OBJECTIVE SHEET

DECORATIVE SAWCUTTING 13

INTRODUCTION

Both scoring and sawcutting can be used to create decorative effects that add depth and texture to concrete surfaces such as floors, patios and driveways. On hardened concrete, cement masons can sawcut lines that are straight, diagonal or circular. Often these designs created by sawcutting are then stained with a variety of colors or etched to create company logos or other designs.

FOCUS ASSIGNMENTS

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1. Take a virtual tour of a decorative sawcutting business. Visit a commercial web site such as www.engraveacrete.com.

2. Summarize your findings. Describe some of the designs and applications that you discovered.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Job Sheet and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVE

1. State guidelines for creating special effects by scoring and saw cutting concrete.

2. Name methods applied when sawcutting concrete surfaces.

3. Identify types of sawcutting tools and describe their applications.

4. List safety procedures for sawcutting concrete.

5. Cut a decorative design for a stained surface using a diamond tool. (Job Sheet)

DECORATIVE SAWCUTTING

OBJECTIVE 1

State guidelines for achieving special effects by scoring and sawcutting concrete.

- A variety of shapes such as diamonds, stars and rectangles can be sawcut into the surface then stained to add contrast to the bordering concrete (Figure 1).

FIGURE 1

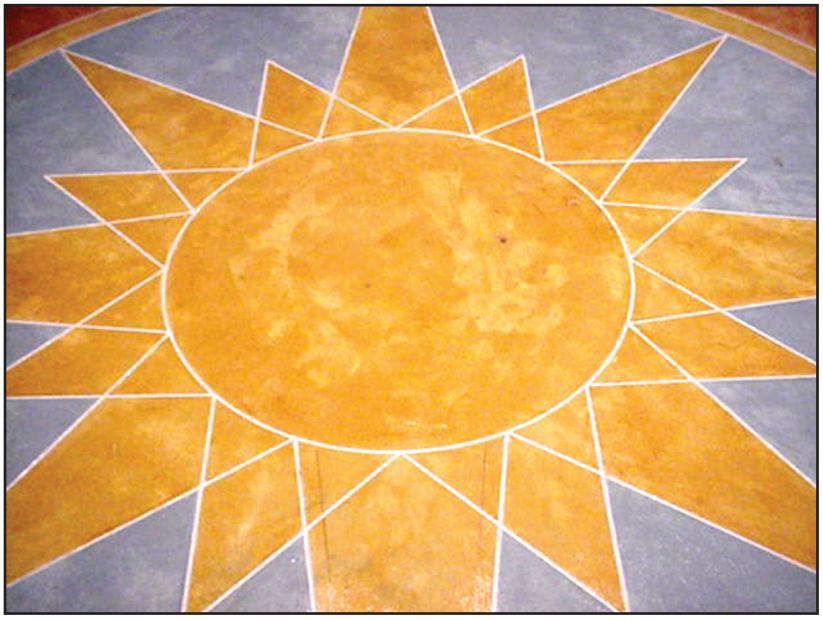

Photo courtesy of Engrave-A-Crete.

- With proper saws, linear and circular brick patterns can be created.

- Decorative sawcutting is frequently combined with concrete staining (Figure 2).

FIGURE 2

Photo courtesy of Engrave-A-Crete

- Special effects require lines only 1/4 inch deep or less. A typical cut is 1/8 inch deep.

- Sawcutting is usually done before staining. When doing monochromatic jobs, staining the floor before applying decorative saw cuts may be preferred.

- Sawcuts and scoring can also function as control joints that protect the concrete surface from cracking.

OBJECTIVE 2

Name methods applied when sawcutting concrete surfaces.

WORDS YOU SHOULD KNOW	
over cut	A flaw in the design caused by cutting through another line

Since a safe job site is a priority, make all efforts to control dust. For a cleaner working environment use a dust-controlling saw.

A diamond blade set at a shallow cutting depth, 1/4 inch or less, is the common blade used for scoring and sawcutting lines. Due to the shallow depth, the operator must keep the saw steady to prevent the blade from skipping out of the cut and marring the surface.

Care should be taken to prevent over cuts that will have to be patched.

OBJECTIVE 3

Identify types of sawcutting tools and describe their applications.

WARNING: Dust recovery systems should be in use at all times.

Walk-behind dust-controlling saw — This saw produces straight, clean lines and allows the operator to remain in an upright position rather than bending over a tool on hands and knees. Forcing debris into a dust-collection bag, it operates virtually dust-free.

