OBJECTIVE SHEET

STENCILING AND IMPRINTING 14

INTRODUCTION

Concrete is a versatile material that can be used in many different applications. However, in its natural gray state, concrete can appear plain. Fortunately, the versatility of concrete also allows the use of aggregates, tools, and additives to change the color and texture of the finished surface. Two methods that are especially effective in changing the appearance of concrete are the use of stencils and platform tools. Stencils can be slightly embedded in fresh concrete to create raised surfaces that closely resemble bricks, blocks, stones, and other materials. Additionally, with the use of coloring agents, aggregates, and other techniques, stenciling methods allow concrete finishes that offer all the advantages of this basic material while imitating the finishes that are much more expensive and labor-intensive. Another effective method of imitating costly and time-consuming techniques is the use of platform tools and embossing skins. This method incorporates rigid and flexible imprinting pads to create a finished surface that looks like brick, stone or other natural materials.

FOCUS ASSIGNMENTS

FOCUS ASSIGNMENTS

1. Compare stenciling and imprinting methods to techniques that they imitate and list advantages of the stenciling and imprinting approach. For example, compare the creation of a herringbone brick pattern with stencils to the use of actual bricks.

2. Look for examples of stenciled and imprinted concrete within your facility and the local area. What is your impression of these surfaces as compared to typical concrete surfaces or the types of finishes that the imprinted or stenciled surfaces duplicate?

UNIT OBJECTIVE

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

FOCUS ASSIGNMENTS

1. State reasons for using stenciling or imprinting techniques.
2. Identify stencil and imprinting patterns.
3. State the purpose of materials used in stenciling and imprinting.
4. State guidelines in stenciling and imprinting concrete.
5. Describe methods of finishing stenciled concrete.
6. Prepare concrete and install stencils. (Job Sheet 1)
7. Create stenciled finishes using a powdered antiquing release agent. (Job Sheet 2)
8. Create stenciled finishes with multiple colors using a liquid release agent. (Job Sheet 3)
9. Clean and cure stenciled concrete. (Job Sheet 4)
10. Identify types of imprinting pads and hand tools.
11. Recall guidelines for imprinting concrete.
12. Imprint a slab using powdered antique release agent. (Job Sheet 5)
13. Imprint a slab using texturing or embossing skins with a liquid release agent. (Job Sheet 6)
14. Clean and seal a slab after imprinting. (Job Sheet 7)

STENCILING AND IMPRINTING

OBJECTIVE 1

State reasons for using stenciling or imprinting techniques.

There are two types of stenciling techniques used with concrete. One consists primarily of applying pigmented cementitious material over a stencil pattern onto cured concrete. The second involves the use of stencils that are used to create shapes in the surface of fresh or plastic concrete. These shapes generally resemble bricks, stones, or other structural elements and the effect can be further enhanced through the use of coloring pigments and aggregates. This unit focuses on working with the surface of fresh or plastic concrete.

Imprinting techniques are also used to mimic bricks, cobblestone and other design elements. A wide-variety of patterns are available.

WORDS YOU SHOULD KNOW	
stencil	a pattern of heavy-duty coated paper that can be partially embedded in concrete to create a pattern in the finished surface

Stencils typically come in rolls of approximately 1000 square feet (about 335 feet by 3 feet) (Figure 1), but some patterns are available for special features such as circles and edges. Standard patterns are available from various manufacturers.

FIGURE 1

- Stenciling and imprinting techniques can make concrete installations more attractive.
- Stenciling and imprinting can create realistic imitations of other materials and techniques at a lower cost.
- Stenciling and imprinting can create realistic imitations of other materials and techniques with less labor and complexity.
- Having skills in stenciling and imprinting can expand the capabilities of the work crew to open up new job opportunities.

OBJECTIVE 2

Identify stencil and imprinting patterns.

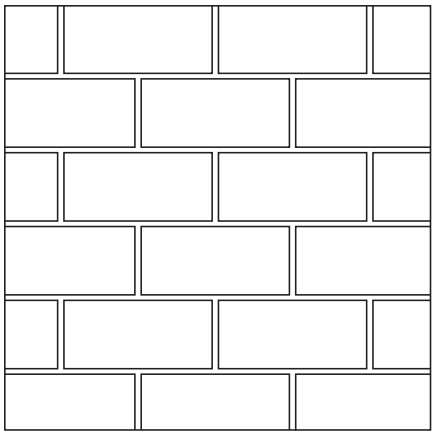
Stencils and imprinting pads are made in standard patterns that can be used individually or in conjunction with each other.

