NFIC GUIDELINES

- A guide to Understand Natural Fiber Wool Carpets.
- Understanding the Techniques of Woven & Tufted Wool Carpet – Sales and Installation.
- General knowledge for Woven, and Tufted Wools, Seagrass, Sisal and Flatweaves.

This book was designed for:

- Sales people
- Architects
- Designers
- Installers
- Inspectors
- Mill Reps
- Estimators

NFIC has training courses for Sales/Installation/Inspector Certification courses, for more information or to set up a training in your area call or email: nfic2006@yahoo.com or (770) 720-4537

www.nficnet.com

AKNOWLEDGEMENTS:

This information in the following pages is based on reliable principles and procedures developed through practical experience, research and information obtained from, but not limited to; as well as my own time in the industry starting in 1964:

Bloomsburg Carpet Mill ~ Jim Cody and Jim Adams

Campaign for Wool

Wools of New Zealand

CFI ~ Jim & Jane Walker

Godfrey Hirst ~ John Sheffield

CRI

Healthier Choice

Amaco

Cameron Hildebran ~ one of my biggest influencers early on

With special thanks for their input & critique:

"Product knowledge is critical for anyone involved in the carpet industry. If you are a salesman looking for an answer to a carpet question or an installer needing some advise on an installation they will probably find the answer in your book.
This is an encyclopedia for the carpet industry".
Tom Carr
Atlanta ~ Tom Carr Associates

New York ~ Bloomsburg Carpet - Jim Cody

Boston ~ King Flooring – Chris King – NFIC # 172

"This book is a must for the professional installer, salesperson or specifier who wishes to gain the upper hand when to comes to natural fiber carpeting".
Jamie Rodriquez
Denver ~ Aztec Design

Table of Contents

A few words from our CEO and Founder of NFIC, P.J. Arthur ....

This book is focused on the techniques of woven and tufted wool carpet installation, as well as helping sales people, designers, architects, mill reps and retailers to understand the advantages of wool carpet.

All the information compiled in this book comes from extensive research through industry professionals as well as the experience of my own installation back ground, since 1964, and understanding of how each of these products are manufactured, and installed; i.e. Tufted, Wilton, Axminster and Velvet, as well as Seagrass, Sisal and Flatweave.

WOOL:

Understand the properties of common carpet fibers (wool, nylon, polyester and olefin) and consider them carefully. Wool is a natural fiber that synthetics strive to emulate. The most familiar of all natural fibers is Wool. It has been used for centuries as the yarn of choice in carpets and rugs. Wool goes back to 4000 BC and is considered by many to be the finest of all fibers. Resiliency is the ability of the carpet pile to spring back into its original position after being crushed or walked on. Its resiliency is due to the fact it grows naturally crimped. Loop pile or woven textures are styles that avoid traffic patterns and foot print tracks.

Wool is a natural flame retardant and reduces dryness and static. It is a safe choice for home or business. Wool is more resistant to soiling and staining. The hard microscopic external scales on the fiber give it an easy care for quality. It is waxy and causes water to repel, and its acidity repels the soils.

Because wool has a higher pile density and weight than synthetics, wool will dissipate sound waves more effectively. Wool is good for the environment, it is a renewable fiber source that is bio-degradable at the end of the products life span.

Fact: Sheep can be shorn every nine to twelve months. The wool shorn from sheep is completely natural. It is composed entirely of amino acids, the building blocks of life. It takes less than 2 minutes for a professional shearer to shear a sheep. Shearing does not hurt the sheep, in fact it is essential to the health of the sheep. A single sheep will offer approximately 9 lbs. of wool.

WHY WOOL:

NATURAL

Wool is a protein fiber formed in the skin of sheep, and is thus 100% natural, non man-made. Since the Stone Age, it has been appreciated as one of the most effective forms of all weather protection known to man, and science is yet to produce a fiber which matches its unique properties.

RENEWABLE

As long as there is grass to graze on, every year sheep will product a new fleece, making wool a renewable fiber source. Wool growers actively work to safeguard the environment and improve efficiency , endeavoring to make the wool industry sustainable for future generations.

BIODEGRADBLE

At the end of its useful life, wool can be returned to the soil, where it decomposes, releasing valuable nutrients into the ground. When a natural wool fiber is disposed of in soil, it takes a very short time to break down, whereas most synthetics are extremely slow to degrade.

NATURAL INSULATOR

Wool is a hygroscopic fiber. As the humidity of the surrounding air rises and falls, the fiber absorbs and releases water vapor. Heat is generated and retained during the absorption phase, which makes wool a natural insulator. Used in the home, wool insulation helps to reduce energy costs and prevents the loss of energy to the external environment, thus reducing carbon emissions.

BREATHABLE

Wool fibers are crimped, and when tightly packed together, form millions of tiny pockets of air. This unique structure allows it to absorb and release moisture – either in the atmosphere or perspiration from the wearer – without compromising its thermal efficiency. Wool has a large capacity to absorb moisture vapor (up to 30 % of its own weight) next to the skin, making it extremely breathable.

RESILIENT & ELASTIC

Wool fibers resist tearing and are able to be bent back on themselves over 20,000 times without breaking. Due to its crimped structure, wool is also naturally elastic, and so wool garments have the ability to stretch comfortably with the wearer, but are then able to return to their natural shape, making them resistant to wrinkling

and sagging. Wool therefore maintains its appearance in the longer term, adding value to the product and its lifespan. Wool is also hydrophilic – it is highly colorfast, without the use of chemicals.

MULTI-CLIMATIC/ TRANS SEASONAL

Thanks to its hydroscopic abilities, wool constantly reacts to changes in body temperature, maintaining its wearer's thermophysical comfort in both cold and warm weather.

EASY CARE

The protective waxy coating on wool fibers makes wool products resistant to staining, and they also pick up less dust as wool is naturally anti-static. Recent innovations mean wool items are no longer hand wash only. Many wool products can not be machine washed and tumble dried.

A SAFE SOLUTION

Wool is naturally safe. It is not known to cause allergies and does not promote the growth of bacteria. It can even reduce floating dust in the atmosphere as the fiber's microscopic scales are able to trap and hold dust in the top layers until vacuumed away. Thanks to its high water and nitrogen content, wool is naturally flame-retardant, and has a far higher ignition threshold than many other fibers, will not melt and stick to the skin causing burns, and produces less noxious fumes that cause death in fire situations. Finally, wool also has a naturally high level of UV protection, which is much higher than most synthetics and cotton.

WOOL IS :

Wool is a very special complex and versatile textile fiber. It is a very strong resilient, comfortable and prestigious, yet practical fiber. It is the benchmark to which all other fibers are compared. It is excellent resistance to compression due to the physical nature of the wool fiber – natural crimp, because of millions of coiled molecules, rather than the artificially induced sinoidal waves in man-made fibers. Due to its inherent structure, it can refresh itself over and over again. The natural bulk of the wool fiber helps to resist tracking and flattening, providing a better looking carpet for many years. The comfort factor is not only due to its softness or texture, but also the way that wool supports itself and ability to bounce back.

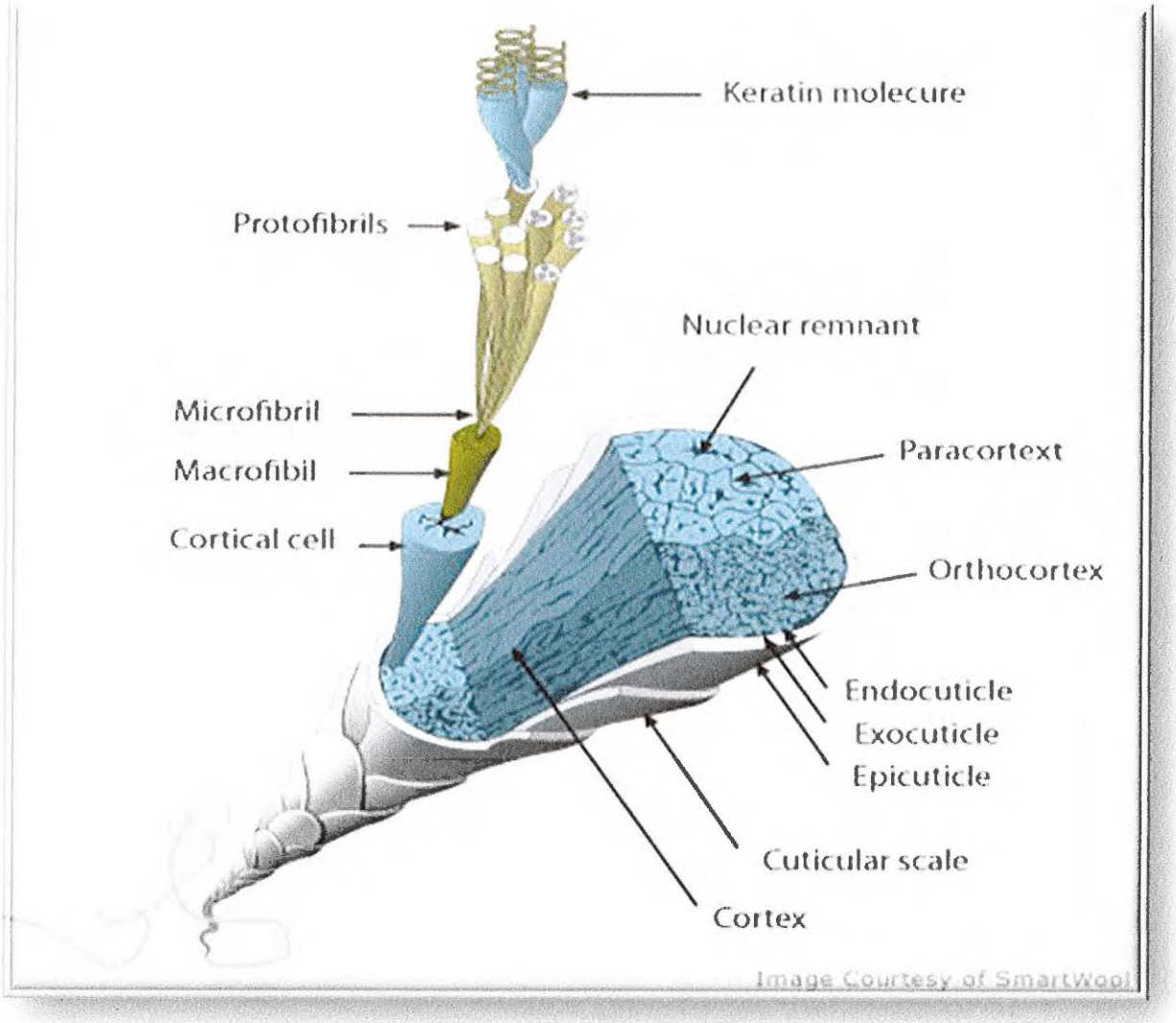
WOOL CAN:

Wool can be stretched to 30% without breaking. It can be absorbed up to one third of its weight in moisture. It has an outer membrane which repels water. It has a natural and high affinity for tufts enabling it to be dyed to the deepest and richest of colors. It is inherently flame retardant, difficult to ignite and self-extinguishing. It can have the ability to absorb moisture which means that pressure marks disappear completely when the fiber is gently moistened and allowed to recover naturally. It is the most versatile fiber known to man and it is used for:

Clothing	Blankets	Upholsery	Wall Coverings
Carpeting	Protective Garments	Shoe Linings	Tennis Ball Coverings
Industrial Felts	Filters	Mulch Matting	Insulating Materials

Wool is Natural ~ Wool is Beautiful ~ Wool is Practical ~ Wool is Durable
Wool is Safe ~ Wool is Good for the Environment

Wool Is A Very Special, Complex and Versatile Textile Fiber



Wool Carpets and Protective Finishes ~

- Wool carpets have outstanding easy care properties. Excellent soil resistance as well as clean ability, dry and wet, are characteristics inherent in the fiber and are not achieved by chemical treatments.
- The natural soil resistance of 100% wool and Woolrich carpets generally means that additional application of anti-soil agents are unnecessary.
- These agents do not affect the natural aesthetics, hand wear, or color fastness of wool carpets.
- Protective finishes tend to have limited durability on wool carpets and can cause problems with differential soiling and spot removal when partly worn.
- Silicone -based finishes should not be used because of their generally adverse effect on the soiling properties of wool carpets.

Carpets And Allergic Reactions In People -

- Allergies are wide spread in the developed world and the incidence is increasing for two main reasons: A greatly increased number of synthetic substances produced, and the improved diagnosis of allergic conditions.
- Wool fibers are too long and too course to be inhaled and therefore do not effect asthma suffers. Wool can help trap the dust particles in its minute scales and hold them until vacuumed.
- Wool is non-allergenic fiber and does not promote the growth of bacteria or dust mites or give off harmful emissions.
- The most common single cause of asthma is sensitization to house dust, or more precisely to the dust mite (Dermatophagoides pteronyssinus) and particularly its waste product.
- Dust mites feed on human skin flakes and live mainly in mattresses and similar warm and dark places. Bed making will make them airborne so they will be found in the floor dust, mainly in bedrooms.
- Carpets are one of the materials blamed for the incidence of allergic reactions and medical opinion tends to favor the use of hard floors in bedrooms. But hard wood floors do not hold the dust, they allow it to float around.
- Cumulative evidence now suggest strongly that wool carpet has actually a beneficial effect on people's health, provided of course that they are maintained regularly and properly.
- Research carried out in Sweden in the mid 1970's showed that when schools without carpeted floors were compared, the carpeted schools has fewer problems with allergy suffers.

The Customer.....

When a customer selects a new carpet, seaming SHOULD be discussed.

Does the customer really want to SAVE money on less carpet and create more seams and the possibility if being dissatisfied ?

Is the customer advised and given education options ?

When just a few dollars more will avoid unnecessary seams, WHY opt for an inferior installation ? There are some carpets in the market in which cross grain seams should NEVER be constructed.

The purchase of floor covering lasts for years and so should the BEAUTY of a good installation.

CUSTOMER COMPLAINT.... "I can see my seams"

EFFECTS OF LIGHTING ON SEAMS:

Carpet reflects light. Whenever possible, natural lighting should fall with the seam and NOT across the seam. Many things enter into how the light source will effect the appearance of the seam... such as location of the windows and doors, the pile height, the pattern and variegated shades of the carpet, and the type of incident lighting that the carpet receives.

IT IS TOO LATE TO DISCUSS THE EFFECT OF LIGHTING ONCE THE SEAMING BEGINS!

CUSTOMER COMPLAINT.... "My carpet seams are peaking"

Explanation: Seam peaking, seam hinging and seam elevation are inherent characteristics of all seams. This occurs when the carpet is stretched. The hinging motion allows the seam to become elevated, which in turn creates the peaking effect.

Note ~ It is highly recommended that installers use the Kool Glide Iron and the Seamer Down Now tools when installing low profile carpet. This will help with these type of issues. For further information contact NFIC directly.

PREPARE THE CUSTOMER THAT SEAMS SHOW !

SOME ARE JUST LESS VISABLE THAN OTHERS !

SEAMS ARE TO BE POSITIONED SO THAT.....

1. Main traffic runs along, rather than across the seam.
2. Natural light does not strike across the seam, whenever possible.
3. Seams are not constructed perpendicular to doorway openings
4. Seams are constructed away from the major traffic flow.
5. Seams are positioned away from the areas subject to pivotal traffic.
6. Cross grain seams are kept to a MINIMUM.

RESULTS OF AN IMPROPER CUSHION

1. Bubbles, buckling or looseness of the carpet.
2. Delaminating is when the primary backing releases from the secondary backing; bubbles or looseness appear which cannot be removed by stretching.
3. Furniture indentations: This is caused when heavy furniture comes in contact with face pile. This is noticed when the furniture is periodically moved and the indentations remain. With extremely heavy articles, indentations are inherent characteristic.
4. Fatigue: A very soft cushion will create a feeling of walking in sand.

