

CFI STUDY GUIDE – PROVEN INSTALLATION METHODS



THE CFI INSTALLER

1. CFI Certified Installer is identified by shirt and ID Badge and proudly displays CFI logo
2. CFI Certified Installer is dressed in a professional manner; no torn clothing or offensive logos
3. CFI logo is worn or displayed ONLY by those who are certified. It is earned!
4. CFI Certified Installer answers recalls in timely manner, preferably within 72 hours
5. CFI Certified Installers guarantee all labor for a minimum of one year
6. CFI Certified Installer is requested to attend local CFI Chapter Meetings if available in area.

GENERAL KNOWLEDGE

1. CRI Carpet and Rug Institute, the manufacturer's organization that is located in Dalton, GA
2. CRI-105 Guide to Residential Carpet Installation prepared by the Carpet and Rug Institute
3. Individual manufacturer's installation guidelines supersede the CRI Guidelines
4. Applying water to synthetic backing of carpet will NOT cause it to shrink, but encourages delamination
5. Carpet stored more than 3 rolls high may be the cause of crush marks.
6. The "pick" of the backing is described as the number of weft (widthwise) yarns in one-inch that are shuttled across the warp (lengthwise) yarns that indicates the closeness of the length weaves. A larger pick number & a closer weave = a backing of higher quality. Example: 5 pick backing = larger areas in backing that allow the "fillers" to fall through 12 pick backing = smaller areas that keep the fillers and backing intact
7. Cushion density is not stated in the CRI-105. The height of 7/16" is recommended, but not to exceed 1/2" for residential installation.
8. At measure, allow 3-inches overage for EACH cut. If patterned carpet, add full pattern match to width and length.
9. Installer is to receive a detailed diagram that outlines the placement of seams
10. Plastic sheeting should not be used over any type of installation as it may trap moisture, retard the curing of adhesive or promote the growth of mold and mildew.
11. The selvage edge of the carpet is the factory-finished edge of the carpet
12. Allow the carpet to acclimate or adjust to room temperature as long as possible prior to installation for the ease of installation. Check with manufacturer.
13. Pile direction runs LENGTH of the stair unless the pattern is to be matched on the floor below.
14. The spike is NOT an acceptable tool
15. Carpet in the hallway is to run lengthwise with a minimum number of seams
16. Axminster is a woven carpet

INSTALLATION TECHNIQUES – FOLLOW MANUFACTURER GUIDELINES

1. Install a continuous section of carpet through the spindles of the step
2. Install carpet on the stairs; starting at the bottom and working to the top
3. Secure cushion with staples or cushion adhesive with the exception of fiber cushion. Seams are to be secured with appropriate cushion tape. Do NOT use duct tape on cushion seams.
4. Duct tape is recommended on the edge of the cushion installed over the nosing of the step to protect the cushion.
4. Cushion must cover bullnose of stair regardless of the type of stair treatment.
5. Never install carpet over existing carpet UNLESS Manufacturer specifies.

FLOOR PREP – FOLLOW MANUFACTURER GUIDELINES

1. For a fee, subfloors must be properly prepared. All cracks, holes, joints and protrusions must be adequately addressed to ensure a smooth, finished appearance.
2. There is usually a minimum of 18" of air space under wood subfloors – refer to local codes.
3. On-site temperature requirement is to be between 65-95 degrees for 48-hours prior to & during installation. It is maintained for a minimum of 72-hours following installation. The slab temperature is never less than 65-degrees. Inside temperature is NEVER to fall below 50-degrees to ensure quality of installation.
4. Alkalinity = A pH reading **above 9** requires corrective measures for direct-glue installation.
5. Moisture tests should be performed before installing over existing resilient tile or concrete – ASTM standards should be consulted.
6. It is recommended that the Owner or General Contractor submit to Flooring Contractor a written report on moisture and alkalinity ratings of the slab to determine if substrate is suitable PRIOR to installation according to the industry-accepted WHITE PAPER.
7. If a powdery or overly porous surface is present, use a primer compatible with the adhesive to provide acceptable surface for a direct-glue / double-glue installation.
8. Mix floor patch and apply according to manufacturer's recommendations
9. Do NOT apply adhesive over existing sheet vinyl, solid vinyl tile and certain rubber products. Consult manufacturer for correct installation procedures

10. The use of liquid adhesive removers may void applicable warranties. CHECK!
11. Minimum 90-120 days is required for curing of concrete slab to reach acceptable dryness for installation of carpet.
12. Generally, for adhesive installations, a moisture emission rate above **5-pounds in 1000-square feet in 24-hours** is considered unacceptable. Consult the manufacturer for specific details.