WORDS YOU SHOULD KNOW	
course	a row of stone or brick
header or soldier	a course of bricks used as the edge of a patterned area

Area patterns

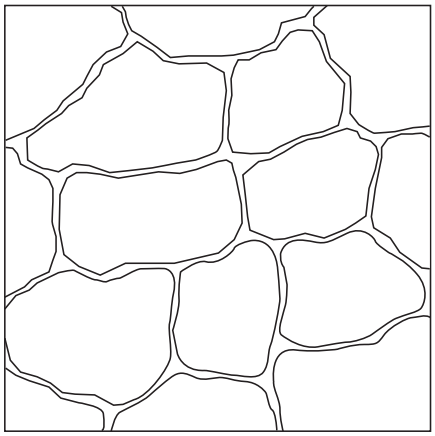
- Brick (Figure 2)

FIGURE 2



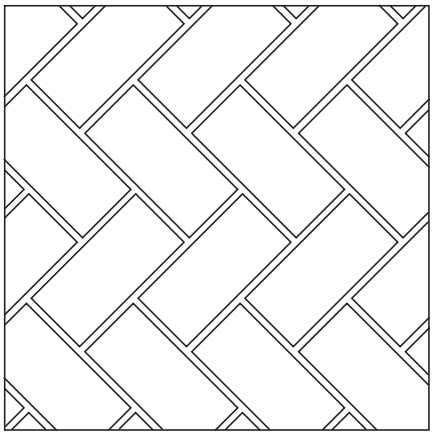
- Flagstone (Figure 3)

FIGURE 3



- Herringbone (Figure 4)

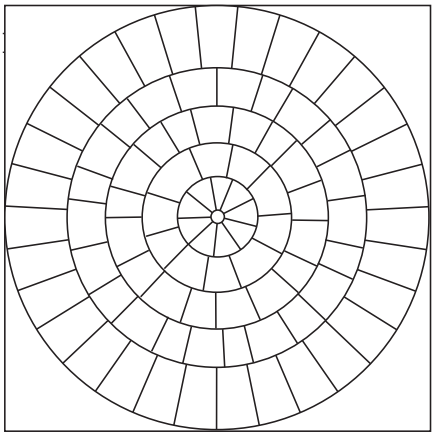
FIGURE 4



Circle patterns

- Large circle (Figure 5)

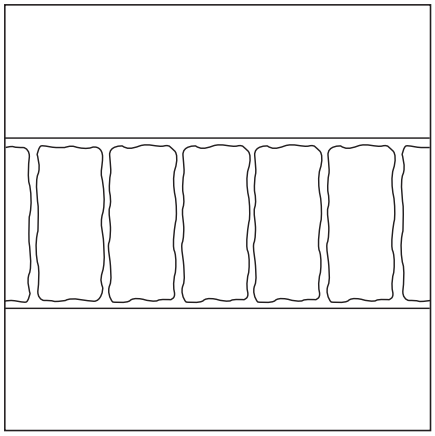
FIGURE 5



Header courses

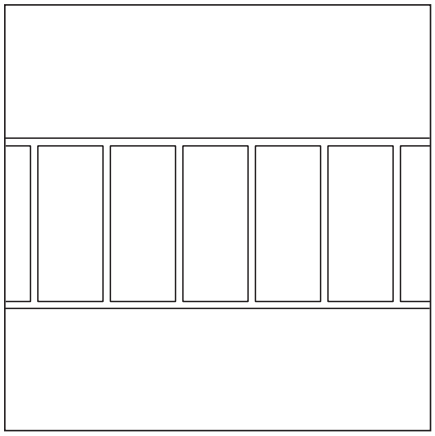
- Cobblestone header (Figure 6)

FIGURE 6



- Soldier course (Figure 7)

FIGURE 7



OBJECTIVE 3

State the purpose of materials used in stenciling and imprinting.

Stenciling and imprinting can create a number of effects through the use of a number of different materials. These materials have specific purposes and need to be used in accordance with the manufacturer's instructions.