A improper cushion will contribute to undesirable seams, bubbles and wrinkles. It can be restretched numerous times, but it will never be corrected. This is not an installation problem, it is the result of the incorrect choice of cushion. Industry standards recommend that the cushion thickness for a residential application is 7/16 inch and should not exceed ½ inch. For a commercial installation or heavy backed carpets, 3/8 inch is recommended.

Before making a determination, thoroughly discuss the proper cushion for the carpet to be purchased based on the carpet to be used and the amount of traffic and wear that it will receive.

Too often the cushion that is sold to support the carpet should *only* be used for upholstering furniture. If your uncertain, take a section of the light urethane cushion and rub it together with your hands. You will notice that the cushion will disintegrate. This is exactly what occurs when tennis shoes or crepe soled shoes are rubbed over the carpet. The cushion will disintegrate and the carpet is left without support, which contributes to the wearing process of the carpet. Serious attention should be given to the type of cushion selected for each purchase.

WHY ARE THESE STEPS SO IMPORTANT ? ..... TWO WORDS.....

MANUFACTURER'S TOLERANCES

When carpet is received from the mill, bow, skew and elongation will be within tolerance or out of tolerance. If it is within tolerance, the manufacturer says the bow, skew or pattern elongation can be corrected during installation. So it is important to know what your working with.

If it is out of tolerance, the manufacturer should be contacted once for instructions on how to proceed. Some manufacturers list their tolerances on the flyer provided in each roll of carpet. However, it may be necessary to contact the mill and request their tolerances on pattern carpet. The last thing you need is to find out that the carpet is not within tolerance after it has been glued.

Carpet is no different than anything else in life; you improve your chances of success with preparation. Not only are you able to correct some critical situations by knowing your carpet, but you can also avoid some potential time consuming and costly procedures before you start cutting the carpet.

Most of the war stories out there would/ could have been avoided by knowing the carpet and the manufacturers tolerances before getting started with the installation. It is a good habit to practice these small but valuable steps.

KNOW YOUR CARPET

The first step in pattern matching is to **KNOW THE CARPET**. This is important in any type of installation, but should be considered a necessity in a pattern installation. There are several things to look at before getting started with the installation of the carpet.

Pattern Bowing:

The curving of a decorative design or pattern line running across the width of the carpet.

Pattern Bias:

Also known as skew, is the slanting of a pattern line running across the width of the carpet.

Pattern Elongation:

The pattern repeat is slightly longer on one side of the seam than on the opposite side. Example: Measure 20 pattern repeats and it may be 15'1", measure the same amount of repeats on the second breath of carpet and this may be 15'0" – this is a pattern elongation of 1".

Set Match:

The pattern arranged in parallel rows across the width of the carpet. Take a marker and join four connecting patterns, a rectangle will appear.

Half Drop:

The pattern repeat is off set, using the example of a pattern repeat of 36" wide by 24" long. If the first row of patterns running across the width starts at the selvage edge, the second row will start 12 inches down and 18 inches away from the selvage. Joining four connecting patterns on a drop match will form a diamond shape. There are also "Quarter Drop" patterns in the above example. The second row of patterns is 6 inches down from the first row.

The noticeable difference in a set match and a drop match is the drop match will repeat diagonally across the width. In the set match, they repeat straight across the width perpendicular to the length.

Backings:

Again, this is very important. There are many types of backings that may require unique installation techniques.

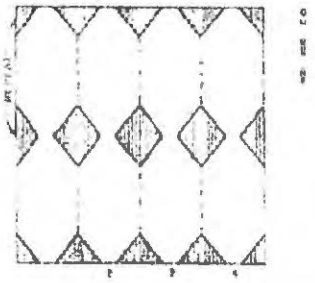
Woven, Tufted and Printed:

These are completely different types of patterned carpets. There is a difference in the way they cut, seam and stretch. Using the proper installation procedures for each specific product can make the difference between a quality installation and a failure. I'm sure some of you are thinking, "All of this is going to take too long", and you don't have enough time to do it. Listen to the voice of experience ..... You don't have time not to. It takes less than 5 minutes to check out all of the above concerns on a roll of carpet. And it can be done on the job site, if that is where the carpet is cut.

Basic design repeats itself throughout length and width

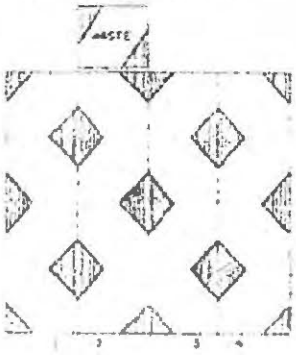
1. **Drop Match and Set Match**: Pattern match designates the arrangement and dimensions of repeating units that create design of patterned carpet.

1. Set Match



Set match refers to a pattern in a carpet that continues straight across the breadth at a right angle to the selvage edge. When connecting lines to each pattern repeat, squares or rectangles are visible.

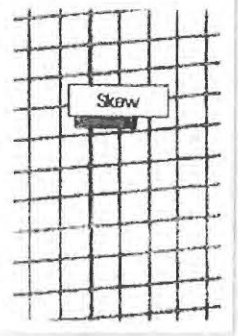
2. Drop Match



Every other repeat is dropped down one-half the repeated design length. Generally, this produces a larger scale effect often enhancing a diagonal pattern alignment across the width.

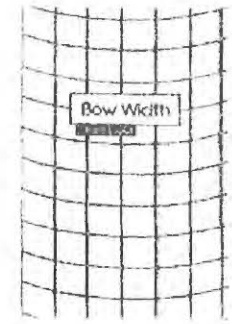
NOTE: This is not to suggest that a SET MATCH does not produce a diagonal effect because both types often do. The visual presence of a diagonal is not an accurate method of determining whether a pattern is a **SET** or **DROP MATCH**.

PATTERN TOLERANCES



Skew or Bias –

- Condition exists when the carpet face yarn is set on secondary backing in such a way that the face yarn is not square with that backing. Distortion is noticeable when the pattern on one side is slightly ahead of pattern on opposite side.
  Recommended tolerance is no more 1-1/2 inches in 12-feet
- If the skew is no more than 1-1/2 inches in 12 feet, the following procedures should correct the problem when implemented by a qualified installation Contractor who is paid according to the work and time involved.
- The use of a power stretcher and dead man are **mandatory**. If a direct-glue installation is involved, stay nails may also be necessary.



Bow Width

- When reviewed across the width, the distortion is visible as wavy or crooked lines that occur in the width of either patterned or plain carpet
- Usually occurs when carpet is not perfectly straight as it is being manufactured.

Recommended tolerance:

Refer to carpet mfg. technical dept.

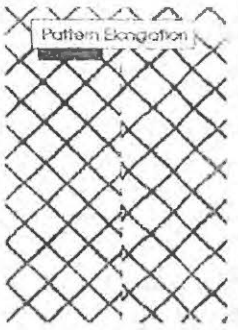
Edge Deviation-Trueness of Edge-Bow in Length

Lengthwise Pattern Bow

- Does not appear in length as a straight line
- May be caused because the pattern is not aligned on the tenter hooks during the application of backing or the sizing process.
- This can be measured between common pattern points along carpet edge at or very close to edge to be trimmed for seaming.

Recommended tolerance:

Refer to carpet mfg. technical dept.



Pattern Elongation or Pattern Run-off

- Variation of patterns from one breadth of carpet to the next.
- Condition that accounts for the pattern growing along a seam.
- Usually caused by lack of equal tension across the range during manufacturing or as the secondary backing is applied.

Recommended tolerance:

Refer to carpet mfg. technical dept.

HOW TO IDENTIFY DIFFERENT CONSTRUCTIONS OF CARPET ~

At one time it was fairly easy to distinguish between the different types of carpet construction. Today, each of the various manufacturing methods is increasingly more versatile, so that the end product is harder to identify as to the type of weaves or construction. To the expert, however, there are some telltale sign by which each type can be identified.

TUFTED:

Tufted carpet is traditionally identified on the reverse side, where it is often possible to see even rows of tufts punched through the pre-woven craft cord, jute backing or action bac. If there is a double backing, look at the edge of the carpet, where it is possible to see where the tufts have been punched through the backing and are not interwoven with the backing yarns.

FOUR COMPONETS make up the majority of tufted carpet:
1. Face yarn 2. Primary Backing 3. Secondary backing 4. Adhesive/latex

PRIMARY BACKINGS adds strength and dimensional stability to tufted carpet.
1. Face yarn is tufted into the primary backing
2. Adhesive laminates secondary and primary backing
3. SBR – Styrene Butadiene Rubber latex is approx. 5 – 25% most expensive ingredient.
4. Fillers – Calcium Carbonates 70 – 80% and is the least expensive ingredient.
5. Water – 5 – 7%
6. Stiff carpet is not yarn or backing, it is adhesive used to laminate primary and secondary together. More fillers in adhesive makes the carpet backing stiffer.

SECONDARY BACKINGS add strength and dimensional stability to tufted carpet.

VELVET WEAVE:

On the cut edge or open salvage, note the chain warp, this binds all construction yarns together, and forms a characteristic pattern. Velvets are solid colors, tweed or stripes.

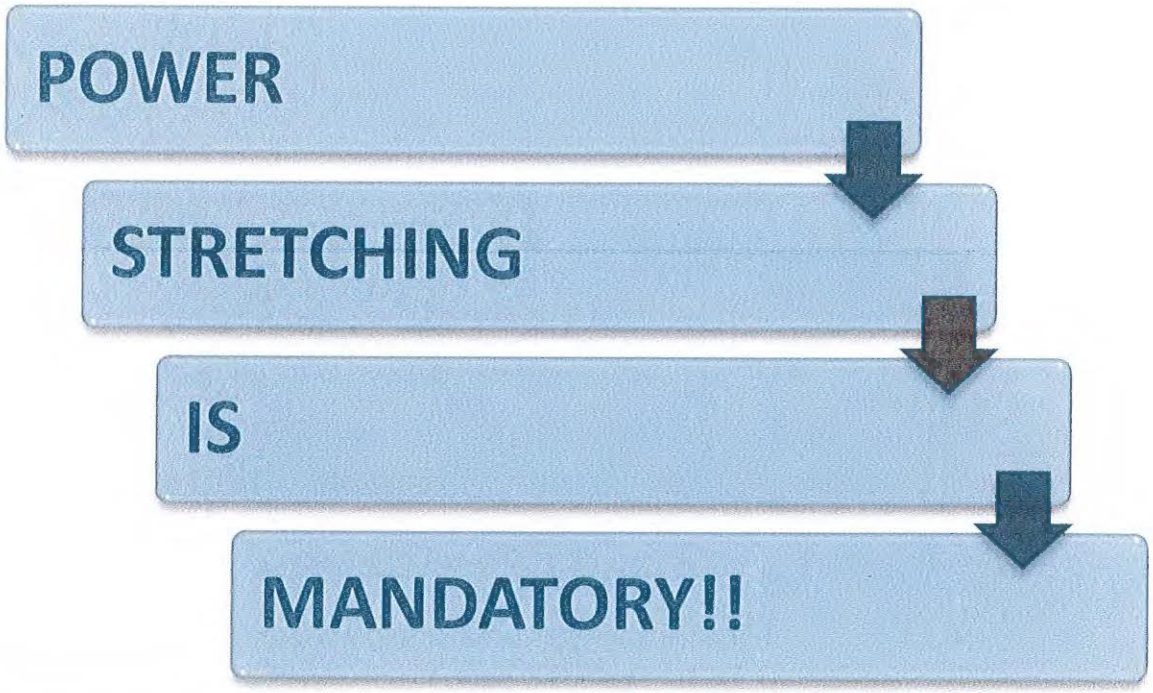
WILTON:

In multi color Wilton, pile fibers are usually on the back and the additional color provide a heavier body than other types of carpet. Residential grades of Wilton's usually have more than two or less than five colors and are often patterned with sculptured or embossed textures, or combinations of cut and uncut piles. In residential grades, latex backings make it difficult to identify a Wilton Weave.

AXMINSTER WEAVE:

Axminster Weave often results in a heavily ridged backing, so that the carpet can be rolled easily in one direction. Axminsters are the most intricately pattern "Floral type" carpets.

POWER STRETCHING....



It makes no sense to install new carpet and not require that the work be properly performed. If an installer arrives at a home or office without a power stretcher...

QUESTIONS SHOULD BE ASKED

If the carpet is to be direct glued to the subfloor and is patterned material, there is even a possibility that a power stretcher will be used to match the patterns. Otherwise, it is not required for this type (direct glue) of installation method.

If the installer says the carpet can be sufficiently installed with a knee kicker – this is incorrect. Knee kickers are only to be used to position the carpet. The result of this method will be looseness, bubbles, wrinkles and a unacceptable installation. The outcome of this may not appear till later even as much as six months or more.

Characteristics of Improper Cushion

Installing new cushion over existing cushion is NOT recommended. An improper cushion will contribute to undesirable seams, bubbles, wrinkles, furniture indentations, delimitation, early break down of the backing of the carpet, difficulty vacuuming, matting and crushing of the fibers. It also reduces the life expectancy of the carpet and will cause fatigue.

For heavy commercial use:

TYPE	DENSITY FACTOR
Healthier Choice	no less than 12 pounds
Flat rubber cushion	no less than 21 pounds
Rubberized hair jute	no more than 32 oz.

Always remember, one type of cushion is not suitable for ALL applications. Special consideration is to be directed to the substrate as well as the use. Realizing that one product does not fulfill all requirements.

When installing natural fiber carpet, i.e. tufted and woven wools; it is not recommended to use rebond padding at any weight, for any reason with these products, due to the fact that it is a petroleum based product. The glue in the rebond emits vapors causing the pad and the carpet not to be compatible. Some of the tufted products will delaminate, and can cause wrinkling. As well as the Wovens, will soften, wrinkle and could cause the yarn to loosen. It is not the "wool" that is not compatible with the pad it is the jute that is the secondary back on tufted products, and the jute stuffer yarn in the woven products that is not compatible.

The function of the cushion is to support the backing of the carpet and to deflect the load the carpet will receive. A firmer product will always provide more support for areas that will receive heavy or rolling traffic, such as office chairs, wheel chairs, or kitchen table chairs. If the cushion is too soft, it will NOT support the backing of the carpet. It will allow the carpet to stretch. This condition will occur in heavy traveled areas and pivotal points. Prior to selecting the cushion, evaluate the traffic load.

In the majority of circumstances, a low profile and dense cushion will provide better protection for the carpet. Generally, carpet that is glued down to the floor will result in a loss of pile height much sooner than one that is installed over a quality cushion.

Remember: Problems that are the direct result of an improper cushion are NOT installation related.

Bubbles, Looseness, Buckles & Wrinkles

Correction:

If incorrect cushion was installed, it must be replaced! However, the installer can remove the bubbles or looseness, but the work cannot be guaranteed. The problem will surface again.

A power stretcher MUST be used; a knee kicker will not stretch the carpet. In many cases, because of the carpet backing, it may be necessary to install two pieces of one inch wide tack strip or architectural tack strip to stretch the carpet sufficiently.

The installer is to power stretch the room in all four directions. The room is to be completely empty of all furniture. The installer should be prepared to reconstruct the seams. (Note – if Kool Glide iron was used, this procedure will be much easier.)

When the proper procedure is followed, the cost should be the same or more than the original installation. The restretch work should carry a minimum of one year warranty on this installation, IF the correct cushion is used. If not, the work cannot be guaranteed and the problem will reappear.

Delamination

This is when the primary backing releases from the secondary backing, causing bubbles or looseness to appear – which cannot be removed by stretching.

Correction:

The installer should push the bubbles to the wall. If this is possible, the carpet has not delaminated, but requires additional stretching. However, if the bubbles suddenly stop and the installers hand moves over the bubbles, this indicates delamination. If the condition is not severe, the carpet can be removed from the tack strip and folded back. Latex is to be applied to the delaminated or loose area. A heat gun may be used to accelerate the drying of the latex. The carpet is then to be reinstalled. This type of repair is for small areas of delamination. If delamination occurs in a large area or several areas the carpet could be classified as defective.