CUTTING, SEAMING, SEALING SEAMS – FOLLOW MANUFACTURER GUIDELINES

1. Whenever possible, seams are positioned away from the traffic areas.
2. Main traffic runs parallel to rather than across the seams.
3. Whenever possible, natural light should not strike across seam.
5. Seams should be kept away from areas that receive pivotal traffic.
6. Whenever possible, do NOT construct seams perpendicular to the doorway openings.
7. A maximum of 2 crossgrain seams is acceptable per fill section.
8. It is always important that the customer is aware of seam location.

SEAMING TECHNIQUES –FOLLOW MANUFACTURER GUIDELINES

1. Seams are a reflection of the installer's skill. Use the proper techniques to achieve customer satisfaction.
2. Seal **ALL** seams with appropriate seam sealer UNLESS manufacturer's directions state otherwise
3. Correct iron temperature is essential—depending on type of seaming tape, iron and carpet, with the exception of the radio-wave seaming system.
4. Carpet construction and the type of carpet backing determine the type of seaming tape to be used.
5. Most carpets are cut from the face, not from the back. Check with the manufacturer.
6. When carpet is cut from the backing, low rows of yarn may appear if the knife blade cuts too deep.
7. Trim ALL carpet edges far enough into the workable material to maintain the structural integrity of the carpet. Always follow the manufacturer's instructions.
8. A heat shield is required for the seaming iron.
9. Heat distorts synthetic carpet backing and can affect or discolor face yarn, such as wool.
10. **Seams are constructed on a hard surface**; never on top of the cushion unless manufacturer specifies.
11. Use non-heat conducting surface behind seaming iron, preferably a wood weight.
12. Apply seam sealer to the thickness of both seamed edges when installing over cushion. Be careful that the seam sealer does not come in contact with the face yarns.
13. Star rollers are **NEVER** used when heat is involved in the construction of the seam on cut pile carpet.

POWERSTRETCHING – FOLLOW MANUFACTURER GUIDELINES

1. CFI states that ALL rooms are to be powerstretched, regardless of size. According to the CRI-105, stretch synthetic-backed tufted 1 to 1-1/2 % in length and width, unless manufacturer states otherwise.
2. Proper use of the **powerstretcher is MANDATORY**.
3. Stretching synthetic-backed tufted carpet slightly less in width may lessen seam peaking tendencies.
NOTE: Woven and specialty carpets require specific installation methods

PATTERN MATCHING – FOLLOW MANUFACTURER GUIDELINES

1. SET MATCH PATTERN - figure matches straight across each side of the carpet width
2. DROP MATCH PATTERN - the figure matches in the middle of the design ALWAYS check with manufacturer concerning pattern tolerances. The following are guidelines, but do not apply if the manufacturer stated tolerances do not agree. NO industry standards are available.
3. BOW TOLERANCE –pattern sags in center. Tolerance usually is 1-inch in 12-feet. Tolerances are stated by manufacturers and may vary. ALWAYS refer to manufacturer guidelines.
4. SKEW -portions of printed or tufted patterns that deviate from a straight line – out of “square”. Tolerance may be 2-inches in 12-feet. Check with manufacturer as there is no industry standard.
5. PATTERN ELONGATION – patterns vary in size, length or width from one match to the other match. Tolerance is generally 1-inch in 10-feet. Check with manufacturer.

TACKSTRIP – FOLLOW MANUFACTURER GUIDELINES

1. The gully is the space between wall and tackstrip that is slightly less than carpet thickness - not exceed 3/8-inch.
2. Standard tackstrip is 1-inch wide and 1/4-inch thick
3. Carpet is **NEVER stapled to the tackstrip**
4. Tackstrip is not installed across doorways
5. Tackstrip is to be installed on each tread and each riser for a waterfall step installation.
6. No tackstrip section is to be installed with less than two nails
7. Tackstrip is placed on all sides of the stair spindles and on all sides of the tread.
8. Architectural tackstrip with three rows of pins is used for carpet with heavy backing, woven and specified Berber carpets, for rooms exceeding 30-feet and for commercial installations.