- **Dry shake color hardener** — A powdered mixture of portland cement, fine aggregates, pigments, and slab conditioning agents that is scattered over the patterned slab to add color and to make the surface more dense

- **Powdered antiquing release agent** — A pigmented, waterproof compound that is applied to stenciled or imprinted surfaces that can be textured with a stamp or roller; the agent allows the stamp, imprinting pad, or roller to release more easily from the concrete without disturbing the surface and also adds a second color to the surface for a more realistic appearance

- **Liquid release agent** — A clear liquid that is used to allow the release of stamps, pads, or rollers without adding color to the surface; liquid release agents may be colored.

- **Curing agents** — An acrylic or water-based substance that is sprayed or rolled over the stenciled or imprinted surface to protect the surface from weathering and to enhance its appearance

  ✔ **NOTE:** Curing agents are generally water-based or solvent-based acrylics. Solvent-based agents provide better protection but have a strong odor that limits their use mostly to outdoor applications. The amount of solids used in the cure formulation determine how thick each layer will be and the amount of protection provided. Curing agents should be resistant to sunlight (ultraviolet radiation) and should be non-yellowing.

- **Non-skid additives** — Sand or beads often added to increase the traction of the surface

OBJECTIVE 4

State guidelines in stenciling and imprinting concrete.

WORDS YOU SHOULD KNOW	
flashing	the application of two colors on a stenciled or imprinted surface, one highlighting the other

- Ensure that the formwork for the slab is square

- Ensure that the finished surface of the slab provides a run-off slope

  ✔ **NOTE:** The general recommendation is to allow 1/8-1/4 inch of slope for each running foot of slab. The slope should be installed so that water is directed away from buildings and other areas where water should not be allowed to accumulate.

- Expansion joints should be used to separate imprinted or stenciled slabs from other slabs and structures to reduce the chances of cracking and chipping; expansion joints within imprinted or stenciled slabs should be aligned with pattern joints

  ✔ **NOTE:** Control joints should be installed so that the slabs are no more than 10 x 10 feet between control joints. Re-entrant corners (for corners that point into the slab) should have control joints set at 45 degrees and approximately one-fourth the depth of the slab.

- The concrete should be workable with a slump of approximately three to four inches

- Because of the added labor required in doing a stenciled or imprinted surface, care must be taken to ensure that no more concrete is poured than can be worked while the concrete is still workable

  ✔ **NOTE:** The abilities of the crew as well as the conditions of the job, such as temperature and wind, should be considered when planning the job. In excessive wind conditions, stencils are difficult to handle and the work should be delayed until the conditions are more favorable.

- If an accelerator is used, it should be a non-chloride type.

- Overlap the joints of adjacent stencils.

- Color hardener should be broadcast at a low angle and applied in two steps, applying approximately two-thirds of the material with the first application and the rest in a second application focused on getting even coverage

- If multiple colors are used on the stenciled surface the predominant color should be applied first with the second color applied in smaller areas and blended into the each other

- For contrasting colors, such as a separately colored border, the main slab color should be applied first and the border color applied after masking the main slab

OBJECTIVE 5

Describe methods of finishing stenciled concrete.

The choice of finish will depend on a number of factors. One of the most important among these is the desired appearance, and each of the techniques discussed provides a different final appearance. Other considerations include the skills of the installation team, available equipment, the need for traction on the finished surface, and the weather conditions.

- **Float finish** — A float is used to smooth the surface around the stencil; allows quick and easy finish that is essentially flat and smooth

- **Trowelled finish** — Use of a trowel after float finishing; can help to eliminate float marks but still leaves an essentially smooth finish

- **Broom finish** — Use of a broom to texture the surface; provides better traction than smooth finishes, but the broom texture is not realistic for stencils that resemble bricks or tiles

- **Textured finish** — Use of a roller to create an irregular surface to resemble stones; provides a realistic finish for stone stencils and good traction, but requires additional labor than smooth finishes (Figure 8)

FIGURE 8

✔ **NOTE:** Textured rollers come in various sizes from about 6 to 48 inches. They also vary in the patterns that they create. They are generally used with a release agent to minimize how much the concrete is disturbed by the roller. Coloring agents are also often used to enhance the realism of the finished appearance.

OBJECTIVE 6

Complete Job Sheet 1.

OBJECTIVE 7

Complete Job Sheet 2.

OBJECTIVE 8

Complete Job Sheet 3.

