

# ATGL-1620: GLASS AND MIRROR REPLACEMENT AND INSTALLATION

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## Cuyahoga Community College

**Viewing: ATGL-1620 : Glass and Mirror Replacement and Installation**

**Board of Trustees:**

September 2025

**Academic Term:**

Fall 2025

**Subject Code**

ATGL - Appld Indus Tech - Glazing

**Course Number:**

1620

**Title:**

Glass and Mirror Replacement and Installation

**Catalog Description:**

Instruction in glass replacement and mirror layout, measurement cutting, edging and mounting. Includes safety procedures, and glass installation using putty and adhesives.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

## Requisites

**Prerequisite and Corequisite**

Departmental approval: Admissions to Glazing Technology apprenticeship program.

## Outcomes

**Course Outcome(s):**

Apply safety procedures in removing broken and damaged glass.

**Objective(s):**

1. Discuss the appropriate safety procedures to use when removing broken and damaged glass.
2. Identify the required personal protective equipment (PPE) to use when working with broken and damaged glass.
3. Describe an edge run.
4. Explain how to perform an impact brake replacement.

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**Course Outcome(s):**

Install a light of glass using putty as a ceiling compound.

**Objective(s):**

1. Describe how the installation of glass in putty is done.
  2. Explain how glass is installed in a wood sash.
  3. Explain how glass is installed in a steel sash.
  4. Explain how glass is installed in an aluminum sash.
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**Course Outcome(s):**

Measure a wall efficiently and accurately and transfer the measurements onto a mirror.

**Objective(s):**

1. Explain how to measure a wall and discuss the importance of taking accurate measurements.
2. Explain the steps to take when doing a layout of a mirror for a bowed wall.
3. Differentiate between two mirror layouts and a one mirror layout.
4. Explain the steps to take when doing a mirror layout for large walls.

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**Course Outcome(s):**

Fabricate a mirror and finish the mirror edges.

**Objective(s):**

1. Explain how to cut mirrors.
2. Explain how edging is done on mirrors.
3. Demonstrate the following glass and mirror cutouts: corner, wall outlet, peninsula notch, island circle, and outside circle.

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**Course Outcome(s):**

Discuss the various types of Mirror Designs.

**Objective(s):**

1. Explain different design considerations.
2. Describe the difference in manufacturing of various mirrors.
3. Describe how to handle and care for a mirror.

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**Course Outcome(s):**

Install mirrors choosing the best hardware and method of installation for a given job.

**Objective(s):**

1. Describe a skeleton wood back.
2. Differentiate between types of mounting hardware.
3. Describe the various methods for installing mirrors.
4. Identify and describe the use of hardware used for mirror mounting.
5. Identify different types of drills used for creating holes in glass and mirrors.

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**Methods of Evaluation:**

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of project assignments

**Course Content Outline:**

1. Glass replacement
  - a. Safety
    - i. Safety glasses
    - ii. Glass handling gloves
    - iii. Gauntlets
    - iv. Suction cups
    - v. Padded blocks
    - vi. Hard hats
    - vii. Safe and secure scaffold i.e. ladders, etc.
  - b. Edge run replacement

- i. Examine broken glass
    - ii. Stop the examined pane
    - iii. Take extreme care
    - iv. Make a safe cut
    - v. Remove remaining glass
  - c. Impact break replacement
    - i. Make safe cut
    - ii. Tap the safe cut
    - iii. Run the glass
    - iv. Remove remaining glass
- 2. Putty glazing
  - a. Installing glass using putty
  - b. Wood sash
    - i. Residential
    - ii. Custom construction
    - iii. Single and multiple lites
  - c. Aluminum sash
    - i. Perfect alignment
    - ii. Make adjustments
    - iii. Small welds
  - d. Sliding windows
    - i. Full surround
    - ii. Attached weatherstripping
    - iii. Keep Square
    - iv. Make sure gasket is at proper length
    - v. Lubricate if necessary
- 3. Mirror layout and measuring
  - a. Measuring the wall
    - i. Accurate measurements
    - ii. Wall sketch
    - iii. Establish horizontal line
    - iv. Establish plumb
  - b. Layout for bowed walls
    - i. Check for bows
    - ii. Use straight edge and square
    - iii. Create level line
    - iv. Use plumb line
    - v. Measure off wall at top and bottom
  - c. Two or more mirrors
    - i. Establish plumb and level
    - ii. Measure from desired point given from contractor or owner
    - iii. Divide area according to number of mirrors
  - d. Layout for large walls
    - i. Establish plumb and level
    - ii. Measure from center
    - iii. Divide area according to number of mirrors
- 4. Cutting and edging mirrors
  - a. Cutting
    - i. Square mirror
    - ii. Measure mirror
    - iii. Double check measurements
    - iv. Cut mirror
  - b. Edging mirror
    - i. Sand edges
    - ii. Look for imperfections
    - iii. Seal edges
- 5. Mirror design
  - A. Design considerations

1. Used to add light
2. Illusion of a larger space
3. Illusion of a greater natural light source
- B. Manufacturing
  1. Manufactured from a variety of glass
  2. Only highest quality float glass used
  3. Can be tinted
  4. Can be safety glass as well
- C. Handling and protection
  1. Always handle with care
  2. Store in dry ventilated areas
  3. Store vertically
  4. Block Mirror
  5. Always Use PPE
6. Mirror Mounting Methods
  - A. Skeleton wood back
    1. Made from furring strips
    2. Used to even out large areas
    3. Lumber should be prime painted
    4. Mechanical fasteners used to fasten to the wall
  - B. Mirror hardware
    1. Clips
    2. Clamps
    3. J Channel
    4. Moldings
    5. Rosettes
    6. Mastic
    7. Double faced tape

## Resources

International Brotherhood of Painters & Allied Trades Joint Apprenticeship & Training Fund. "Corner Notch in Mirror"

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International Brotherhood of Painters & Allied Trades Joint Apprenticeship & Training Fund. "Glass Replacement and Putty Glazing"

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International Brotherhood of Painters Allied Trades Joint Apprenticeship Training Fund. "Glaziers, Architectural Metal and Glass Workers Training Manual"

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International Brotherhood of Painters Allied Trades Joint Apprenticeship Training Fund. "Glaziers, Architectural Metal and Glass Workers Training Manual"

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International Brotherhood of Painters Allied Trades Joint Apprenticeship Training Fund. "Glaziers, Architectural Metal and Glass Workers Training Manual"

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International Brotherhood of Painters & Allied Trades Joint Apprenticeship & Training Fund. "Mirrors Job Layout and Measurements"

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International Brotherhood of Painters & Allied Trades Joint Apprenticeship & Training Fund. "Mirror Mounting Methods"

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