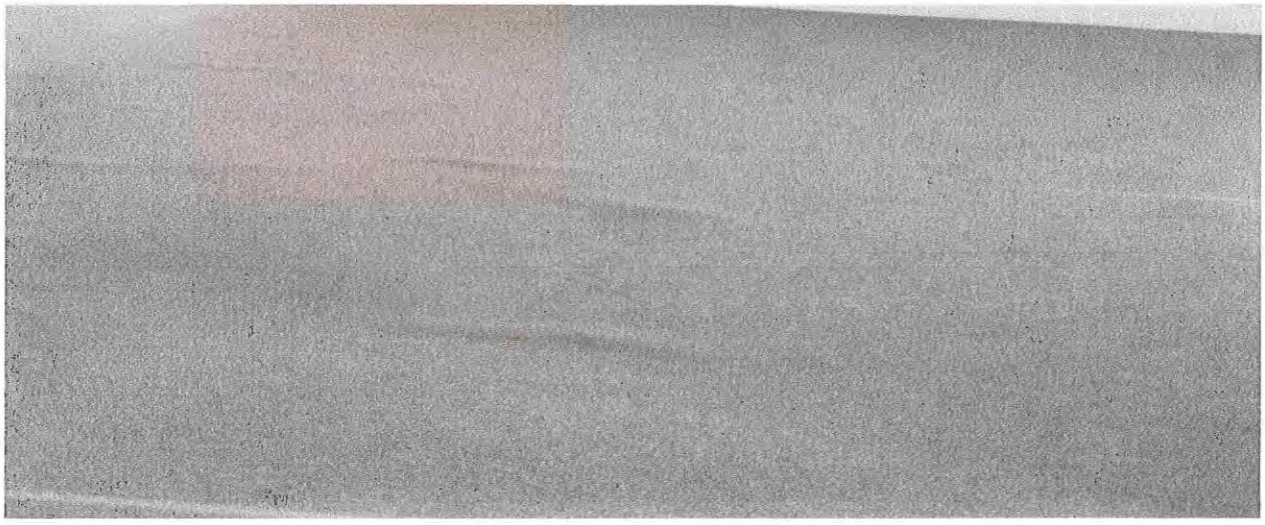
The picture below shows bubbles and wrinkles....

There are 3 reasons for this on a stretch in installation:

1. Jute back carpet should not be installed with rebond pad because rebond pad is a petroleum based product and jute is a natural product and they are not compatible. Rebond pad will off gas, resulting in bubbles and wrinkles.
2. A power stretcher was not used.
3. Possible delamination, where the primary backing and secondary backing have separated. Not installation related.

Typical reason on a double stick installation:

If this was a double stick installation these results were because the glue was not given the proper time to off gas, from pad to floor, resulting in air bubbles.



Furniture Indentations

The backing becomes stretched when heavy furniture comes in contact with the face pile. This is noticed when the furniture is periodically moved and the indentation remains. With extremely heavy articles indentations are inherent characteristics.

Correction:

Indentations may be removed by applying steam. Wool fibers can be lifted and restored to an acceptable appearance. If the condition is severe, this action may not work. Remember, if the cushion is too soft or too thick, this corrective procedure will have no effect. To eliminate future problems, the cushion will require replacement.

Fatigue

A very soft cushion will create a feeling of "walking on sand" and make one tired. Too many times, the customer is sold on the idea that they need a "cushion into which they can sink into". This is a misconception. A firmer cushion will provide the qualities that are discussed in this section.

Correction:

The only solution to this problem is to replace the cushion with a denser product.

Carpet Fibers Are Matted & Crushed

The face fibers are receiving the constant load which is causing matting, due to the cushion being too soft. The correct cushion will enhance the appearance of the carpet and support the backing, which increases the durability of the product.

Correction:

The only solution to this problem is to replace the cushion with a product that is recommended for the type of installation involved.

Splitting or Seams Opening

This happens because of the vertical movement in the soft cushion. The seaming tape can split. This is not an installation related problem if an incorrect cushion has been used. A "trampoline" effect has been created causing this.

Correction:

The furniture is to be removed from the room and the carpet removed from the tack strip. Remove the existing seam tape, reconstruct the seam and reinstall the carpet. However, this is a temporary repair because the cushion allows too much movement. The situation will occur again.

Soil Barriers:

To reduce the rate of soiling, use walk off mats, grilles, etc. at entrances to buildings to scrape both grit and moisture from shoes. Additional rugs or mats should be laid inside the entrances, especially during bad weather, to remove the fine particles of dirt which causes most of the discoloration of carpets. These soil traps or barriers should be cleaned frequently so they themselves don't become a source of soil.

High traffic areas such as lobbies and elevators should be given priority attention with frequent vacuuming. This will reduce the maintenance time and cost for carpet in more remote locations.

In areas where spillages regularly take place (i.e. coffee break areas, bars, restaurants) or heavy traffic areas (i.e. main entrances, elevators, service areas) a soil retardant or stain repellent finish may be used. It can be applied either by the carpet manufacturer or after the carpet has been laid. Only fluorochemical compound finishes should be used. Compounds containing silicones must not be used because accelerate soiling. (Note: some carpet manufacturers do not accept responsibility for complaints when such topical treatments have been applied.) Because wool is a uniquely soil retardant fiber, the application of a fluorochemical finish is only justified on the very lightest and most soil sensitive colors.

Vacuuming

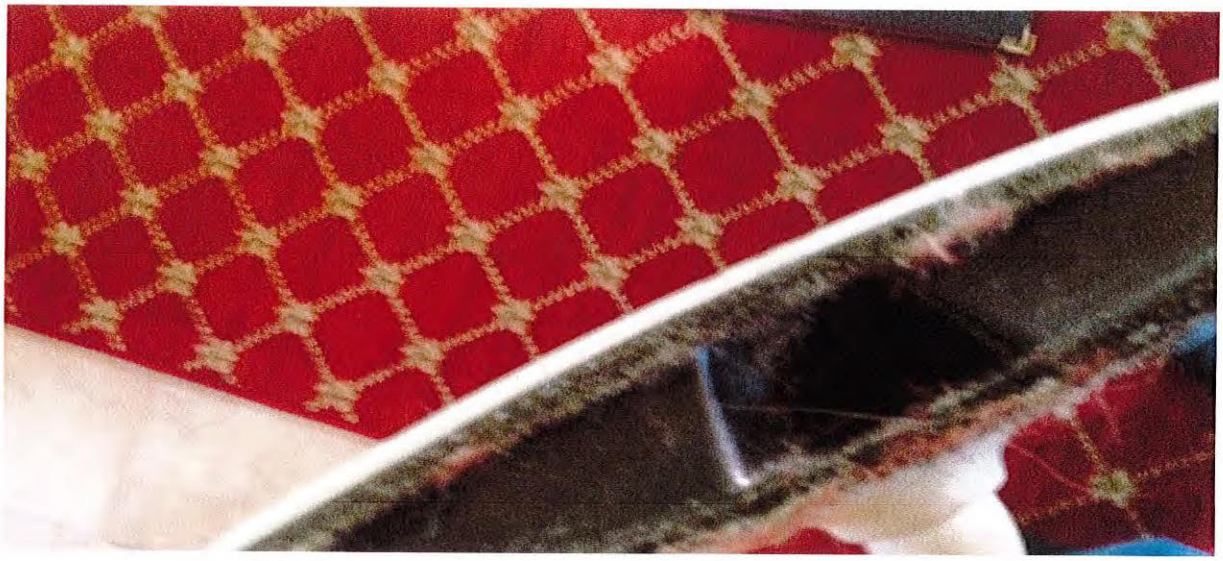
Regular vacuuming: Routine carpet maintenance is made up of two elements: vacuuming and spot cleaning. Proper vacuuming on a regular basis is the most important of all cleaning procedures and is essential to obtain the longevity of wool carpet. A floor plan highlighting the heavy traffic areas should be part of the maintenance program. These heavy traffic areas should be vacuumed daily; medium traffic areas once or twice a week as determined by appearance. Thorough vacuuming requires that the vacuum move slowly back and forth over the areas several times (3 to 4 times in heavy areas). It is also important to ensure good suction, and that the vacuum bag is emptied frequently.

There are two main types of vacuum cleaners: plain suction and suction plus revolving brush/beater bar. An upright heavy duty with rotating brush/beater bar is recommended for cut pile carpets. Suction only types are best for wool carpet, whether it is a cut pile or a loop pile construction. Begin your vacuuming program as soon as the carpet is installed, unless the carpet is direct glue, then wait at least 72 hours.

Using a beater bar will cause the carpet to fuzz. The only way to repair that is to have the carpet micro sheered.

Important: Carpet cleaning should not happen for a minimum of 30 days.

Example of Improper Vacuum: This picture illustrates how fragile wool yarn is. This vacuum, even though only suction, it has a brush around the perimeter of the head, and you see how much yarn was pulled out. Wool is a staple yarn, but wool is also more durable and will last longer than any synthetic carpet.



Example of Improper Vacuum: This picture illustrates what a beater bar vacuum will do. Should use suction only vacuum without a brush. Although this can be corrected with a tip shearing machine.

SPOT REMOVAL CHART (THE VERY FIRST STEP SHOULD ALWAYS BE TO SCOOP UP OR BLOT EXCESS)

Spot	Order of Treatment			Other Treatments
Alcoholic beverages	1	2	-	
Bleach	1	2	-	
Blood	1	2	-	
Butter	4	2	-	
Candle wax	10	4	-	absorbent paper & hot iron
Chewing gum	5	4	-	
Chocolate	2	4	-	
Coffee	1	2	6	
Soft drinks	1	2	-	
Cooking oils	4	2	-	
Cream	2	4	-	
Egg	2	13	-	
Feces	2	3	13	
Floor wax	4	2	-	
Fruit juice	1	2	-	
Furniture polish	4	2	-	
Gravy and sauces	7	2	-	
Ink (ballpoint)	9	2	-	
Ink (felt tip)	7	2	8	
Lipstick	4	2	-	
Milk	2	4	-	
Mustard	2	-	-	
Nail polish	8	4	-	
Oil and grease	4	2	-	
Paint (oil)	12	4	-	
Paint (acrylic)	1	2	4	
Rust	6	2	-	
Salad dressing	2	4	-	
Shoe polish	4	2	-	
Soot	11	4	-	
Tar	12	4	-	
Tea	1	2	6	
Tomato Sauce	7	2	-	
Urine (fresh)	1	2	3	
Urine (old)	13	-	-	
Vomit	2	3	6	
Wine	1	2	6	
Unknown substance	4	2	-	

1. Cold water - blot
2. One teaspoon wool detergent, one liter of warm water.
3. Clear household disinfectant
4. Dry cleaning solvent, such as Murlex – WoolClean Spot removal *
5. Chill with aerosol freezing agent or ice cubes in a plastic bag. Pick or scrape gum.
6. 1/3 cup of vinegar and 2/3 cup water
7. Warm water- always blot
8. Clear nail polish remover (preferably acetone)
9. Alcohol or mineral spirits
10. Place absorbent paper over wax and apply hot iron to paper - wax will melt and

Definition of Terms

Adhesive – A substance that dries to a film capable of holding materials together by surface attachment. (Appling adhesive to the floor normally is accomplished with a trowel, or roller.)

Adhesive Transfer – When installing carpet, the degree of coverage and/or penetration of the applied adhesive into the back of the carpet while maintaining full coverage of the floor. (The degree of coverage may be influenced by adhesive type, method of installation, open assembly time and other factors.)

Alkali – A soluble substance with base properties and having a pH greater than 7.

Attached cushion – Cushion material permanently bonded to the back of carpet and rugs by the manufacturer.

Baseboard – A board skirting the lower edge of a wall, covering the junction of the wall and floor.

Bow – A distortion visible as wavy or crooked line when viewed across carpet width or length.

Calcium Chloride Test – ASTM F 1869 test method that is used to obtain measurements of moisture vapor emission rates over concrete substrates.

Carpet Cushion – Material placed under carpet to provide resiliency, support, insulation qualities and noise reduction. Also referred to as carpet lining, padding or underlay, although "carpet cushion" is the preferred industry term.

Conditioning – The process of allowing the substrate, carpet, cushion, and sundries to relax or acclimate to the proper environment into which it is to be installed as described in the text.

Dead Man – A device used in carpet installation to provide a point of resistance for facilitating stretching procedures. Construction is a board with strips of tack strip attached to the bottom side.

Direct Glue Down – An installation method whereby the carpet is adhered to the floor using the proper adhesive.

Double Glue Down – An installation method whereby the carpet cushion is first adhered to the floor, and then the carpet is then adhered to the cushion using the proper adhesives.

Double-Headed Mini Stretcher (crab stretcher) - A hand device used for stretching carpet in a confined area and aligning patterns where a power stretcher cannot be used and is not practical. Also used for removing fullness at seams and closing gaps at seams.

Dry Line – A length of line or cord, which is stretched slightly above the carpet, but not touching the carpet, and used as a visual reference in pattern alignment. Lasers may also be used in this capacity.

Gully – The distance between the tack strip and the wall. A gully should always be slightly less than the thickness of the carpet and not to exceed 3/8 inch.

HVAC – Acronym for "heating ventilating, and air conditioning" referring to indoor climate control systems.

Knee-Kicker – An installation tool designed to position carpet and move it onto the tack strip. (Note: With the exception of stair installation, knee-kicker should only be used for positioning and hooking the carpet onto the tack strip and not for stretching carpet. A power stretcher, i.e. mechanical stretching devise, should always be used for stretching carpet during installation.

Modular Carpet – Carious shapes and sizes of carpet precut during manufacturing with applied backings. Backing materials include thermoplastic PVC, polyethylene, polyolefin, bitumen, polyurethane and other compositions for cushion and dimensional stability. Also referred to as "carpet tiles".

Open Time – The earliest time interval between the spreading of adhesive on a substrate and the placement of a floor covering material into the adhesive for bonding.

Patching – Floor preparation process of filling holes, cracks, and imperfections, etc. in a floor substrate prior to installation of carpet.

Pattern Bow – A distortion visible as wavy or crooked pattern lines when viewed across the carpet width.

Pattern Elongation – A variation of cumulative pattern measurements from one breadth to the next. Often referred to as a pattern run off or repeat variation.

Pattern Skew – A distortion visible when the pattern on one side is slightly ahead of the pattern on the other side. Skew or bias, describes pattern squareness.

Ph – A value representing the concentration of hydrogen ions in gram equivalents per liter used to indication the acidity or alkalinity (base)

Power Stretcher – (i.e. mechanical stretching device) – A carpet installation tool used to stretch carpet for installation on the tack strip. Consists of a pinned plate that grips the carpet, tubular extensions, a padded end used to brace against an opposing wall or other structure, and a lever system that multiplies the installer's applied stretching force.

Riser – The upright part of a step between two stair treads.

Seam – In a carpet installation, the joints or interface of two pieces of carpet by the use of various securing techniques.

Seam Adhesive – A specifically formulated adhesive for securing and protecting cut edges of carpet to be seamed.

Seam Peaking – The slight elevation of taped seams, which usually renders the seam more visible, resulting from stretching of the carpet. (Sometimes referred to as "seam stress realignment" peaking is a natural and sometimes unavoidable condition and not the result of a manufacturing or installation defect).

Seam Sealing (edge sealing) – Common term used to describe the application of seam adhesive to secure and protect cut edges of carpet to be seamed from edge raveling and delamination.

Seaming Tape – Tape used for joining two sections of carpet ("hot melt" tape is pre-coated with a thermoplastic adhesive. Adhesives may be applied separately to other tapes of seaming tape).

Secondary Backing – Woven or non-woven fabric reinforcement laminated to the back of tufted carpet, usually with an adhesive to enhance dimensional stability, strength, stretch resistance, and ease of handling.

Selvage - (selvedge) The lengthwise, factory finished edge portion of carpet.

Shoe Molding – Wood or plastic strip with one corner edge rounded slightly. Used to conceal the floor/wall line junction or between larger moldings and floors.

Stair Nose – The leading edge of a stair tread. For carpet installation, it is required that this edge be rounded.

Stay Nailing – A technique of temporarily fastening carpet to the floor using nails to prevent movement until permanent fastening with tack strips, adhesives, or other means is possible. This technique is commonly used to align patterned carpet.