OBJECTIVE 9

Complete Job Sheet 4.

OBJECTIVE 10

Identify types of imprinting pads and hand tools.

- **Platform tools** — Used to produce the main pattern. Generally, several platform tools are used to produce small sections of a particular pattern. The tools will then be repositioned until the desired area has been imprinted. Tools are of a rigid design in order to reproduce an identical pattern each time (Figures 9 and 10).

FIGURE 9

FIGURE 10

- **Embossing skins** — Used to produce large areas of texture in a random or irregular pattern. The embossing skins are thin and flexible. Usually three irregularly shaped skins are used to ensure the pattern does not repeat (Figures 11 and 12).

FIGURE 11

FIGURE 12

- **Border tools** — Used with other tools to form borders or alone to accent a textured area (Figure 13).

FIGURE 13

- **Floppy tools** — Used in areas where a flexible tool is required. Floppy tools are available to match the texture and patterns of other imprinting pads (Figure 14).

FIGURE 14

- **Hand tools** — Used in areas where a flexible tool is required. Floppy tools are available to match the texture and patterns of other imprinting pads.

  - **Tamper or pounder** — used to transfer the pattern from the imprinting pad to the surface of the concrete (Figure 15).

    FIGURE 15

  - **Texture roller** — rolls over the surface of the concrete and imprints a continuous design (Figures 16-18).

    FIGURE 16

FIGURE 17

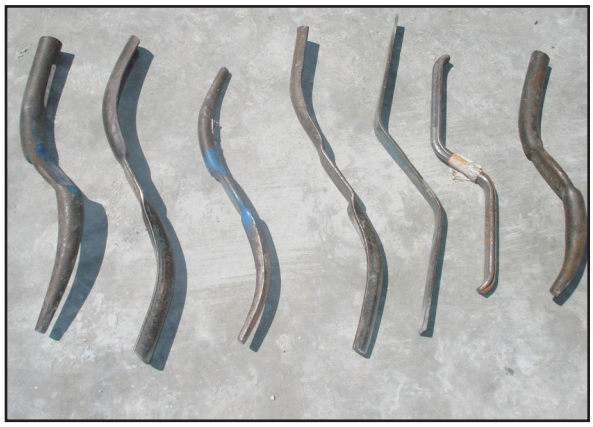
FIGURE 18

- **Detail hand tools** — used to complete or touch-up the final joints and patterns (Figures 19-21).

FIGURE 19

FIGURE 20

FIGURE 21



OBJECTIVE 11

Recall guidelines for imprinting concrete.

- Lay out imprinting pads and plan the job before the concrete arrives
- Concrete should be edged and floated to the desired finish
- After color has been applied, float and reedge
- Apply the release agent to the concrete surface and to the platform tools
- Placement of the first pad is critical since subsequent pads will be laid square to it
- Position all of the pads for the first row and then place the first pad in the second row before beginning removal
- Maintain a uniform depth by using a tamper
- Remove pads in the order they were placed
- Use floppy tools in areas not accessible with regular tools

OBJECTIVE 12

Complete Job Sheet 5.

OBJECTIVE 13

Complete Job Sheet 6.

OBJECTIVE 14

Complete Job Sheet 7.

JOB SHEET 1

STENCILING AND IMPRINTING

14

Name _____Score_____

OBJECTIVE 6

Prepare concrete and install stencils.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Stencils
- Stencil embedding rollers
- Scissors
- Color hardener
- Bucket or other container
- Hand Float
- Trowel
- Margin Trowel
- Edger
- Protective sheeting
- Personal protective equipment

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

PROCEDURE

✔ **NOTE:** If possible, stencils should be cut to approximate size prior to pour.

Yes No

❑ ❑ 1. Place and screed the concrete and float and edge the surface to the correct grade. Install control joints as required.

✔ **NOTE:** Protect all surfaces adjacent to the work area from spills, overspray and runoff.

Yes No

2. Apply the stencils.

❑ ❑ A. Begin the installation at one side of the pour.

❑ ❑ B. While one finisher holds one end of the stencil roll in one corner of the pour, have another finisher place the stencil to the opposite side of the pour. (Figure 1)

FIGURE 1

❑ ❑ C. Pull the stencil tight and align the stencil so that the outside “mortar joint” overlaps the form edge.