ADHESIVE APPLICATIONS- FOLLOW MANUFACTURER GUIDELINES

1. Installer must achieve full coverage of adhesive on carpet backing and floor, covering both with equal transfer of adhesive, **leaving no voids.**
2. OPEN TIME will vary according to temperature, humidity and adhesive
3. The LIGHTEST roller, not to exceed 75 lbs., is used to achieve transfer for a direct-glue installation
4. Most common size trowel used for direct-glue installation is 1/8" x 1/8" x 1/8" U-notch. The type of carpet backing determines depth of notches. **Always maintain notch size throughout entire installation.**
5. UNITARY or WOVEN CARPET must be rolled a second time, approximately 3-4 hours later.

DOUBLE- GLUE APPLICATION – FOLLOW MANUFACTURER GUIDELINES

1. CFI recommends that ALL seams of double-glue installations are to be sealed and hot-melt taped UNLESS the manufacturer states otherwise or profiling becomes an issue.
2. Use roller weighing 35-50 pounds or stiff broom on double-glue, tufted or woven carpet installations
3. Pressure-sensitive adhesive is recommended between floor and cushion. Recommended trowel size –1/16"x 1/16"x1/16" square notch. Always follow manufacturer's instructions.
4. Use 1/8"x1/8"x 1/16" U-Notch trowel to apply adhesive between smooth-backed carpet and cushion. Always follow manufacturer's instructions.
5. Use 1/8" x 3/16" x 1/8" U-notch trowel to apply adhesive between rough backed carpet and cushion. Always follow manufacturer's instructions

CFI COMMERCIAL INSTALLATION GUIDELINES

GENERAL KNOWLEDGE – Follow manufacturer guidelines

1. CRI -104 is the COMMERCIAL Installation Standard – Always follow Manufacturer's Guidelines
2. Cushion thickness is 3/8 -inch for commercial installation--no density is stated in the CRI -104.
3. Review CFI Residential Guidelines. Many also apply to commercial installation.

EPA INFORMATION

1. EPA - Environmental Protection Agency
2. EPA – an Office of Federal Government
3. IAQ - Indoor Air Quality - GREEN label is attached to the backing of carpet samples in the showroom
4. VOC -Volatile Organic Compound -relates to low or no VOC's in adhesive products
5. 4-PC - phenocyclohexene – new ODOR FROM CARPET has never proved to be life threatening. Sensitive persons should consider leaving the area.
6. VACUUMING should be performed by the Customer prior to the removal of the carpet
7. VENTILATE during installation by using fans, windows, doors or HVAC systems.
8. CONTINUE VENTILATION at normal room temperature for 72-hours following installation

OSHA INFORMATION

1. OSHA - Occupational Safety Health Administration or Act
2. OSHA - Office of the Federal Government
3. OSHA #2203 (yellow) "Employee's Right To Know" - Employees must be trained to install ALL products they handle. Note: New poster #3165 (white-blue) replaces this (It is #2203-Yellow on written test)
4. HAZCOM -Hazardous Communications Plan
 - (a) Keep Safety the #1 Priority!
 - (b) Plan lists training procedures for company employees
 - (c) States location of MSDS Sheets
 - (d) Identifies all products company uses and chemical inventory
5. FINES
 - (a) Maximum first time fine is \$7,000.00
 - (b) Maximum-next offense is \$70,000.00
6. FINES issued for items such as:
 - (a) No HazCom Plan
 - (e) Defective Tools
 - (b) No knee pads
 - (f) Improperly labeled or unmarked containers
 - (c) No First-Aid Kit
 - (g) Ground wire removed from electrical cords
 - (d) No Ventilation
 - (h) No MSDS sheets (Material Safety Data Sheets)
7. MSDS-MATERIAL SAFETY DATA SHEET lists: (Request MSDS from distributor at the time of purchase)
 - (a) Manufacturer and product
 - (b) Physical data (volatile, boiling point, etc.)
 - (c) Fire and explosion hazard data - how to extinguish fire, etc.
 - (d) Hazardous Ingredients
8. HEALTH HAZARD DATA listed on MSDS (exposure limits, first aid) includes the following.
 - (a) Reactive data (stability - what not to mix with product)
 - (b) Special handling precautions
 - (c) Spill and leak procedures
 - (d) Special protective equipment and procedures - gloves/ventilation
9. CHEMICALS can only be transferred by ONE person to another properly labeled container.
10. CARPET or CUSHION do not require a MSDS Sheet as they are considered finished products
11. ASBESTOS should always be covered or encapsulated -Testing is only way to properly identify its presence.
12. FIRST AID KIT - Contents of kit must be undisturbed with letter containing a physician's signature