Stretch-in – Installation method whereby carpet is placed over separate carpet cushion and is secured in place, under tension, using a power stretcher (mechanical stretching devise).

Tack Strip – Wood strips fastened to the floor near the walls of a room, containing either two or three rows of pins, angled toward the walls on which the carpet is stretched and secured to, in a stretch in installation (also referred to as tackless strip).

Telegraphing – The gradual appearance of irregularities, imperfections or patterns from a substrate onto the surface of the carpet or other floor covering.

Threshold – The raised material beneath a door. Also known as a "door sill" or "saddle".

Transition Molding – A wooden, metal, vinyl, or plastic strip, either quarter round or shoe molding, attached to the bottom of a baseboards or wall to cover the joint between wall and floor or to cover raw edges of carpet at doorways or where carpet abuts another type of floor covering. There are two basic types 1) Applied before – shapes put in place before carpet is installed and carpet is fitted to them, commonly called "gripper bar"; 2) Applied after – shapes put in place on top of installed carpet commonly called "binder bar".

Tread – The horizontal part of a stair (the walking surface).

Trowel – Hand implement used for metering and spreading adhesive to the floor or other substrate.

Trueness Of Edge – Also referred to as lengthwise pattern bow. It is generally measured as maximum deviation from a straight line, over a defined distance, between common pattern points along the machine direction of the carpet.

Tufted Carpet – Carpet manufactured by the process of inserting pile yarns into a primary backing fabric through the use of needles.

Unitary Carpet – Carpet back coated with a compound intended to increase physical properties normally without the addition of a secondary backing.

Plasticizer – A substance incorporated into polyvinyl chloride polymer or other polymers to increase flexibility, or workability, (capable of being extended).

Woven Carpet – Carpet produced on a loom. The lengthwise (warp) yarns and widthwise (weft or filling) yarns are interfaced to form the fabric. Carpet weaves, such as Wilton, Axminster, and velvet are complex, often involving several sets of warp and filling yarns for the pile and backing.

TROWEL SIZE - MINIMUM GUIDELINES

For Direct Glue Down Installation

Carpet Backing	Adhesive Type	Notch Width	Notch Depth (in Inches*)	Space Between	Notch Shape
Jute	Latex				
Rubber (foam & sponge	Latex				
Polyurethane Cushion	Latex	3/32	3/32	3/32	V, or
Jute/Vinyl	Vinyl	1/8	1/8	1/8	U
Vinyl/Foam	Vinyl				
Vinyl/Slab	Vinyl				
Vinyl/Coated	Vinyl				
Polypropylene Secondary	Latex	1/8 1/8	1/8 1/8	1/16 1/8	V, or U
Unitary	Latex	1/8 1/8	1/8 3/16	1/16 1/8	V, or U
Woven	Latex	1/8 1/8	1/8 3/16	1/16 1/8	V, or U
Hot Melt	Latex	1/8	1/8	1/8	U

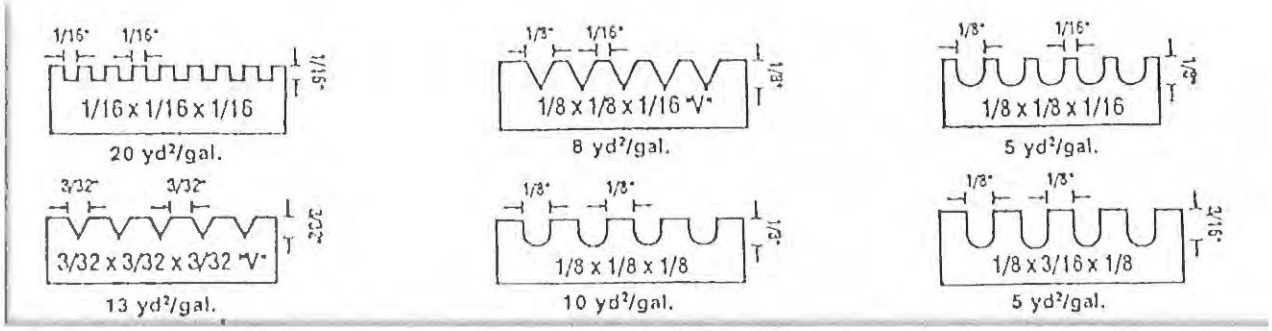
For Double Glue Down Installation

Between Floor and Cushion						
		Latex	1/16	1/16	1/16	SQ
Between Cushion & Carpet						
	-Smooth back carpet	Latex	1/8	1/8	1/16	U
	-Rough back carpet	Latex	1/8	3/16	1/8	U

*To convert dimensions to metric: 1/32=0.8mm, 1/16=1.6mm, 3/32=2.4mm, 1/8=3.2mm, 3/16=4.8mm

Note: The above guidelines should only be used when specific recommendations are not available from the carpet manufacturer and/or the adhesive supplier. Rough, porous concrete surfaces and heavily textured carpet backs may require a trowel with deeper notches than listed above. A 100% transfer of floor adhesive into the carpet backing while maintaining full coverage of the floor must be attained.

Actual size trowel notch and approcimate spread rate



SEAGRASS:

Seagrass is a perennial grass grown and harvested annually from paddy fields that are flooded with sea water as the crops grow. The crop is not a food source and is used for hand weaving of mats and baskets, plus twisted yarns for export for use in flooring and furniture. The 100% natural yarn contains no dyes, insecticides or other chemicals.

Characteristics of the Seagrass fiber:

Seagrass is woven from thousands of hand twisted blades of grass yarn. There are always sprouts and knots throughout. When new, Seagrass will have a sage green hue. As the moisture in the fibers dissipates the fiber will turn to a golden tan.

Seagrass is only suitable for indoor, climate controlled areas. Not suitable in areas subject to damp conditions or high humidity. Seagrass will mildew when exposed to these conditions.

Normal vacuuming is all that is generally required. If a wet spot occurs, use of a hand held drier or a fan should be used to quickly dry the spot.

SISAL:

Sisal is grown on a plantation in Tanzania, East Africa. This is a extremely strong fiber and is obtained from the long, green leaves of the Agave plant. Each leaf contains an average of 1,000 fibers that are extracted, washed, sundried, brushed, graded and bailed.

Since Sisal is made entirely from natural plant fibers, there will be variations and irregularities in both the weave and the color. These are totally inherent in using natural plant fibers in weaving and do not constitute a defect in the carpet.

INSTALLATION OF SEAGRASS & SISAL:

NFIC recommends a direct glue down installation. These products have no memory, so a stretch in installation is not recommended.

These products come with a latex backing or a urethane cushion backing. When installing these products they should be cut to room size plus 3 inchs extra for each cut.

When possible the carpet should be allowed to acclimate for 24 hours, before installation. If acclimation is not allowed to take place there is a good possibility shrinkage will occur with these products.

The notch size trowel used in installation of these products is 1/8" X 1/8" X 1/8" U notch trowel.
Theses products should be rolled after installation with a 75 lb. roller – no more; no less.
There should be no foot traffic for 24 hours after installation and no rolling traffic for 72 hours (this gives the glue time to cure).
The glue used for the installation of these products should be a premium high solids glue.
When installation is complete, there should be ¾" molding installed, unless there is space under the baseboard.
These products should never be sold that the seams are invisible, and a head seam should be avoided.
Seams should always be sealed for these products with a latex seam sealer (rubber based).

FLATWEAVE:

Characteristics of Flatweave product; the optical aspect in the length and the dark spots are typical for the flat woven production using natural materials such as wool and jute.

INSTALLATION OF FLATWEAVE:

Site conditions for all installation of Flatweave. Temperature and humidity – carpet must be installed when the indoor temperature is between 65-95F with a maximum relative humidity of 65%. If ambient temperatures are outside of these parameters the installation should not begin until the HVAC system is operational and those conditions are maintained for at least 48 hours before, during and 72 hours after completion. Inside temperature should never fall below 50 degrees.

Floor prep – Carpet must be installed over properly prepared substrates that are suitable for the specific product and installation method selected. There is a minimum of 18" of air space under wood sub-floors.
Concrete floors, even with adequate curing time can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using an anhydrone calcium chloride moisture test kit. As a general guideline, an emission rate of 3.0 lbs. or less is acceptable. Alkalinity, a pH reading above 9 requires corrective measures

and is not suitable for installation.
Carpet edges at seams must be trimmed using tools and techniques best suited for the carpet style, i.e. loop-pile, cut pile and cut and loop pile. Trim edges far enough into the material to maintain the structural integrity of the carpet and to join edges without gaps or overlapping. (Note: Although "row-cutting" both edges is preferred, other trimming techniques may be more suitable on some carpet. Carpet should always be cut on a hard surface.

Prior to seaming both trimmed edges of the carpet sections that will be joined, edges must be sealed with an appropriate seam adhesive. Latex seam sealer. Seam adhesive must be applied in a manner that encapsulates both primary and secondary backings. Caution: Failure to properly seal seam edges often result in; edges raveling * edge delamination * tuft loss * seam separation * safety concerns.

Flatweaves should be seamed in the length. Seams should be placed where main traffic runs along rather than across the seam. Cross seams will be more visible and should be avoided. Also it is better if the lighting does not strike across the seam. Seams should run into the light source.
Some Flatweaves require a "knuckle seam" – this is where the seam area is determined then cut 2 – 3 inches more; pull all warp fibers out to where the seam should be, then fold the weft yarns over and glue these fibers to the backing. This should be done on both sides of the seam prior to seaming.

For Seagrass, Sisal and Flatweve there are so many types of these products, this is a small example of what will be experienced. You can consider this information to be the basics for these products.

The Store Owner

Said to his

Manager

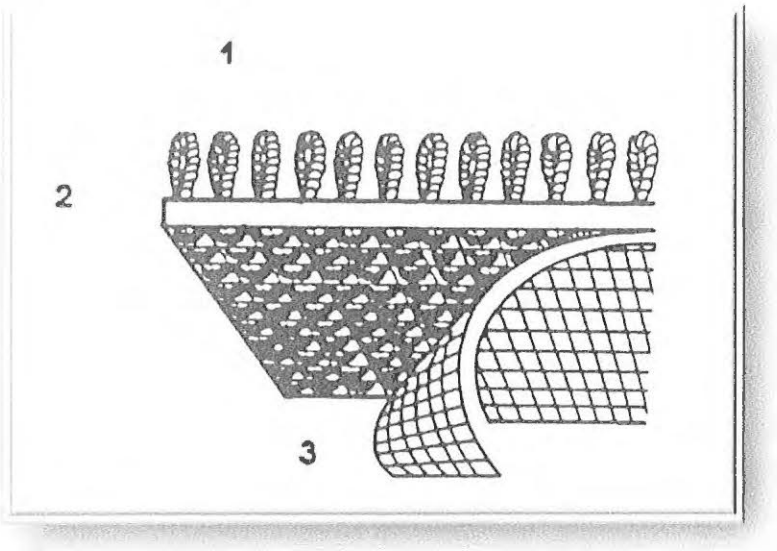
"What happens if we invest in the training of our people, and they leave the company?"

The Store Manager

Said:

"What happens if we don't and they stay?"

TUFTED CARPET



The importance of understanding the construction of the product is as important as the installation itself. Understanding how to manipulate the product when needed to have it conform to its surroundings is essential.
Acclimation is a very important step in achieving this goal. Carpet should be cut and laid in the area it is to be installed, for a minimum of 24 to 48 hours before installation. Always add 3 inches to each cut, and when patterns are involved 3 inches plus full pattern should be added.

TUFTED WOOL

Stretch-in-Installation:

1.**Tufted wools** install differently than synthetic carpets, from the pad to the amount of stretch to be given the product. The amount of stretch on tufted wools is 1% in the width and 1% in the length, depending on the room size. Qualified installers know the amount of stretch by the pressure they put on the handle of the power stretcher – the power stretcher is mandatory ! When stretching across a seam there should be less stretch than if there was no seam, to lessen the amount of seam peaking. Rooms 29' and over, it is required that you use architectural tack strip, or double up standard tack strip. Pins should never show through the carpet. To avoid the pins showing through, you can cut the selvage off the side of the carpet and lay it across the tack strip to lower the pins.

1.2 **All seams** must be sealed with latex seam sealer to encapsulate both the primary and secondary backing. Care must be taken as to not get latex on the face yarn. Latex on the face yarn will draw dirt to the seam and cause a dark line to appear throughout the seam. Important: The sealing of the seams will help eliminate delamination and help with the tuft bind.

1.3 **Pad:** The proper pad for tufted wools with jute backing is most important, Petroleum based pad (rebond) should never be used. This type of pad will cause wrinkles, bubbles, delamination and seam separation over time. The pad recommended for this carpet is wool pad, felt pad or Healthier Choice pad (frothed polyurethane foam "Greenguard")

1.4 **Seam peaking:** To repair a peaking seam you must empty the room of all contents; pull the carpet up back to the seam area, to where you can see the seam tape. Remove excess paper from the tape, use a light weight sand paper and rough up the tape. Next, cut out the pad

approximately 1 ft. on each side of the seam, pull the pad up and then glue it back down. Next, glue the carpet to that area of the pad. Reinstall the carpet and add weight to the seam area and allow the pressure to stay for 2-3 hours. This will allow the seam to lay flat. (To eliminate call backs you can use this procedure when installing any low profile carpet) The pad used for this procedure should be a pad used for double stick installation.

2. **Tack strip** must be a minimum of one inch (25mm) wide and ¼ inch (6mm) thick. Architectural strip with three rows of pins, or two conventional strips with two rows of pins each, must be used for carpet with heavily-latex backs. Also for most woven and Berber style carpet, and for any carpet in rooms exceeding 30 feet (9m) in length or width. To prevent possible injury to building occupants, the pins on tack strip must not protrude through the carpet being installed.

2.1 To avoid pins showing through, you can cut the salvage off the side of the carpet and lay it across the tack strip to lower the pins.

3. **A firm pad** should be used, preferable wool pad, felt pad, horse hair, rubber or Healthier Choice pad. A soft pad will create looseness and give no support to the carpet. It is not recommended to use masking tape, due to the paper drying out overtime. It is not recommended to use duct tape, because overtime it will cause an unevenness from the pad wearing out on each side of the tape. (Note: this is the reason it is recommended to use duct tape on stair nosing, to keep the pad from wearing in this high traffic area.)

3.1 To **seam tufted carpet** there are 3 methods to use; hand sewing, Kool Glide iron or a traditional iron. All methods require sealing with latex. Seam sealing is mandatory !

Carpet edges at seams must be trimmed using tools and techniques best suited for the carpet style, i.e. loop-pile, cut pile and cut and loop pile. Trim edges far enough into the material to maintain the structural integrity of the carpet and to join edges without gaps or overlapping. (Note: Although "row-cutting" both edges is preferred, other trimming techniques may be more suitable on some carpet. Many carpets do not lend themselves to all methods of cutting). Some woven carpet selvages must NOT be trimmed.

3.2 **Prior to seaming** both trimmed edges of the carpet sections that will be joined, edges must be sealed with an appropriate seam adhesive. Latex seam sealer. Seam adhesive must be applied in a manner that encapsulates both primary and secondary backings. Caution: Failure to properly seal seam edges often result in; edges raveling * edge delamination * tuft loss * seam separation * safety concerns.

Direct Glue and Double Stick Installation:

1.**Direct glue** installation with jute backing should be glued with a high solids adhesive, using a 1/8"x1/8"x1/8" U notch trowel. The carpet should be rolled both ways after installation with a

75lb roller. CRI standards should be followed for floor prep. Atmospheric conditions should also be considered in the amount of time needed for the glue to set up. The recommended pad to be used for a double stick installation is a solid rubber pad or Healthier Choice pad. Felt pads or wool pads are NOT recommended for this type of installation. It is also recommended that the type of carpet for this installation should have a jute backing or a 10 pic action back or woven carpet. Proper notch trowel is also very important – for pad to floor a 1/16"x1/16"x1/16" square notch trowel should be used with pressure sensitive glue. For carpet to pad, smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel. For rough back carpet use a 1/8"x3/16"x1/8" U notch trowel with a high solids glue (approx. 68% solids). The carpet should be rolled both ways after installation with a 35 – 50 lb. roller.