❑ ❑ D. Use scissors to trim the stencil to length (Figure 2).

FIGURE 2

Yes No

❑ ❑ E. Using a stencil roller, lightly embed the stencil in the concrete. (Figure 3)

FIGURE 3

✔ **NOTE:** The stencil can also be applied using a bullfloat or fresno. However, these methods may set the stencil too deeply or disturb the concrete excessively.

❑ ❑ F. Repeat steps A-E for the second row of stencil, overlapping the mortar joints of the adjacent strips of stencil (Figure 4).

FIGURE 4

✔ **NOTE:** Proper overlap and alignment are important for the finished product.

Yes No

❑ ❑ G. Continue installing strips of stencil until the entire surface is covered.

❑ ❑ H. Use scissors to trim the stencils as necessary to allow adjoining stencils to fit properly and to get good alignment with borders and frames.

❑ ❑ I. Run the embedding roller over the entire surface to ensure that the stencils are properly embedded.

❑ ❑ 3. Read and follow the manufacturer's instructions and recommendations for the color hardener. Determine the amount of color hardener required for the area to be covered. All buckets should be pre "fluffed" and laid out for the square footage per bucket.

✔ **NOTE:** The procedure described here is a general method for applying color hardener. For specific materials and conditions, other considerations may apply. Follow the directions provided by the manufacturer to meet specific needs.

4. Broadcast about two-thirds of the color hardener across the surface.

❑ ❑ A. Place two-thirds of the required amount of color hardener in a bucket or other container. Run your hand through the hardner in order to break up clumps & reduce compaction.

❑ ❑ B. Begin broadcasting the color hardener across the slab by scooping the material into the palm of your hand and slinging the color hardener through fanned fingers at a low angle close to the slab. (Figure 5)

Yes No

FIGURE 5

✔ **NOTE:** The objective is to get an evenly spread, lump-free coverage over the surface. Depending on the area to be covered and wind conditions, it may be necessary to work from more than one side of the slab.

❑ ❑ C. Continue broadcasting the color hardener until the surface has been evenly covered.

❑ ❑ 5. Float the color hardener into the surface of the slab.

❑ ❑ 6. Use the remaining one-third of the recommended quantity of color hardener to broadcast a second coating of color hardener, concentrating on obtaining an even coverage.

Yes No

❑ ❑ 7. Float the surface to work the second application of color hardener into the surface. (Figure 6)

FIGURE 6

❑ ❑ 8. If necessary, broadcast additional color hardener to get even coverage over areas.

✔ **NOTE:** If a second contrasting color is to be applied, scatter smaller, random areas of the second color and work the edges of the two colors together to create a smooth transition between colors. If a contrasting color is required as a border, mask the main surface to leave the border area exposed and then apply color hardener to the border and work it in.

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

❑ ❑ 10. Clean up area and put away tools and materials.

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:

Used personal protective equipment as required	4	3	2	1
Used correct tools properly	4	3	2	1
Stencils properly installed	4	3	2	1
Applied first application of color hardener efficiently	4	3	2	1
Floated surface properly	4	3	2	1
Protected surrounding areas adequately	4	3	2	1
Cleaned and stored tools properly	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

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JOB SHEET 2

STENCILING AND IMPRINTING 14

Name _____Score_____

OBJECTIVE 7

Create a stenciled finish using a powdered antiquing release agent.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Powdered antiquing release agent
- Textured rollers
- Leaf blower
- Brush
- Personal protective equipment

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

PROCEDURE

Yes No

❑ ❑ 1. Read and follow the manufacturer's directions for use of the powdered antiquing release agent.

✔ **NOTE:** Check the slab using the finger impression technique.

❑ ❑ 2. Ensure that surrounding areas are properly protected.

❑ ❑ 3. Use the brush to broadcast the release agent over the surface in a thin, even layer.

✔ **NOTE:** Once the agent is applied, take care not to disturb it until the texturing is complete.

Yes No

❑ ❑ 4. Check to see if the concrete has set adequately for texturing by rolling the textured roller over a portion of the slab. (Figure 1)

FIGURE 1

✔ **NOTE:** If the roller sinks too deeply or leaves edge marks, the concrete is too soft and should be allowed to set further.

5. Texture the slab with the roller until the desired finish is achieved.

6. After concrete has set remove the stencil.

✔ **NOTE:** The stencil is ready to be removed when the concrete has set enough to bear a worker's weight.

