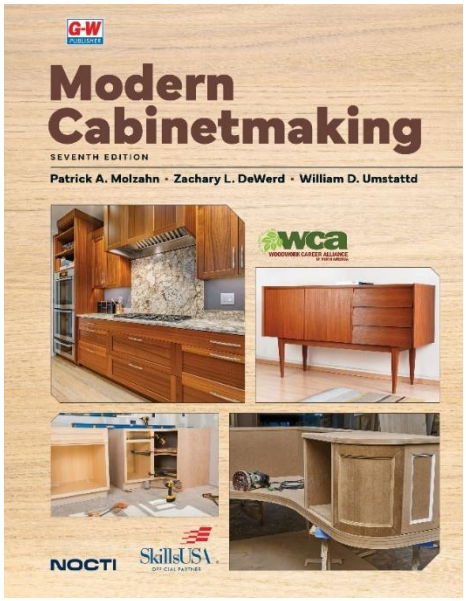
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**to**

**Woodwork Career Alliance: 3. Milling**

The content of the text and Lab Workbook correlates to Woodwork Career Alliance (WCA) skill standards. The WCA establishes a benchmark to measure and recognize an individual's skills and knowledge. The WCA skill standards help ensure that students are prepared for rigorous industry standards, and provide a pathway for advancement for professional woodworkers.

The WCA skill standards define the minimum requirements for specific woodworking machine operations. Using the WCA skill standards in a wood training program can help you, your students, and your program obtain industry recognition. The *Modern Cabinetmaking* textbook and Lab Workbook are correlated to the performance standards, helping prepare your students for certification.




# Milling Considerations

- Pre-Operation Checklist is a prerequisite for ANY operation.
- Safe hand position and/or push blocks are used when appropriate.
- Appropriate stance is utilized for optimum balance and part control.
- Stock is fed in smooth, continuous motion past cutter head.
- Grain direction as well as bow/warp are correctly identified and appropriately considered for feed.
- Outfeed table is appropriately utilized for purposes of facing/straightening.
- Stock is supported at outfeed.
- Machine and work areas are cleaned after operation.
- Required OSHA-approved personal protective equipment is worn.
- Lock-out/tag-out procedure is in place and followed.
- Process is completed in a timely manner.
- Stock is supported at infeed and outfeed.
- Verifies cutting tools are secure and free of defects.



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- Verifies spindle height and/or angle are set to specified dimension(s).
- Proper feed rate is selected to obtain desired finish and maximize tool life.
- Proper stance and hand position are demonstrated when feeding/offloading material.
- Warpage is considered for feed and to minimize tearout.
- Clears machine and cleans work area after operation.
- Tool/machine manufacturer's safety rules and guidelines are followed.
- Demonstrates knowledge of and proper use of all machine specific controls.
- Material is well supported at both infeed and outfeed tables.
- Spot check dimensions following the operation.
- Assesses stock for suitability to determine whether the finished material size can be achieved.
- Grain direction is correctly identified and appropriately considered for feed to reduce tearout.
- Similar amounts of material are removed from both faces of the board.
- Loose chips and debris are removed from infeed table before placement of all stock after every pass.
- Operator clears machine and cleans work area after use.

# Jointer

| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| **Pre-Operation Checklist** | | | | |
| 1 | — | **Performance Standard 1.** Verifies tool is properly guarded. | Chapter 25 | — |
| 1 | — | **Performance Standard 2.** Demonstrates knowledge of and proper use of all machine specific controls. | Chapter 25 | — |
| 1 | — | **Performance Standard 3.** Verifies infeed and outfeed tables are free of debris prior to machining. | Chapter 25 | — |
| 1 | — | **Performance Standard 4.** Ensures dust collection operable/operating. | Chapter 25 | — |
| 2 | — | **Performance Standard 1.** Inspects knives for wear or defects. | Chapter 25 | — |
| 2 | — | **Performance Standard 2.** Installs and/or properly adjusts guard. | Chapter 25 | — |
| 2 | — | **Performance Standard 3.** Verifies and/or properly adjusts fence 90° to infeed/outfeed tables. | Chapter 25 | — |


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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 2 | — | **Performance Standard 4.** Verifies outfeed table is set to manufacturer's specification. | Chapter 25 | — |
| 2 | — | **Performance Standard 5.** Sets depth of cut appropriately. | Chapter 25 | — |
| 2 | — | **Performance Standard 6.** Verifies tables are clean and polished to facilitate smooth material movement. | Chapter 25 | — |
| 2 | — | Meets Level 1 performance standard. | — | — |
| **Operation—Edge Jointing First Edge** | | | | |
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4') long and a width of 100–150 mm (4–6"), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 1.** Edge is 90° to face of board, measured along entire edge. | Chapter 25 | Section Project 5-1 |
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4') long and a width of 100–150 mm (4–6"), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 2.** Edge deviation does not exceed ±0.4 mm (1/64") [0.0156"] from a flat plane. | Chapter 25 | Section Project 5-1 |
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4') long and a width of 100–150 mm (4–6"), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 3.** Edge jointed width allows for final processing to target width. | Chapter 25 | Section Project 5-1 |