For both direct glue and double stick installation the following restrictions apply – there should be no:
Foot traffic for 24 hours **** Wheel carts for 72 hours **** Vacuuming for 72 hours
Cleaning with water for 30 days

1.2 It is important to have good ventilation. Ventilation should begin 48 hours prior to installation, during installation and 72 hours after installation. There is to be a minimum of 18" of air space under wood sub-floors.

Direct Glue Installation:

1. On direct glue installation the minimum notch trowel for Tufted carpet is 1/8"x1/8"x1/8" U notch trowel.

Prior to installation some of the following conditions should be considered; Carpet must be installed when the indoor temperature is between 65-95 degrees F (18-35 degrees C) with a maximum relative humidity of 65%. If ambient temperatures are outside these perimeters, the installation must not begin until the HVAC system is operational and these conditions are maintained for at least 48 hours before, during and 72 hours after completion.

1.2 Before making an adhesive adhered installation, the owner or GC, or their designated tested agent, must submit to the flooring contractor, a written report on the vapor emission level and the surface alkalinity of concrete subflooring.

2. Moisture – Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using a hydrous calcium chloride moisture test kit. This quantitative test method must be conducted carefully in strict compliance with ASTM Test Method F1869. Moisture emission rate is measured in pounds of moisture over a 1000 ft. sq. area during a 24 hour period. Because calcium chloride testing requires a minimum of 60 hours to conduct,

proper installation planning is required. As a general guideline, an emission rate of 3.0 lbs. (1.4 kg) or less is acceptable, unless otherwise specified by the carpet manufacturer.

3. **Alkalinity** – A pH range of 7-9 is satisfactory for alkalinity, however a reading above 9 requires corrective measures. Performing testing in accordance with ASTM Standard Practice F-710, or consult the adhesive manufacturer for recommending testing and corrective procedures.

4. **Adhesive installations** – The owner or GC must have concrete subfloors test to determine the moisture emission rate and surface pH prior to installation. Caution: Any concrete floor even when adequately cured and dry can allow moisture vapor to pass through to its surface. Depending upon the type of carpet and method of installation, the moisture emission rate greatly influences the long term success of an installation. The use of a properly installed, uncompromised, approved moisture membrane is essential in preventing moisture migration into and through the concrete slab (ref ASTM F 10).

5. **Relaxing/acclimate Carpet** – To minimize wrinkling and buckling, and to facilitate installation, it is highly recommended that carpet be unrolled and allowed to relax in the installation area for a minimum of 24 hours at a temperature between 65 – 95 degrees F (18-35 degrees C). Carpet must be adequately protected from soil, dust, moisture and other contaminants. To facilitate relaxation (acclamation), pre-cutting the carpet is recommended.

6. **Ventilation** – During installation, maintain fresh ventilation using exhaust fans, and by operating the ventilation system at full capacity. Always exhaust air to the outside to avoid re-circulation. After installation, maintain fresh air ventilation for 48-72 hours at normal room temperature by operating the ventilation or exhaust fan system at full capacity. Open doors and windows, if possible. These procedures help exhaust, dissipate and eliminate lingering odors from the installation. There should be a minimum pf 18" of air space under wood sub-floors.

7. **Primers** – Using primers on floor surfaces generally is not required except for sanded wood sheet products, dusty, porous or acoustical concrete surfaces. Priming cannot overcome moisture vapor emissions and must not be used for that purpose. They must be compatible with adhesives, which should be applied only after the primer is cured. Where lightweight or acoustical concrete subfloor is present, refer to manufacturers recommendations for the proper installation procedure to use before the carpet is installed.

8. **Liquid adhesive removers** – There are a number of liquid adhesive removers available that effectively remove existing adhesive residue from sub-floors; however, there is evidence that some products may adversely affect the new adhesive or the new floor covering. Residues left in or on the concrete slab may cause failure of the new floor adhesive.

9. **Sweeping compounds** – These compounds may leave residue that interferes with adhesive bonding. They must not be used prior to an adhesive application. Vacuum dusty areas instead.

10. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams.

11. **Adhesive application** – The floor adhesive must be spread uniformly over the subfloor with the appropriate trowel, leaving ridges of sufficient height to achieve full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. Trowel notches wear down during use. Maintain a clean and properly notched trowel throughout the installation process. After sufficient open time, the carpet must be pressed into the adhesive and rolled with the appropriate weight roller, as specified. Caution: Bond failure most often is caused by: inadequate adhesive application from the incorrect trowel notch size and/or trowel notch configuration * improper adhesive selection or quality * incorrect open time * residual curing and parting compounds * moisture related issues * premature traffic or cleaning before adhesives have adequately cured.

12. **Open time** – Appropriate open time varies depending upon environmental conditions, subfloor porosity, carpet backing system and adhesive type. Refer to the manufacturer for recommendations regarding open time.

13. **Seam adhesive** (sealer) – An appropriate direct-glue seam adhesive must be applied to the edges that are trimmed for seaming and cover the thickness of both the primary and secondary backing without contaminating the face yarns. The seam adhesive is applied to the cut edge of one side only, that side being the first one placed into the floor adhesive. When the edges are butted together to form the seam, and while the seam adhesive still is transferable, this seals the first edge as well as the second.

14. **Rolling** – After sufficient adhesive application and open time, the carpet must be pressing into the adhesive and rolled with the appropriate roller. Rolling must be performed with the lightest roller that achieves full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. The roller for direct glue installation should be no more than and no less than 75 lbs.

15. **All seams** should be sealed with appropriate seam sealer.

Double Glue Installation:

1. **Acclimation** (relaxing) carpet – Site conditions, environmental and ventilation conditions become even more important when performing double glue installations. In double glue installations, a separate cushion is adhered to the subfloor and the carpet is glued to the cushion.

2. **Cushion installation** – Cushion must be installed in the longest continuous lengths possible with consideration to traffic patterns and carpet seam placement. Cushion seams must be at a right angle (90 degrees) to carpet seams or offset at least six inches. Cushion seams must be butted without compression, and leaving no gaps.

3. **It is important** that the glue have time to off gas and set up. Without time for off gassing, bubbles can appear anywhere from immediately to 6-12 months after installation. The glue should be tacky to the touch, but no transfer to your finger.

4. **The recommended pad** to be used for double stick installation is a 21 lb. rubber slab pad or Healthier Choice pad. Felt pad and wool pads are NOT recommended for this type of installation.

5. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams. Care must be taken to avoid cutting into cushion under seams.

6. **Trowel size** for double glue installation, is as follows:
   Pad to floor using pressure sensitive glue is 1/16"x1/16"x1/16" square notch trowel.
   Carpet to pad with a smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel.
   Carpet to pad with a rough back carpet, use a 1/8"x3/16"x1/8" U notch trowel.

7. **The proper roller** recommended for a double glue installation is a 35-50 lb. roller.

Understanding Carpet Manufacturing Tolerances on Pattern Carpet:

1. A **successful patterned carpet** installation requires a thorough understanding of patterned carpet characteristics by designers, specifiers, and all others involved with the carpet selection and installation. Carpet is a textile fabric subject to inevitable process variations, which are more critical when patterns are involved. Most manufacturers provide established tolerances and specific installation instructions for their patterned goods, although most do not guarantee exact pattern match. Skilled responsible and competent craftsmen, who are experienced in the installation of pattered carpet can effetely make adjustments within manufacturer tolerances to provide a successful installation. To assist this process, manufacturer tolerances must be clearly understood, communicated and agreed upon by all parties prior to the specification, bid purchase and installation. There always must be an understanding about the additional carpet that must be allowed for pattern match.

2. **Factors affecting** an acceptable pattern match on the job site included, but are not limited to; the method of installation, the condition and levelness of the floor and the type of carpet backing system selected. It is imperative that all parties agree upon realistic levels of expectation before the carpet is installed.

3. **Installation of patterned** carpet requires more time and expertise often requiring the use of a power stretcher and additional staffing, which affects the cost of installation.

4. **Pattern size** – Selecting larger patterns will facilitate matching ease.

5. **Roll size sequence** – It is very important to keep rolls in roll sequence. Sequence carpet cuts working from the longest measured repeat gradually down the shortest repeat within the dye lot. Roll sequencing information is available from the carpet manufacturer.

6. **Pattern adjustment** – Pattern adjustment during installation is possible and should be anticipated.

7. **Pattern alignment** – Match the pattern at the midpoint of the seams length. Work from the seam's midpoint to the seams ends, bringing the pattern into register using appropriate tools that might include; power stretcher * knee kicker * dead man * "dry" line * stay nails * crab stretcher.

8. **Curing adhesives** – It is highly recommended that traffic over field applied adhesive installation be restricted for a minimum of 24 – 48 hours to allow adhesives to cure properly. Premature trafficking can cause installation failure. Restrict carpet exposure to water from cleaning or other sources for a minimum of 30 days.

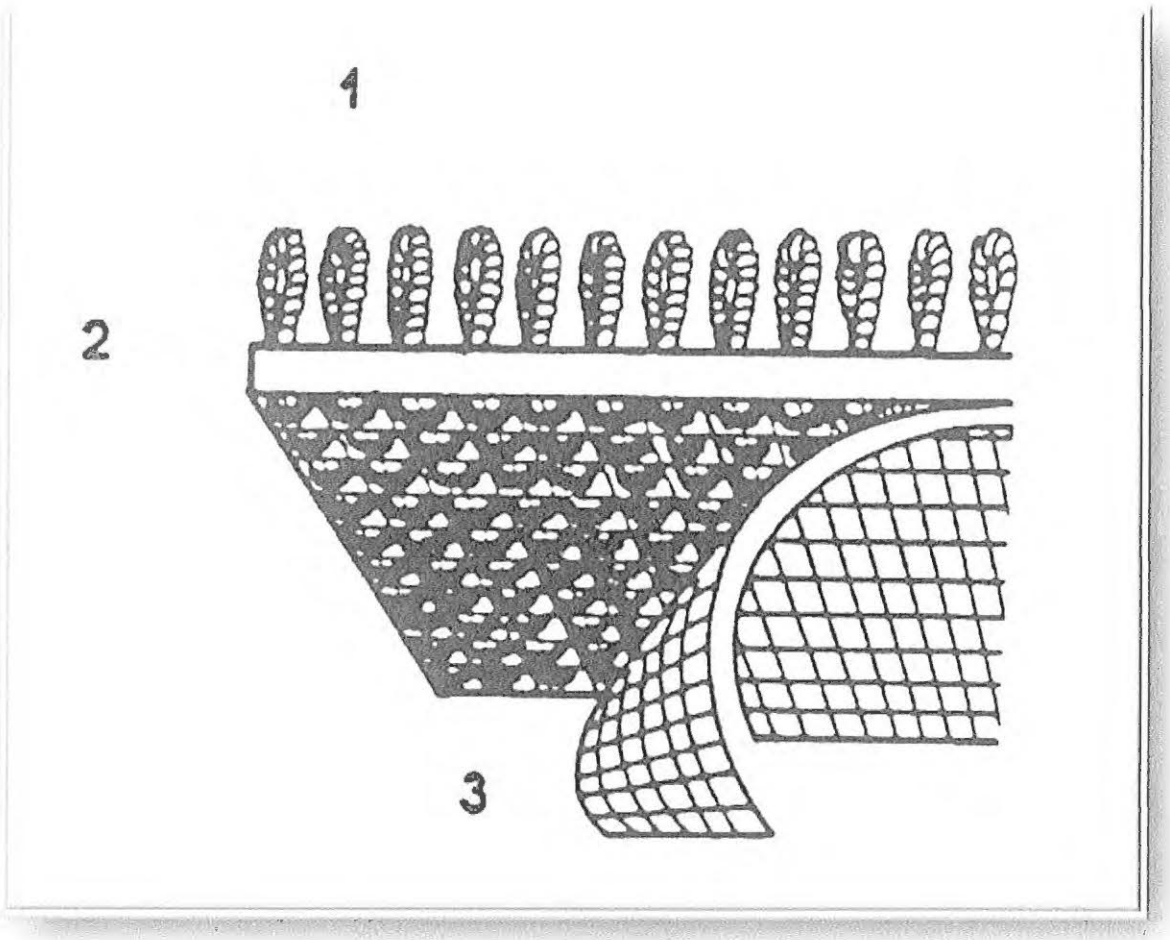
9. **Materials for protection** – If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover it with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas. Caution: Do not place plastic sheeting over any carpet installation because it may present a slip hazard and may leave residues that result in rapid soiling after removal. In addition, it may trap moisture, which may promote mold growth, and retard adhesive curing.

10. **Maintain temperature** – Do not allow the temperature of indoor carpet areas to fall below 50 degrees F (10 degrees C), regardless of the age of concrete.

TUFTED CARPET COMPONENTS

Tufted Carpet:

1. Pile (face fiber)
2. Primary Backing
3. Secondary Backing



Tufted Carpet – In this form, tufted carpet is pile yarn pushed through primary backing and given body and stability by latexing the primary backing to the secondary backing. Pile can be level loop, cut pile or many combinations.

TECHNIQUES for PRINTED CARPET (Sprayed on print)

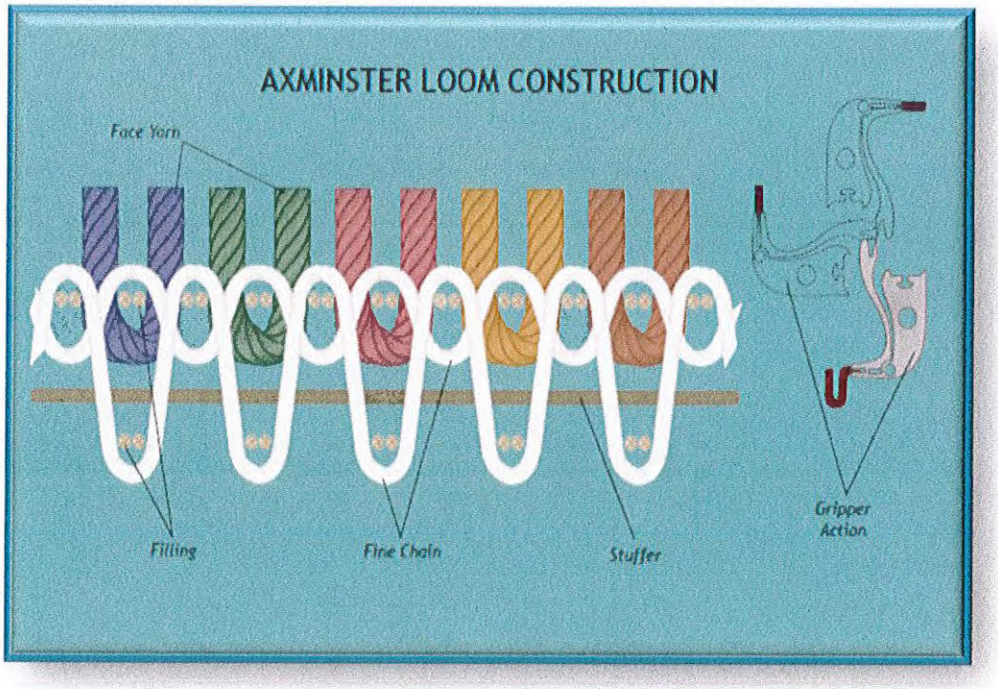
Seam Prep for Printed Pattern Loop Pile Carpet:

In most cases printed patterns do not alien with the loop pile carpet, making it impossible for the installer to follow a row for a seam, and keep the pattern on.

Solution:

Do not row cut from the top of the carpet, but from the back. If installer cannot run a row next to the pattern, he must use your razor blade knife to make one inch cuts next to the pattern every 3 feet. Then fold the carpet over and use your straight edge to line up against the cuts that were made (next to your pattern). With a straight edge cut through the backing but NOT the face yarn. At this point the face yarn should be connecting the backings together. Next, the installer should use scissors and cut the yarn at the base of the side you are going to discard. On the seam side use latex and run a bead at the base of the yarn, carefully folding the yarn over into the latex to keep the integrity of the loop that has been cut. Use this same procedure on the second piece that will be seaming onto. This procedure will keep the loop and the pattern intact. This is a slow and tedious process, but the results are well worth it.