❑ ❑ A. Beginning with the last-installed stencil, position a finisher at each end of the stencil.

Yes No

❑ ❑ B. Simultaneously lift each end of the stencil and continue lifting until the stencil clears the slab. (Figure 2)

FIGURE 2

❑ ❑ C. Carry the stencil clear of slab and dispose of it.

❑ ❑ D. Repeat steps A-C to remove all of the stencils.

❑ ❑ 7. Use a leaf blower to remove small chips of concrete and color hardener from the slab surface. (Figure 3)

FIGURE 3

Yes No

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

❑ ❑ 9. Clean up area and put away tools and materials.

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:

Used personal protective equipment as required	4	3	2	1
Proper tools used correctly	4	3	2	1
Obtained proper coverage with release agent	4	3	2	1
Correctly evaluated concrete set	4	3	2	1
Surface texturing acceptable	4	3	2	1
Tools properly cleaned and maintained	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

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1 **Unskilled** — Is familiar with process, but is unable to perform job

EVALUATOR'S COMMENTS

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JOB SHEET 3

STENCILING AND IMPRINTING 14

Name _____Score_____

OBJECTIVE 8

Create stenciled finishes with multiple colors using a liquid release agent.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Liquid release agent
- Sprayer
- Textured rollers
- Leaf blower
- Skins
- Embedding rollers
- Multi color hardner
- Hand float
- Trowel
- Edger
- Personal protective equipment

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

PROCEDURE

Yes No

❑ ❑ 1. Read and follow the manufacturer's directions for use of the liquid release agent.

❑ ❑ 2. Ensure that surrounding areas are properly protected.

Yes No

❑ ❑ 3. Mix the agent as required. (Figure 1)

FIGURE 1

❑ ❑ 4. Place the agent in a sprayer.

❑ ❑ 5. Spray the release agent over the surface in a thin, even layer. Also apply the liquid release agent to all texture rollers and skins. (Figure 2)

FIGURE 2

Yes No

❑ ❑ 6. Roll the texture rollers over the slab making sure the roller edges overlap each other.

✔ **NOTE:** If the roller sinks too deeply or leaves edge marks, the concrete is too soft and should be allowed to set further.

❑ ❑ 7. Remove the stencil.

✔ **NOTE:** The stencil is ready to be removed when the concrete has set enough to bear a worker's weight.

❑ ❑ A. Beginning with the last-installed stencil, position a finisher at each end of the stencil.

❑ ❑ B. Simultaneously lift each end of the stencil and continue to lift the stencil up until the stencil clears the slab.

❑ ❑ C. Carry the stencil clear of slab and dispose of it.

❑ ❑ D. Repeat steps A-C to remove all of the stencils.

❑ ❑ 8. Use a leaf blower to remove small chips of concrete and color hardener from the slab surface.

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

❑ ❑ 10. Clean up area and put away tools and materials.

SKILL TEST RECORD

PRODUCT EVALUATION

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Criteria:

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Proper tools used correctly	4	3	2	1
Obtained proper coverage with release agent	4	3	2	1
Correctly evaluated concrete set	4	3	2	1
Surface texturing acceptable	4	3	2	1
Tools properly cleaned and maintained	4	3	2	1

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EVALUATOR'S COMMENTS

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JOB SHEET 4

STENCILING AND IMPRINTING

14

Name _____Score_____

OBJECTIVE 9

Clean and cure stenciled concrete.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Brooms
- Hose and water source
- Soap
- All plastic pump sprayer
- Medium nap roller
- Curing agent
- Personal protective equipment

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

PROCEDURE

✔ **NOTE:** If practical, the slab should be allowed to set after removal of the stencils prior to cleaning the surface in preparation for curing.

Yes No

❑ ❑ 1. Sweep the surface to remove all loose material.

❑ ❑ 2. Wash the slab with soap and water.

✔ **NOTE:** Generally a water hose will be adequate but in some cases a higher pressure wash may be required, especially if release agent has been used.

Yes No

❑ ❑ 3. Scrub the slab with a solution of soap and water, using a brush. (Figure 1)

FIGURE 1

❑ ❑ 4. Allow the slab to dry before applying curing agent.