Core drill — This drill cuts circles in a slab when the radius of the circle is too small for a diamond blade.

Compact, wheel-mounted saw — Used for decorative engraving, this saw can efficiently cut circular and straight lines in concrete (Figure 3).

FIGURE 3

Photo courtesy of Engrave-A-Crete

Circular saw — An all-purpose saw that can be outfitted with a diamond blade, tracking wheels and dust collector. This saw is a good choice for cutting straight lines.

Freehand engraving tool — This tool can cut very precise designs and make supplemental designs such as artificial cracks and etchings (Figure 4).

FIGURE 4

Tools with diamond attachments — These tools are excellent for hard-to-finish cuts and tight-radius cutting.

Gas-powered walk-behind machines — Used for large commercial jobs, these machines are not a good choice for decorative precision cutting. Due to the fumes produced, they require proper ventilation.

OBJECTIVE 4

List safety procedures for sawcutting concrete.

- Wear protective clothing with safety glasses, earplugs, and rubber boots.
- Wear a respirator and use proper ventilation when dry cutting.
- Match the right tools with appropriate blades. It is extremely important that the tools RPM does not exceed the limitations of the blade where applicable.
- Use the correct power equipment for the tool being used.

  EXAMPLE: Do not use 7 inch wheels on a 4 inch grinder.
- Keep power cords out of the way of saws and blades.
- Many tools require both water and electricity. Proper precautions should be met for such an occurrence.

  EXAMPLE: Use insulated tools and extension cords equipped with a ground fault circuit interrupter.

OBJECTIVE 5

Complete the Job Sheet.

JOB SHEET

DECORATIVE SAWCUTTING 13

Name _____Score_____

OBJECTIVE 5

Cut a decorative design for a stained surface using a diamond blade.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Concrete slab or overlay sample, minimum of 4 feet x 4 feet
- Skill saw with diamond blade (saw table)
- Peanut grinder with diamond blade
- Die grinder with tools
- Measuring tape
- Chalk line
- Saw tape
- Pencil
- Straight edges
- Water supply if needed
- Plan of decorative design to be used
- Personal Protective Equipment

✔ **NOTE:** Refer to CFR (Code of Federal Regulations) 1926 Construction Industry Safety and Health Regulations.

PROCEDURE

Yes No

❑ ❑ 1. Put on safety equipment.

❑ ❑ 2. Lay out design using a pencil. A design will be provided. However, if you have one in mind, make a sketch and discuss it with your instructor. Chalk line may be used for dry cutting but cannot be used for wet cutting because the chalk will be washed away. Do not use a clear lacquer to paint the lines on a chemical stain project because the stain will not penetrate.

Yes No

✔ **NOTE:** Use light-colored or fluorescent chalk as standard chalk may adversely affect the color of the stain. A pencil line is preferable.

❑ ❑ 3. Select appropriate equipment and blades. A skill saw with a diamond blade works well for straight lines. Be sure to line up your saw with your cut before sawing. A grinder with a 4 inch cutting disc works well for tight radius work and details. For the radius, be sure to line up the shaft of the tool with the radius line. A die grinder dremel with a small cutting disc works well for tight radius work and details. Other tools are available for embellishing the design.

❑ ❑ 4. Cut the design carefully. Keep on the line and do not cut through (over cut) another line. The cuts should be at 1/8 inch depth. This depth is enough to serve as a reservoir when staining the project. If intersecting cuts and spalling of the corners is an issue, wedging a piece of plastic across the cut will reduce spalling.

❑ ❑ 5. Clean the area to be stained

✔ **NOTE:** Stain can be greatly affected by contaminants such as dust, chalk, dirt, oil and sealers.

❑ ❑ 7. Ask your instructor to evaluate your work.

❑ ❑ 8. Clean the work area and return tools and equipment to proper storage.

SKILL TEST RECORD

PRODUCT EVALUATION

Evaluator note: Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of "3" or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Safety	4	3	2	1
Use of tools	4	3	2	1
Overall performance	4	3	2	1
General appearance	4	3	2	1

AVERAGE RATING

Evaluator note: To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

KEY

4 **Skilled** — Can perform job with no additional training
3 **Moderately Skilled** — Has performed job during training program; limited additional training may be required
2 **Limited Skill** — Has performed job during training program; additional training is required to develop skill
1 **Unskilled** — Is familiar with process, but is unable to perform job

EVALUATOR'S COMMENTS