AXMINSTER


AXMINSTER LOOM CONSTRUCTION
Face Yarn
Filling
Fine Chain
Stuffer
Gripper Action

INSTALLATION GUIDE LINES FOR TUFTED & WOVEN WOOLS

The importance of understanding the construction of the product is as important as the installation itself. Understanding how to manipulate the product when needed to have it conform to its surroundings is essential.
Acclimation is a very important step in achieving this goal. Carpet should be cut and laid in the area it is to be installed, for a minimum of 24 to 48 hours before installation. Always add 3 inches to each cut, and when patterns are involved 3 inches plus full pattern should be added.

AXMINSTER

Axminster carpet is produced on a Jacquard loom. The loom operation simulates hand weaving because each tuft is individually inserted into the pile. It is possible for every end to be of a different color with unlimited scope of design. Generally, Axminster carpets can be woven with up to eight frames, with the possibility of planting a few others. Complex abstract patterns executed through use of color are possible.

Axminster carpeting can be more readily identified than any other carpeting. The back of the carpeting can be recognized by a ribbed like appearance running in its width. This is produced by a double weft-shot across the carpet. The stiffness of the carpet allows it to be rolled lengthwise not widthwise. This is due to the double weft shot and to the use of heavy latex sizing on the backing (which also obscures the double shot).

Axminsters always have a cut pile surface and usually and even height pile. Performance capability depends on pile weight and density, fiber type and construction.

An Axminster using a lower number of construction units, but with proportionately higher yarn weight, may give the same serviceability and resiliency as a carpet with higher construction unit count. On the other hand a carpet constructed with 4 or 5 rows per inch and a 189 pitch, without increasing the yarn weight may result in lower quality. These facts emphasize that evaluating only one construction detail alone is not sufficient to arrive at a meaningful conclusion regarding carpet quality. Construction cost for Axminster carpet are often lower than that of Wiltons.

Stretch-in Installation:

1. **Aminster carpet** has no stretch in the width, only in the length. For the width just snug the carpet onto the tack strip. Tack strip to be used for Axminster is architectural strip with 3 rows of pins or "Tri tack" with 3 rows of pins.

1.2 **Architectural strip** with three rows of pins, or two conventional strips with two rows of pins each, must be used for carpet with heavily latex backs, for most woven and Berber style carpet, and for any carpet in rooms exceeding 30 feet (9m) in length or width. To prevent possible injury to building occupants, the pins on tack strip must not protrude through the carpet being installed.

2.**A firm pad** should be used, preferably felt, horse hair, wool, rubber or Healthier Choice (frothed polyurethane foam, Greenguard). Note: A soft pad will create looseness and give no support to the carpet. It is not recommended to use masking tape, due to the paper drying out over time. It is also not recommended to use duct tape, because over time it will cause an unevenness from the pad wearing out on each side of the tape. This is the reason it is recommended to use duct tape on stair noting, to keep the pad from wearing in high traffic areas.

2.1 **To seam** Axminster there are 3 methods to use. Hand sewing, Kool Glide iron or hot melt or iron with premium seam tape. All methods require sealing with latex. Seam sealing is mandatory!

2.2 **Prior to seaming**, both trimmed edges of the carpet sections to be joined must be sealed with an appropriate seam adhesive.

Direct Glue Installation:

3. **Direct Glue** – The minimum trowel notch for direct gluing of Axminster carpet is 1/8"x1/8"x1/8" U notch trowel.

Prior to installation some of the following conditions should be considered:
Carpet must be installed when the indoor temperature is between 65-95 degrees F (18-35 degrees C) with a maximum relative humidity of 65%. If ambient temperatures are outside these perimeters, the installation must not begin until the HVAC system is operational and these conditions are maintained for at least 48 hours before, during and 72 hours after completion.

3.1 Before making an adhesive installation, the owner or GC, or their designated testing agent, must submit to the flooring contractor a written report on the vapor emission level and the surface alkalinity of the concrete subfloor.

4. **Moisture** – Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the

surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using a hydrous calcium moisture test kit. This quantitative test method must be conducted carefully in strict compliance with ASTM Test Method F 1869. Moisture emission rate is measured in pounds of moisture over a 1000 sq. ft. area during a 24 hour period. Because calcium chloride testing requires a minimum of 60 hours to conduct, proper installation planning is required. As a general guideline, an emission rate of 3.0 lbs. (1.4kg) or less is acceptable unless otherwise specified by the carpet manufacturer.

5. Alkalinity – A pH range of 7-9 is satisfactory for alkalinity, however a reading above 9 requires corrective measures. Perform testing in accordance with ASTM Standard Practice F-710 or consult the adhesive manufacturer for recommended testing and corrective procedures.

6. Adhesive Installations – The owner or GC must have a concrete subfloor tested to determine the moisture emission rate and surface pH prior to installation. Caution: Any concrete floor, even when adequately cured and dry, can allow moisture vapor to pass through to its surface. Depending upon the type of carpet and method of installation, the moisture emission rate greatly influences the long term success of an installation. The use of a properly installed, uncompromised, approved moisture membrane is essential in preventing moisture migration into and through a concrete slab (Ref. ASTM F10).

7. Relaxing/Acclimation – To minimize wrinkling and buckling, and to facilitate installation, it is highly recommended that carpet be unrolled and allowed to relax in the installation area for a minimum of 24 hours at a temperature between 65-95 degrees F (18-35 degrees C). Carpet must be adequately protected from soil, dust, moisture and other contaminants. It is also recommended to pre-cut the carpet prior to acclimation.

8. Ventilation – During installation, maintain fresh ventilation using exhaust fans, and by operating the ventilation system at full capacity. Always exhaust air to the outside to avoid re-circulation. After installation, maintain fresh air ventilation for 48-72 hours at normal room temperature by operating the ventilation or exhaust fan system at full capacity. Open doors and windows, if possible. These procedures help exhaust, dissipate and eliminate lingering odors from the installation. There should be a minimum pf 18" of air space under wood sub-floors.

9. Primers – Using primers on floor surfaces generally is not required except for sanded wood sheet products, dusty, porous or acoustical concrete surfaces. Priming cannot overcome moisture vapor emissions and must not be used for that purpose. They must be compatible with adhesives, which should be applied only after the primer is cured. Where lightweight or acoustical concrete subfloor is present, refer to manufacturers recommendations for the proper installation procedure to use before the carpet is installed.

10. **Liquid adhesive removers** – There are a number of liquid adhesive removers available that effectively remove existing adhesive residue from sub-floors; however, there is evidence that some products may adversely affect the new adhesive or the new floor covering. Residues left in or on the concrete slab may cause failure of the new floor adhesive.

11. **Sweeping compounds** – These compounds may leave residue that interferes with adhesive bonding. They must not be used prior to an adhesive application. Vacuum dusty areas instead.

12. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer that the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams.

13. **Adhesive application** – The floor adhesive must be spread uniformly over the subfloor with the appropriate trowel, leaving ridges of sufficient height to achieve full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. Trowel notches wear down during use. Maintain a clean and properly notched trowel throughout the installation process. After sufficient open time, the carpet must be pressed into the adhesive and rolled with the appropriate weight roller, as specified. Caution: Bond failure most often is caused by: inadequate adhesive application from the incorrect trowel notch size and/or trowel notch configuration * improper adhesive selection or quality * incorrect open time * residual curing and parting compounds * moisture related issues * premature traffic or cleaning before adhesives have adequately cured.

14. **Open time** – Appropriate open time varies depending upon environmental conditions, subfloor porosity, carpet backing system and adhesive type. Refer to the manufacturer for recommendations regarding open time.

15. **Seam adhesive** (sealer) – An appropriate direct-glue seam adhesive must be applied to the edges that are trimmed for seaming and cover the thickness of both the primary and secondary backing without contaminating the face yarns. The seam adhesive is applied to the cut edge of one side only, that side being the first one placed into the floor adhesive. When the edges are butted together to form the seam, and while the seam adhesive still is transferable, this seals the first edge as well as the second.

16. **Rolling** – After sufficient adhesive application and open time, the carpet must be pressing into the adhesive and rolled with the appropriate roller. Rolling must be performed with the lightest roller that achieves full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. The roller for direct glue installation should be no more than and no less than 75 lbs.

17. **All seams** should be sealed with the appropriate seam sealer.

Double Glue Installation:

18. **Acclimation** (relaxing) carpet – Site conditions, environmental and ventilation conditions become even more important when performing double glue installations. In double glue installations, a separate cushion is adhered to the subfloor and the carpet is glued to the cushion

19. **Cushion installation** – Cushion must be installed in the longest continuous lengths possible with consideration to traffic patterns and carpet seam placement. Cushion seams must be at a right angle (90 degrees) to carpet seams or offset at least six inches. Cushion seams must be butted without compression, and leaving no gaps.

19.1 **It is important** that the glue have time to off gas and set up. Without time for off gassing, bubbles can appear anywhere from immediately to 6-12 months after installation. The glue should be tacky to the touch, but not transfer onto your finger.

19.2 The **recommended pad** to be used for double stick installation is a 21 lb. rubber slab pad or Healthier Choice pad. Felt pad and wool pads are NOT recommended for this type of installation.

20. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams. Care must be taken to avoid cutting into cushion under seams.

21. **Trowel size** for double glue installation, is as follows:

Pad to floor using pressure sensitive glue is 1/16"x1/16"x1/16" square notch trowel.
Carpet to pad with a smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel.
Carpet to pad with a rough back carpet, use a 1/8"x3/16"x1/8" U notch trowel.

22. **The proper roller** recommended for a double glue installation is a 35-50 lb. roller. Axminster carpet should be rolled in the length only. After 2-3 hours, the carpet should be rolled again.

Understanding Carpet Manufacturing Tolerances on Pattern Carpet:

23. **A successful patterned carpet installation** requires a thorough understanding of patterned carpet characteristics by designers, specifiers, and all others involved with the carpet selection and installation. Carpet is a textile fabric subject to inevitable process variations, which are more critical when patterns are involved .Most manufacturers provide established tolerances and specific installation instructions for their patterned goods, although most do not guarantee exact pattern match. Skilled responsible and competent craftsmen, who are experienced in the

installation of pattered carpet can effetely make adjustments within manufacturer tolerances to provide a successful installation.

To assist this process, manufacturer tolerances must be clearly understood, communicated and agreed upon by all parties prior to the specification, bid purchase and installation. There always must be an understanding about the additional carpet that must be allowed for pattern match.

23.1. **Factors affecting** an acceptable pattern match on the job site included, but are not limited to; the method of installation, the condition and levelness of the floor and the type of carpet backing system selected. It is imperative that all parties agree upon realistic levels of expectation before the carpet is installed.

24. **Installation of patterned** carpet requires more time and expertise often requiring the use of a power stretcher and additional staffing, which affects the cost of installation.

25. **Pattern size** – Selecting larger patterns will facilitate matching ease.

26. **Roll size sequence** – It is very important to keep rolls in roll sequence. Sequence carpet cuts working from the longest measured repeat gradually down the shortest repeat within the dye lot. Roll sequencing information is available from the carpet manufacturer.

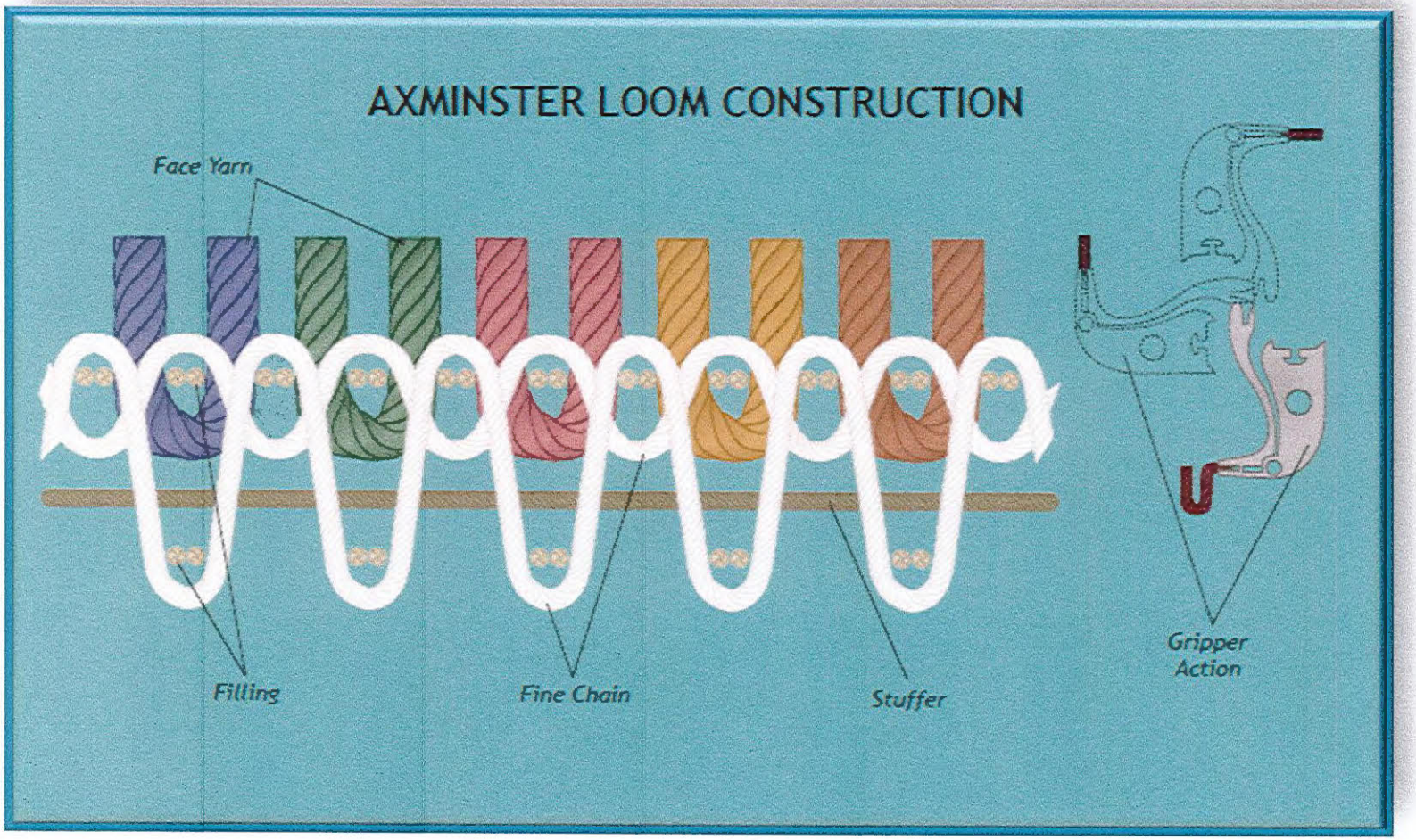
27. **Pattern adjustment** – Pattern adjustment during installation is possible and should be anticipated.

28. **Pattern alignment** – Match the pattern at the midpoint of the seams length. Work from the seam's midpoint to the seams ends, bringing the pattern into register using appropriate tools that might include; power stretcher * knee kicker * dead man * "dry" line * stay nails * crab stretcher.

29. **Curing adhesives** – It is highly recommended that traffic over field applied adhesive installation be restricted for a minimum of 24 – 48 hours to allow adhesives to cure properly. Premature trafficking can cause installation failure. Restrict carpet exposure to water from cleaning or other sources for a minimum of 30 days.

30. **Materials for protection** – If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover it with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas. Caution: Do not place plastic sheeting over any carpet installation because it may present a slip hazard and may leave residues that result in rapid soiling after removal. In addition, it may trap moisture, which may promote mold growth, and retard adhesive curing.

31. **Maintain temperature** – Do not allow the temperature of indoor carpet to fall below 50 degrees F (10 Degrees C).