❑ ❑ 5. Read and follow the instructions for the curing compound. (Figure 2)

FIGURE 2

❑ ❑ 6. Hold the sprayer nozzle approximately 6 inches from the surface and move the nozzle smoothly and continuously to create an even coating.

Yes No

❑ ❑ 7. Work from one edge of the slab to the other to avoid having to walk over sprayed areas. (Figure 3)

FIGURE 3

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

❑ ❑ 9. Clean up area and put away tools and materials.

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:

Used personal protective equipment as required	4	3	2	1
Proper tools used correctly	4	3	2	1
Thoroughly cleaned work surface	4	3	2	1
Properly applied sealer	4	3	2	1
Tools properly cleaned and maintained	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

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EVALUATOR'S COMMENTS

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JOB SHEET 5

STENCILING AND IMPRINTING

14

Name _____Score_____

OBJECTIVE 12

Imprint a slab using powdered antique release agent.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Color hardener
- Powder antique release agent
- Edger
- Bull float
- Hand float
- Screed
- Shovel
- Assorted platform tools
- Detail tools
- Tamper or pounder
- Margin trowel
- Hand trowel
- Fresno
- High-pressure water hose
- Brushes
- Protective sheeting
- Personal protective equipment

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

PROCEDURE

Yes No

❑ ❑ 1. Read the manufacturer's directions for the coloring and release agent you'll be using. Determine the amounts you need for the size of slab you're working with.

✔ **NOTE:** Protect all surfaces adjacent to the work area from spills, over-spray or runoff.

Yes No

❑ ❑ 2. Lay out the imprint pads and plan the job before the concrete arrives. (Figure 1)

FIGURE 1

❑ ❑ 3. The concrete should be edged and floated to the required. It should be ready for imprinting when the desired impression can be produced.

❑ ❑ 4. Broadcast about two-thirds of the color hardener on the surface. (Figure 2)

FIGURE 2

Yes No

❑ ❑ 5. Float the color hardener into the slab using a bull float and a hand float. The hand float will lay down the edges. (Figure 3)

FIGURE 3

❑ ❑ 6. Re-apply color hardener to any areas that appear to be lighter in color until the surface is a uniform color. Use the remaining one third of the hardener.

❑ ❑ 7. Float the second coat of hardener into the slab. Re-edge and float or trowel the area.

❑ ❑ 8. Depending on the surface needed, a fresno can be used as a final finish before imprinting.

❑ ❑ 9. Re-edge and float or trowel the edges of the slab. This is an optional step depending on the surface needed.

❑ ❑ 10. Apply the powder release agent to the imprinting pads and to the concrete surface. (Figure 4)

FIGURE 4

Yes No

❑ ❑ 11. Imprint the edges of the surface with the same textured embossing skin of the imprinting tool you'll be using. (Figure 5)

FIGURE 5

❑ ❑ 12. Carefully place the first pad. The placement of the first pad is critical since all subsequent pads will be placed square to it. (Figure 6)

FIGURE 6

❑ ❑ 13. Place the remaining pads in the first row.

❑ ❑ 14. When applying an imprinting pattern against a wall, column, or other obstacle, use a texture skin or a floppy imprint designed for that purpose.

Yes No

❑ ❑ 15. Force the pads into the concrete to the desired depth by walking them in or by using a tamper. When using a tamper, weight should be placed on both adjacent pads to keep the pattern from drifting so the imprint is even. (Figure 7)

FIGURE 7

❑ ❑ 16. Carefully align the second row to the pads already in the first row. Continue to tamp in the newly place pads.

❑ ❑ 17. Carefully lift the first pads straight up and align them with the imprinting pads in the second row. Continue until the entire slab has been imprinted to the desired depth. You may want to apply additional release agent to the pads during placement. (Figure 8)

FIGURE 8

Yes No

❑ ❑ 18. Detail the imprinted areas and grout lines as needed using detail tools. (Figure 9)

FIGURE 9

❑ ❑ 19. Clean the platform tools using soap and water. (Figure 10)

FIGURE 10

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

❑ ❑ 21. Clean the area and put away tools and materials.

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
General Appearance	4	3	2	1
Overall Performance	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

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JOB SHEET 6

STENCILING AND IMPRINTING 14

Name _____Score_____

OBJECTIVE 13

Imprint a slab using texturing or embossing skins with a liquid release agent.