VOCABULARY

1. ACID – Displays a pH below 7 – Neutral is 7
2. ALKALINITY – A base or salt. Property of water substances with a pH greater than 7
3. AMBIENT AIR – Air around us
4. BIAS – Diagonal in relation to pattern alignment
5. BCF - Bulk continuous filament -continuous strands of nylon fiber
6. BREADTH – Width of broadloom
7. BOND TEST – 24-hour test to determine if flooring will stay adhered with adhesive to substrate
8. BOW – Describes pattern that sags in the center
9. CALCIUM CHLORIDE TEST – 24 hr. test for concrete moisture emissions
10. CONDENSATION - The conversion of the moisture in the air to water
11. DEADMAN – Board with tackstrip installed on one side facing same direction. The tool is used to stretch off of the wall or to match patterns in the carpet. Deadman is also a portable wall.
12. DEW POINT – Temperature at which vapor begins to condense and form water
13. DRY LINE – Line used to aid in determining patterns (such as, a chalk line with no chalk)
14. FRIEZE -Tightly, twisted yarn that displays a nubby, rough appearance
15. GAUGE- Number of ends of surface yarn counting across the width
16. HEAT SETTING -Stabilizing process of carpet yarns by exposure to heat
17. JUTE - A natural cellulose fiber derived from plants of the East used for backing material
18. LITMUS PAPER – A material used to measure alkalinity of concrete or water
19. MAT TEST – Method used to check for water or moisture through substrate by taping section of plastic to floor with duct tape
20. PATTERN ELONGATION – Patterns vary in size, in length or width from one match to the other match
21. pH – Acceptable range of concrete is between 5-9 pH. Indicates relative acidity or alkalinity of concrete.
22. POLYPROPYLENE -Synthetic thermoplastic polymer used in carpet and backing
23. PORTLAND BASED – Gray floor patch, cement based, containing latex that is chemically dry
24. POROSITY – Ratio of volume of air within the boundaries of solid matter. The substrate's ability to absorb liquid.
25. Rh – relative humidity – moisture in vapor form in the air
26. RMA Test – Method used to assess moisture emissions through concrete. (Rubber Manufacturers Association Test)
27. ROLL SEQUENCE – Numbered order of carpet rolls used to keep dye lot sequence
28. SBR - Styrene butadiene synthetic rubber found in most carpet backings
29. SEAM SEALER - Formulated adhesive for securing cut edges of carpet to be seamed or finished
30. SELVAGE -The factory edge of the carpet
31. SKEW – One pattern does not lay at 90-degree angle to pattern at opposite width – out of square – one pattern runs ahead of another pattern
32. SLAB TEMPERATURE – Concrete substrate temperature no less than 65-degrees
33. 5 lbs. – Amount of moisture allowed to emit from concrete substrate per 1000-square feet
34. 3-4-5 RULE – Easy method used to square area or carpet
35. TUFT BIND - Amount of force required to pull a tuft from the carpet
36. UNITARY CARPET - Carpet backcoated with high-quality latex to increase the tuft bind. Install backing in direct-glue method ONLY if you do not have the WRITTEN consent of manufacturer!
37. VAPOR EMISSION – Water emission from the substrate in vapor form

PARTIAL LIST OF BACKINGS

R-I / C-I (Identify 5 backings) - R-II / C-II (Identify 12 Backings). Installers are required to identify backings and installation methods. For additional info, attend a local CFI Chapter Meeting, contact carpet manufacturers or www.CFIinstallers.com

Jute	Woven Interloc- Mohawk	SoftBac - Shaw
5-Pic Actionbac	Kara-Loc/ KaraBac – Mohawk	Unitary with ActionBac
11-Pic Actionbac	Solid PVC	SmartBack – Mohawk
Unitary Motion	Luxury Back	i-Flex
Kanga	Axminster	Liqua-Shield - Solutia
Enhancer – Enhancer Laminate	Wilton	UPS Back - Mohawk
Hot Melt Unibond – Lees	TacFast	LifeSpan
Unitary Straight Row	Woven Velvet	