AXMINSTER LOOM CONSTRUCTION
Face Yarn
Filling
Fine Chain
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Gripper Action

WOVEN CARPET CONSTURCTION TERMS

WILTON - VELVET - AXMINSTER

PITCH = Number of ends in 27" width
Most commonly known 252 - 216 - 189
252 = 9 1/3 ends per inch x 27
216 = 8 ends per inch x 27
189 = 7 ends per inch x 27

ROW = Number of wires of tufts per 1" in warp direction
General range of 6 row minimum to 10 row maximum

PILE HEIGHT OR WIRE HEIGHT = Pile wires ranging from 1/8" to ½"

FRAMES = This is the number of ends of face yarn in one reed dent
5 frames maximum on Wilton
8 frames maximum on Axminster
A frame is merely a position on the creel there are a maximum of 5 positions on a Wilton loom and 8 positions on a Axminster loom. The positions may be filled with any number of colors that are desirable to effectively color a design by planting one or more colors in these positions.

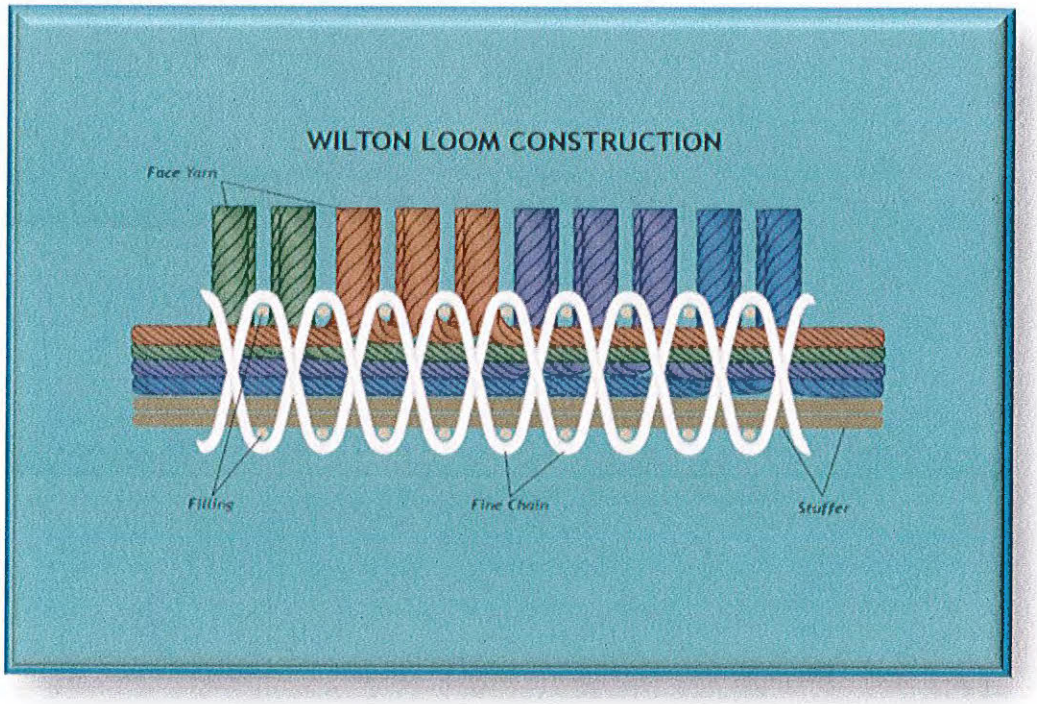
HEDDLES = These are carriers of yarn both face yarn and backing yarns to the point of where they are woven together. Controlled by cams. Heddles can be laced in such a manner along with alternating pile wires to create various surface textures and small geometric designs on Velvet looms.

YARN COUNT = Means of measuring yarn in different ply's.
2/50 = 2 ply yarn measuring 50 yds. to one ounce.
3/50 = 3 ply yarn measuring 50 yds. to one ounce.
1/110 = 1 ply yarn measuring 110 yds. to one ounce.

STOCK DYE YARN = Yarn that has been dyed in a staple form then spun into yarn. Normal minimum lot size is 3,000 lbs.

SKEIN DYE YARN = Spun into a yarn form from white staple, reeled onto skeins and dyed in skein dye kettles in lots from 5 lbs. to 4,000 lbs.

WILTON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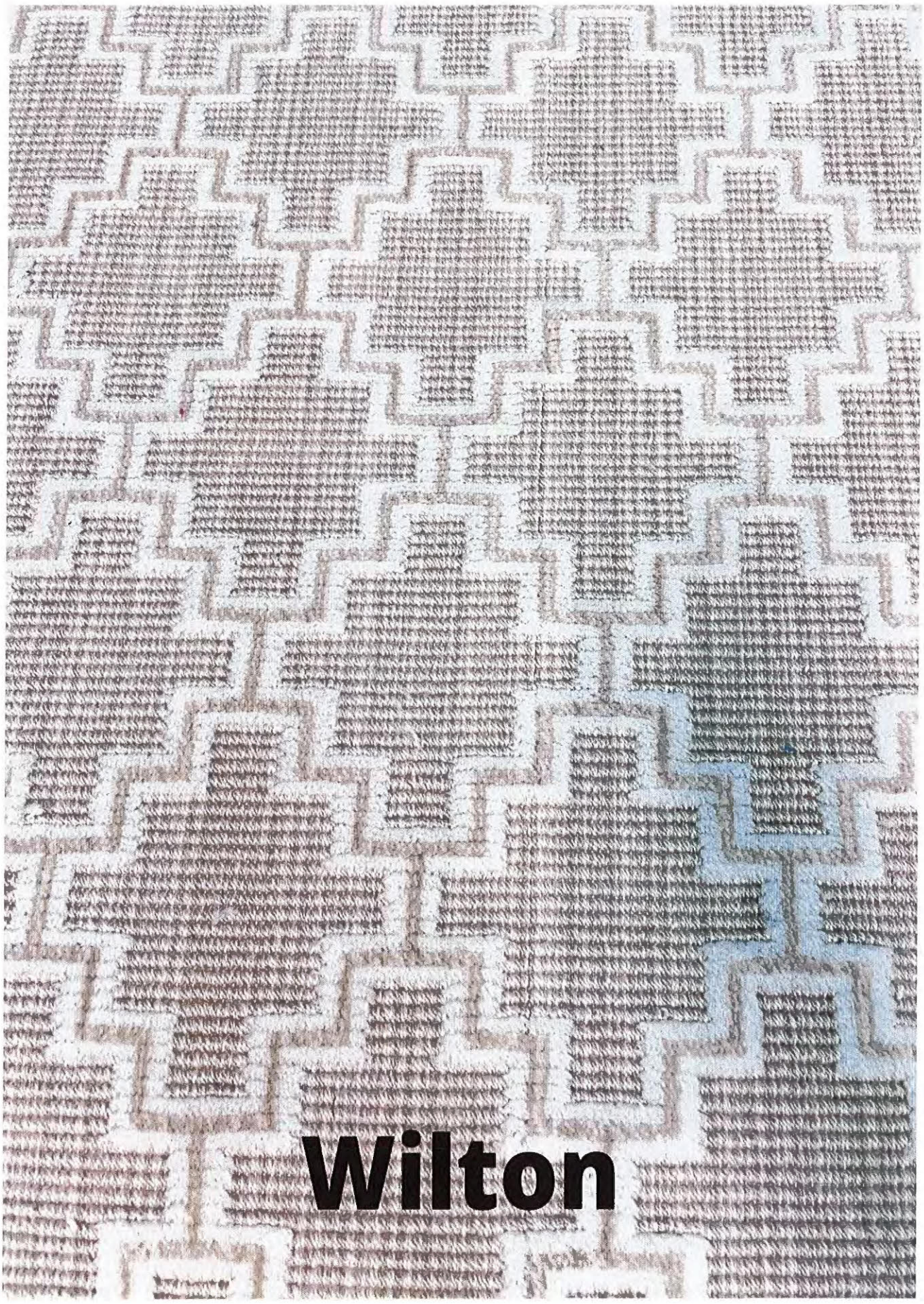
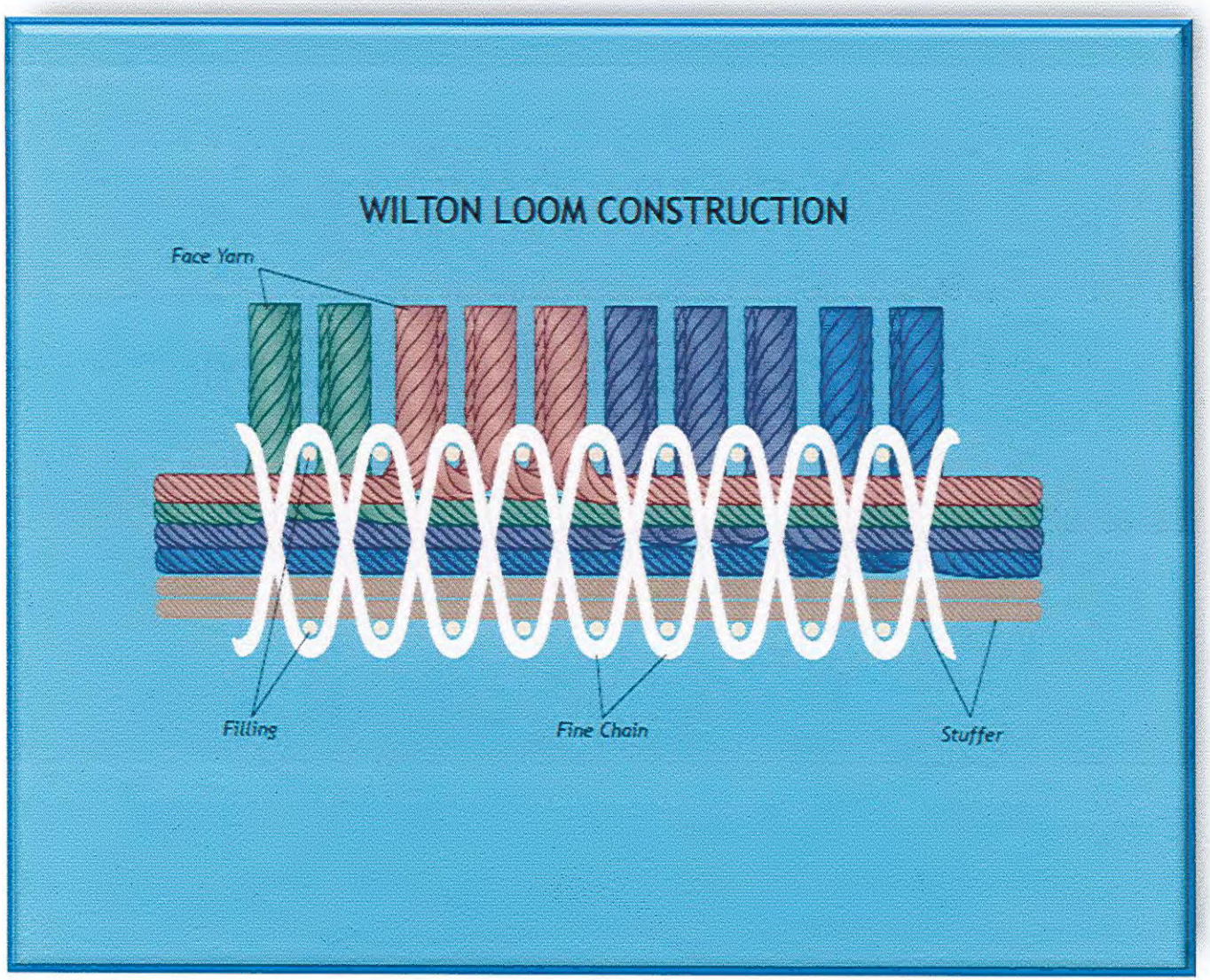

Wilton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Acclimation is a very important step in achieving this goal. Carpet should be cut and laid in the area it is to be installed, for a minimum of 24 to 48 hours before installation. Always add 3 inches to each cut, and when patterns are involved 3 inches plus full pattern should be added.

WILTON

Wilton is one of the three major woven carpets. Wilton is processed on a Jacquard loom which has a special mechanism to form patterns in the surface pile and at the same time implant some of the pile yarn on the back. That means all the yarn used does not appear on the face pile. The Wilton loom utilizes frames from which spools of yarn are drawn into the loom to form the pile. If a five frame carpet is desired, yarns of five different colors could be fed into the loom. This flexibility of the loom is so extensive that literally dozens of colors are possible to weave in a single operation.

An interesting feature of the Jacquard system for a Wilton is a punch card system, (similar to a computer card) for selecting the pile yarn for the carpet face. The cards are laced together and suspended in the loom exactly as the pattern is to appear on the carpet face. The card determines which color yarns are to be lifted to the face and which are to be buried in the carpet body. There may be several strands of yarn beneath the face for every one showing, depending on the number of frames of color used. The loom can be adjusted to allow the "planted" yarns to show through to the surface for special effects.

The addition of each frame or color to a Wilton will add more yarn to the carpet pile. A five frame Wilton will have more weight than a three frame Wilton of the same yarn size and density. The performance capability of a Wilton depends in great measure on the pile yarn weight, its height and yarn count.

The pile density is controlled by the pitch (number of warp lines of yarn in a 27 inch width) by wires per inch (number of weft shots per inch, and by yarn count, weight thickness of a single strand of fiber) and pile or wire height. A high quality Wilton may be made with 252 pitch and 8 to 10 wires per inch, with a lighter or heavier yarn to provide density.

Other combinations of weight, density and pile height provide different carpets with varying performance capabilities. A dense low pile, of a given weight and construction, though will not feel as comfortable under foot.

The loom will also weave Wilton's with sharply delineated sculpture and embossed textures. The pattern effect is achieved by varying the pile height, by using different wire heights, and using a combination of cut and uncut pile, and using a combination of different yarns.

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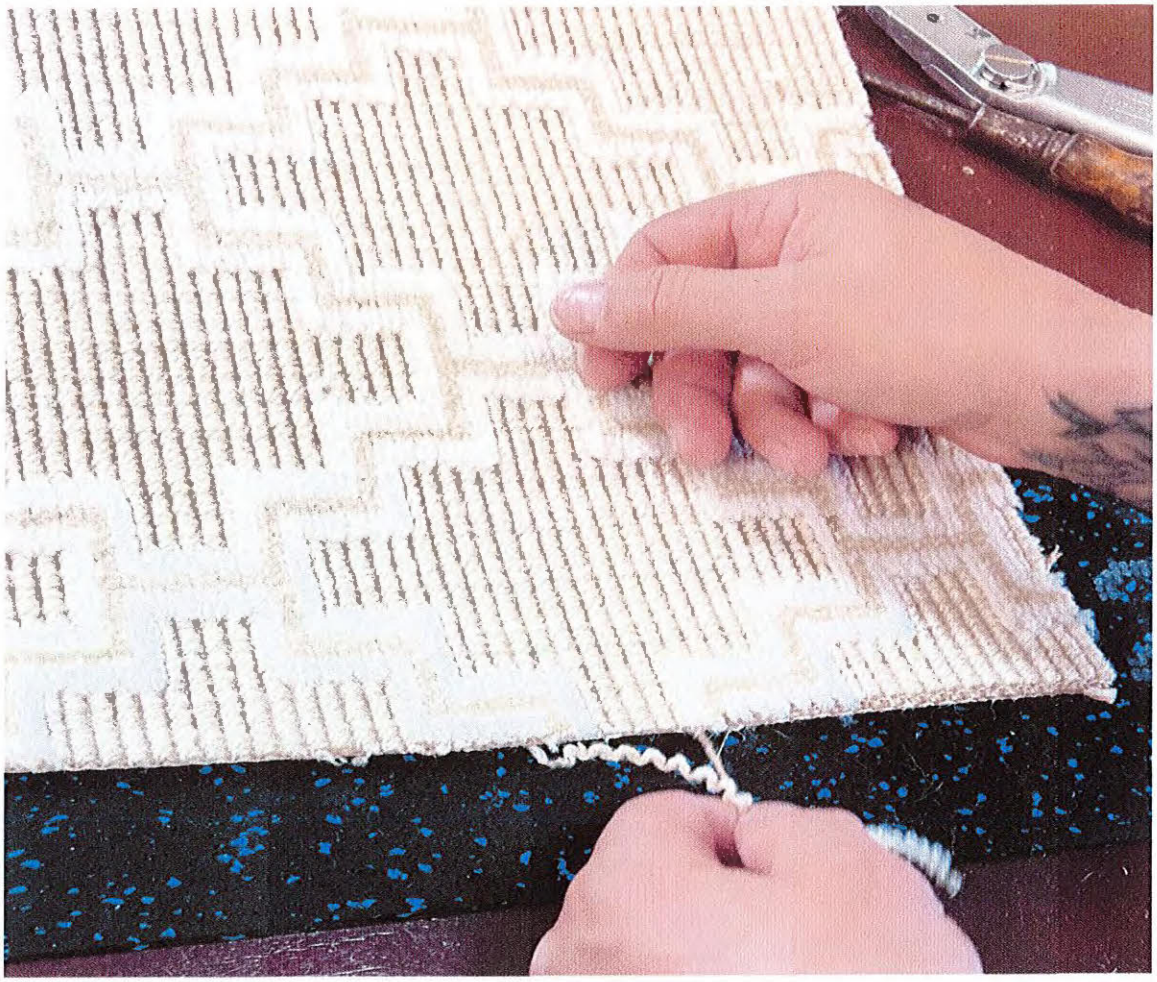


Using an awl or needle, deconstruct the seam edge by pulling the warp yarn, filler, and chain stitches, one at a time.