BASIC SKILLS


Employability

INTRODUCTION

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Color hardener
- Liquid release agent
- Bull float
- Hand float
- Edger
- Screed
- Shovel
- Assorted sizes of texturing or embossing skins
- Tamper
- High-pressure water hose
- Brushes
- Personal protective equipment

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

PROCEDURE

Yes No

❑ ❑ 1. Read the manufacturer's directions for the coloring and release agents you'll be using. Determine the amounts you need for the size of slab you're working with.

Yes No

❑ ❑ 2. Lay out the texturing skins and plan the job before the concrete arrives.

❑ ❑ 3. The concrete should be edged and floated to the required texture. It should be ready for imprinting when the desired impression can be produced.

❑ ❑ 4. Broadcast about two-thirds of the color hardener on the surface.

❑ ❑ 5. Float the color hardener into the concrete using a bull float and a hand float. The hand float will lay down the edges.

❑ ❑ 6. Re-apply the color hardener to any areas that appear to be lighter in color until the surface is a uniform color. Use the remaining one-third of the hardener.

❑ ❑ 7. Float the second coat of the hardener into the slab. Re-edge and float or trowel the area.

❑ ❑ 8. Depending on the surface needed, a fresno can be used as a final finish before imprinting.

❑ ❑ 9. Re-edge and float the edges of the slab. This is an optional step depending on the surface needed.

❑ ❑ 10. Apply the liquid release agent to the concrete surface and to the texturing skins.

❑ ❑ 11. Imprint the edges of the surface with the texturing skins you'll be using. (Figure 1)

FIGURE 1

Yes No

❑ ❑ 12. Apply the texturing skins across the surface of the slab in a random pattern. They should overlap so the pattern does not show edges of skins. (Figure 2)

FIGURE 2

❑ ❑ 13. Force the skins into the concrete to the desired depth by walking them in or by using a tamper. Stay a minimum of two inches away from the edge of the skin.

❑ ❑ 14. Continue until the entire slab has been textured to the desired depth.

❑ ❑ 15. Clean the texturing skins.

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

❑ ❑ 17. Clean the area and put away tools and materials.

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
General Appearance	4	3	2	1
Overall Performance	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

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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

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JOB SHEET 7

STENCILING AND IMPRINTING 14

Name _____Score_____

OBJECTIVE 14

Clean and seal a slab after imprinting.

BASIC SKILLS

Employability

EQUIPMENT AND SUPPLIES

- Surface to be worked
- Brooms
- Water
- Pressure washer or hose and water source
- Soap
- Detail tools
- All plastic pump sprayer
- Medium nap roller
- Curing agent compatible with sealer
- Personal protective equipment

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

WORDS YOU SHOULD KNOW	
squeeze mark	an imperfection caused by extra material being pushed up between two embossing pads

PROCEDURE

✔ **NOTE:** If practical, the slab should be allowed to set for a day or more prior to cleaning the surface in preparation for sealing.

Yes No

❑ ❑ 1. Sweep the surface to remove all loose material.

❑ ❑ 2. Wash the slab with water.

✔ **NOTE:** Generally a water hose will be adequate but in some cases a pressure washer may be required, especially if a dry release agent has been used.

Yes No

❑ ❑ 3. Scrub the slab with a solution of soap and water, using a brush. (Figure 1)

FIGURE 1

✔ **NOTE:** Sometimes a light solution (10%) of muriatic acid in water can be used to remove additional release agent.

❑ ❑ 4. Detail the slab using a hammer and chisel or grinder to remove squeeze marks and other imprefections. (Figure 2)

FIGURE 2

❑ ❑ 5. Allow the slab to dry at least one day before applying sealer.

Yes No

❑ ❑ 6. Read and follow the instructions for the curing agent.

❑ ❑ 7. Transfer curing agent to the sprayer.

❑ ❑ 8. Hold the sprayer nozzle approximately 6 inches from the surface and move the nozzle smoothly and continuously to create an even coating.

❑ ❑ 9. Work from one edge of the slab to the other to avoid having to walk over sprayed areas.

✔ **NOTE:** According to industry standards, you should wait 28 days before applying the final sealer,

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

❑ ❑ 11. Clean up area and put away tools and materials.

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
Work surface cleanliness	4	3	2	1
Curing application	4	3	2	1
Tool maintenance	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

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EVALUATOR'S COMMENTS

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