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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 4.** Machined surface exhibits a uniform smoothness between 15–25 knife cuts per inch (KCPI). | Chapter 25 | Section Project 5-1 |
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 5.** Edge is free of snipe. | Chapter 25 | Section Project 5-1 |
| 1 | Given material jointed one face and rough sawn edge, 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a minimum target width, and machine set up and ready to cut, edge joint first edge. | **Performance Standard 6.** No burn or hesitation marks are visible on surface being machined. | Chapter 25 | Section Project 5-1 |
| 2 | Given material jointed one face and rough sawn edge, at least twice the length of outfeed table, a minimum target width, set up and adjust machine, edge joint first edge. | Meets Level 1 performance standard. | — | — |
| **Operation—Face Jointing** | | | | |
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 1.** Face deviation does not exceed ±0.4 mm (1/64″) [0.0156″] per foot from a flat plane. | Chapter 25 | — |



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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 2.** Face jointed thickness allows for final processing to target thickness. | Chapter 25 | — |
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 3.** Machined surface exhibits a uniform smoothness between 15–25 knife cuts per inch (KCPI). | Chapter 25 | — |
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 4.** Board exhibits minimal tearout. | Chapter 25 | — |
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 5.** Board is free of snipe. | Chapter 25 | — |
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 6.** No burn or hesitation marks are visible on surface being machined. | Chapter 25 | — |


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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 1 | Given rough sawn, unjointed material 900–1200 mm (3–4′) long and a width of 100–150 mm (4–6″), a target thickness, and machine set up and ready to cut, face joint material. | **Performance Standard 7.** Face is marked to indicate jointed surface. | Chapter 25 | — |
| 2 | Given rough sawn, unjointed material at least twice the length of outfeed table and a width of 100–150 mm (4–6″), a minimum target thickness, set up and adjust machine, face joint material. | Meets Level 1 performance standard. | — | — |

## Thickness Planer

| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| **Pre-Operation Checklist** | | | | |
| 1 | — | **Performance Standard 1.** Verifies tool is properly guarded. | Chapter 24 | — |
| 1 | — | **Performance Standard 2.** Verifies dust collection operable/operating. | Chapter 24 | — |
| 1 | — | **Performance Standard 3.** Ensures paths of infeed and outfeed have no obstructions to material and operator. | Chapter 24 | — |
| 1 | — | **Performance Standard 4.** Staggers loading to ensure entire width of bed is used. | Chapter 24 | — |
| 1 | — | **Performance Standard 5.** Minimum part length is observed. | Chapter 24 | — |
| 2 | — | **Performance Standard 1.** Inspects knives for wear or defects. | Chapter 24 | — |
| 2 | — | **Performance Standard 2.** Verifies tables are clean and polished to facilitate smooth material movement. | Chapter 24 | — |


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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 2 | — | **Performance Standard 3.** Proper stock removal rates are selected given material type. | Chapter 24 | — |
| 2 | — | Meets Level 1 performance standard. | — | — |
| **Operation—Planing for Thickness** | | | | |
| 1 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], feed rate pre-selected, and machine set up and ready to cut, plane material to specified thickness. | **Performance Standard 1.** Final planed surface exhibits minimal tearout or chip-out. | Chapter 24 | Section Project 5-1 |
| 1 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], feed rate pre-selected, and machine set up and ready to cut, plane material to specified thickness. | **Performance Standard 2.** Proper incremental adjustment made on each pass to reach specified thickness. | Chapter 24 | Section Project 5-1 |
| 1 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], feed rate pre-selected, and machine set up and ready to cut, plane material to specified thickness. | **Performance Standard 3.** Sets optimum initial thickness prior to first pass based on maximum thickness or species of material. | Chapter 24 | Section Project 5-1 |
| 1 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], feed rate pre-selected, and machine set up and ready to cut, plane material to specified thickness. | **Performance Standard 4.** Final thickness dimension tolerance is ±0.4 mm (1/64") [0.0156"] across entire surface of material. | Chapter 24 | Section Project 5-1 |


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| Level | Objective | Performance Standards | Textbook Chapter(s) | Lab Workbook Material |
|---|---|---|---|---|
| 1 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], feed rate pre-selected, and machine set up and ready to cut, plane material to specified thickness. | **Performance Standard 4.** Planed surface is free of or has minimal snipe (taking into account what is normal for a given machine). | Chapter 24 | Section Project 5-1 |
| 2 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], set up equipment and plane material to specified thickness. | **Performance Standard 1.** Verifies/sets feed speed to meet surface quality specification—15–25 knife cuts per inch (KCPI). Variations accepted for accommodation of difficult grain patterns and materials with defects. Any tearout must be able to be removed without excessive sanding, scraping, etc. | Chapter 24 | — |
| 2 | Given material (flattened on one side), a target thickness greater than 6 mm (1/4") [0.25"], set up equipment and plane material to specified thickness. | Meets Level 1 performance standard. | — | — |


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