Continue this process, leaving about an inch of exposed weft yarn and the chain stitch completely in tact at your seam edge.

Run a bead of premium rubber-based latex on the backing, right on the edge of the chain stitch and exposed weft yarns.

Push the latex through the weft yarns from the back, then pinch the latex through the weft yarns from the front, completely encapsulating the chain stitch.

Once the latex is dry, carefully cut the weft yarns off.

Wilton Weave Seam Preparation Procedures

This selected seam preparation method must be utilized to insure that all of the yarns within the carpet seam will be secure. Failure to follow these instructions can result in unacceptable seams and seam failure.

Length Wise Seam Directions

Step 1. Locate the specific yarn row in the pattern that is to be the seam edge. Normally, a
blunt end tool such as an awl will be used.

Step 2. Using your tool of choice cut off the excess carpet starting 3 rows beyond the selected seam edge row.

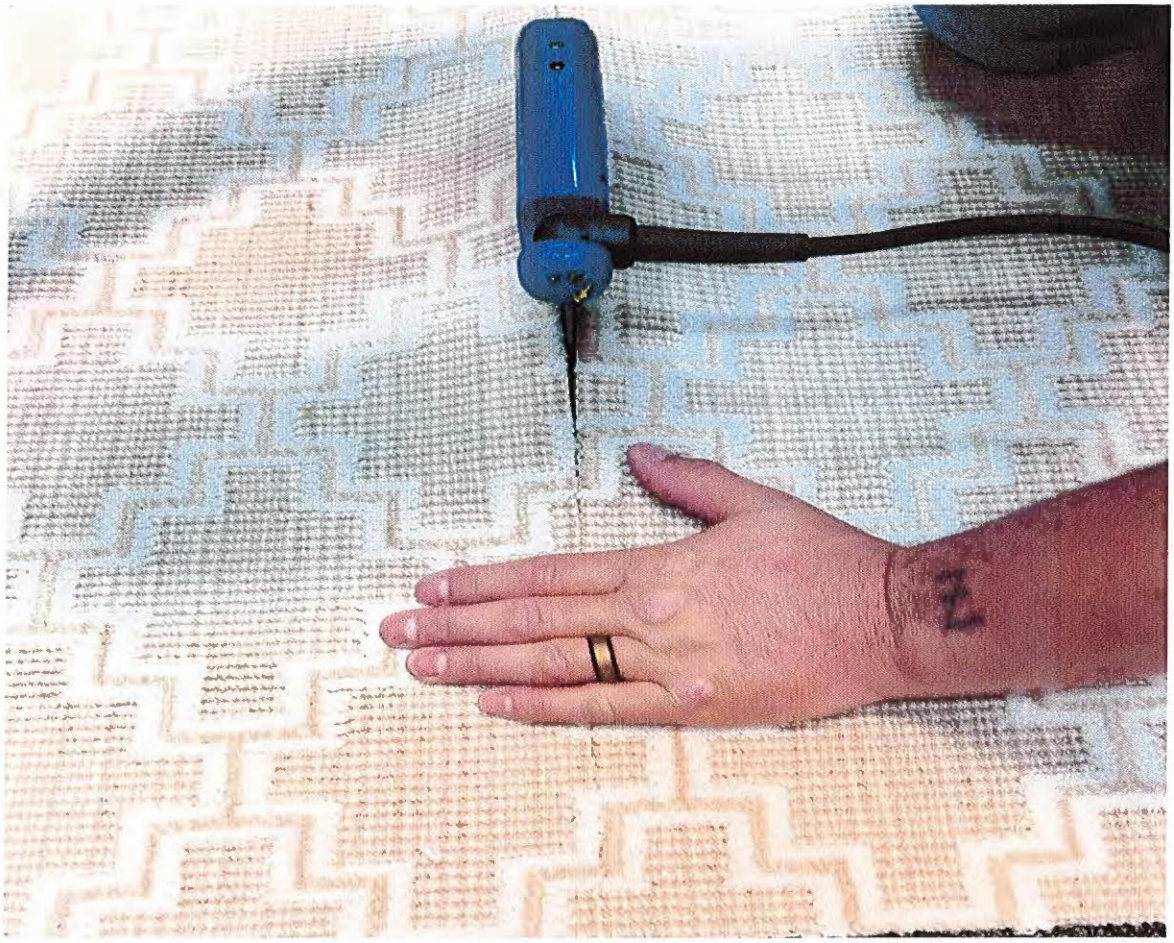
Step 3. Begin with the yarns at the cut edge and unravel the yarns row by row until the seam row is reached, It is absolutely imperative that the unraveling end is at the final seam edge. The chain row must remain intact. The chain warps are the pair of tiny yarns that create the xxxxxxxxxxxx pattern seen on the edge of the carpet.

Step 4. On the backside edge, apply a bead of latex adhesive directly along the intact chain warp. Gently spread the wet latex on the exposed weft yarns and onto the edge.

Step 5. After the latex had dried to the touch, the exposed weft yarns can be trimmed off with
shears. Using the upper blade of the shears as a guide to protect the chain warps, cut away the protruding weft yarns. This will leave a clean edge with intact chain warps and uncompromised face yarns.

Step 6. After the seaming edge has been cleanly trimmed, apply a bead of latex at the base of the yarn. Once the latex has dried, any protruding yarns can be pressed down into the edge and will be adhered to the edge. Be careful not to get latex adhesive on the face of the carpet during this process.

After cutting off the weft yarns, run another bead of latex on the edge.



Use a premium low-melt seam tape with your iron set no higher than 2.5. Always use a seam roller and applied pressure for maximum glue transfer.

Installation Guide Lines for Wilton Carpet:

Stretch-in Installation:

1.. **Architectural strip** with three rows of pins or two conventional strip with two rows of pins each, must be used for carpet with heavily latex backs, for most woven and Berber style carpet, and for any carpet in rooms exceeding 30 feet (9m) in length or width. To prevent possible injury to building occupants, the pins on tack strip must not protrude through the carpet be installed.

2. **A firm pad** should be used, preferably felt, horse hair, wool, rubber or Healthier Choice (frothed polyurethane foam, Greengard). Note: A soft pad will create looseness and give no support to the carpet. It is not recommended to use masking tape, due to the paper drying out over time. It is also not recommended to use duct tape, because over time it will cause an unevenness from the pad wearing out on each side of the tape. This is the reason it is recommended to use duct tape on stair nosing, to keep the pad from wearing in high traffic area.

2.1 **To seam** Wilton there are 3 methods to use; hand sewing, Kool Glide iron or hot melt iron with premium seam tape. All methods require sealing with latex. Seam sealing is **mandatory!**
Carpet edges at seams must be trimmed using tools and techniques best suited for the carpet style (i.e. loop pile, cut pile and cut & loop pile). Trim edges far enough into the material to maintain the structural integrity of the carpet and to join edges without gaps or overlapping. Note: Although "row-cutting" both edges is preferred, other trimming techniques may be more suitable on some carpet. Many carpets do not lend themselves to all methods of cutting. Some woven carpet selvages must not be trimmed.

2.2 **Prior to seaming,** both trimmed edges of the carpet sections to be joined must be sealed with an appropriate seam adhesive. Latex seam sealer is recommended.

Direct Glue Installation:

3. **Direct Glue** – The minimum trowel notch for direct gluing of Wilton is 1/8"x1/8"x1/8" U notch trowel.
Prior to installation some the of the following conditions should be considered:
Carpet must be installed when the indoor temperature is between 65-95 degrees F (18-35 degrees C) with a maximum relative humidity of 65%. If ambient temperatures are outside these perimeters, the installation must not begin until the HVAC system is operational and

these conditions are maintained for at least 48 hours before, during and 72 hours after completion.

3.1 Before making an adhesive installation, the owner or GC, or their designated testing agent, must submit to the flooring contractor a written report on the vapor emission level and the surface alkalinity of the concrete subfloor.

4. **Moisture** – Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using a hydrous calcium moisture test kit. This quantitative test method must be conducted carefully in strict compliance with ASTM Test Method F 1869. Moisture emission rate is measured in pounds of moisture over a 1000 sq. ft. area during a 24 hour period. Because calcium chloride testing requires a minimum of 60 hours to conduct, proper installation planning is required. As a general guideline, an emission rate of 3.0 lbs. (1.4kg) or less is acceptable unless otherwise specified by the carpet manufacturer.

5. **Alkalinity** – A pH range of 7-9 is satisfactory for alkalinity, however a reading above 9 requires corrective measures. Perform testing in accordance with ASTM Standard Practice F-710 or consult the adhesive manufacturer for recommended testing and corrective procedures.

6. **Adhesive Installations** – The owner or GC must have a concrete subfloor tested to determine the moisture emission rate and surface pH prior to installation. Caution: Any concrete floor, even when adequately cured and dry, can allow moisture vapor to pass through to its surface. Depending upon the type of carpet and method of installation, the moisture emission rate greatly influences the long term success of an installation. The use of a properly installed, uncompromised, approved moisture membrane is essential in preventing moisture migration into and through a concrete slab (Ref. ASTM F10).

7. **Relaxing/Acclimation** – To minimize wrinkling and buckling, and to facilitate installation, it is highly recommended that carpet be unrolled and allowed to relax in the installation area for a minimum of 24 hours at a temperature between 65-95 degrees F (18-35 degrees C). Carpet must be adequately protected from soil, dust, moisture and other contaminants. It is also recommended to pre-cut the carpet prior to acclimation.

8. **Ventilation** – During installation, maintain fresh ventilation using exhaust fans, and by operating the ventilation system at full capacity. Always exhaust air to the outside to avoid re-circulation. After installation, maintain fresh air ventilation for 48-72 hours at normal

room temperature by operating the ventilation or exhaust fan system at full capacity. Open doors and windows, if possible. These procedures help exhaust, dissipate and eliminate lingering odors from the installation.

9. **Primers** – Using primers on floor surfaces generally is not required except for sanded wood sheet products, dusty, porous or acoustical concrete surfaces. Priming cannot overcome moisture vapor emissions and must not be used for that purpose. They must be compatible with adhesives, which should be applied only after the primer is cured. Where lightweight or acoustical concrete subfloor is present, refer to manufacturers recommendations for the proper installation procedure to use before the carpet is installed.

10. **Liquid adhesive removers** – There are a number of liquid adhesive removers available that effectively remove existing adhesive residue from sub-floors; however, there is evidence that some products may adversely affect the new adhesive or the new floor covering. Residues left in or on the concrete slab may cause failure of the new floor adhesive.

11. **Sweeping compounds** – These compounds may leave residue that interferes with adhesive bonding. They must not be used prior to an adhesive application. Vacuum dusty areas instead.

12. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams.

13. **Adhesive application** – The floor adhesive must be spread uniformly over the subfloor with the appropriate trowel, leaving ridges of sufficient height to achieve full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. Trowel notches wear down during use. Maintain a clean and properly notched trowel throughout the installation process. After sufficient open time, the carpet must be pressed into the adhesive and rolled with the appropriate weight roller, as specified. Caution: Bond failure most often is caused by: inadequate adhesive application from the incorrect trowel notch size and/or trowel notch configuration * improper adhesive selection or quality * incorrect open time * residual curing and parting compounds * moisture related issues * premature traffic or cleaning before adhesives have adequately cured.

14. **Open time** – Appropriate open time varies depending upon environmental conditions, subfloor porosity, carpet backing system and adhesive type. Refer to the manufacturer for recommendations regarding open time.

15. **Seam adhesive** (sealer) – An appropriate direct-glue seam adhesive must be applied to the edges that are trimmed for seaming and cover the thickness of both the primary and secondary backing without contaminating the face yarns. The seam adhesive is applied to the cut edge of one side only, that side being the first one placed into the floor adhesive. When the edges are butted together to form the seam, and while the seam adhesive still is transferable, this seals the first edge as well as the second.

16. **Rolling** – After sufficient adhesive application and open time, the carpet must be pressing into the adhesive and rolled with the appropriate roller. Rolling must be performed with the lightest roller that achieves full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. The roller for direct glue installation should be no more than and no less than 75 lbs.

17. **All seams** should be sealed with the appropriate seam sealer.

Double Glue Installation:

18. **Acclimation** (relaxing) carpet – Site conditions, environmental and ventilation conditions become even more important when performing double glue installations. In double glue installations, a separate cushion is adhered to the subfloor and the carpet is glue to the cushion

19. **Cushion installation** – Cushion must be installed in the longest continuous lengths possible with consideration to traffic patterns and carpet seam placement. Cushion seams must be at a right angle (90 degrees) to carpet seams or offset at least six inches. Cushion seams must be butted without compression, and leaving no gaps.

19.1 It is important that the glue have time to off gas and set up. Without time for off gassing, bubbles can appear anywhere from immediately to 6-12 months after installation. The glue should be tacky to the touch, but not transfer onto your finger.

19.2 The recommended pad to be used for double stick installation is a 21 lb. rubber slab pad or Healthier Choice pad. Felt pad and wool pads are NOT recommended for this type of installation.

20. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern

repeat. Align all carpet breadths to their proper position and trim seams. Care must be taken to avoid cutting into cushion under seams.

21. **Trowel size** for double glue installation, is as follows:

    Pad to floor using pressure sensitive glue is 1/16"x1/16"x1/16" square notch trowel.
    Carpet to pad with a smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel.
    Carpet to pad with a rough back carpet, use a 1/8"x3/16"x1/8" U notch trowel.

22. The proper roller recommended for a double glue installation is a 35-50 lb. roller. The carpet should be rolled in both directions. After 2-3 hours, the carpet should be rolled again.

23. Factors affecting an acceptable pattern match on the job site include, but are not limited to: the method of installation, the condition and levelness of the floor and the type of carpet backing system selected. It is imperative that all parties agree upon realistic levels of expectation before the carpet is installed.

24. Installation of pattered carpet requires more time and expertise often requiring the use of a power stretcher and additional staffing, which should adjust the cost of installation.

25. **Pattern size Selection** – Selecting larger patterns will facilitate matching ease.

26. **Roll sequence** – It is very important to keep rolls in roll sequence. Sequence carpet cuts working from the longest measured repeat gradually down the shortest repeat within the dye lot. Roll sequencing information is available from the carpet manufacturer.

27. **Pattern adjustment** – Pattern adjustment during installation is possible and should be anticipated.

28. **Pattern alignment** – Match the pattern at the midpoint of the seams length. Work from the seam's midpoint to the seams ends, bringing the pattern into register using appropriate tools that might include; power stretcher * knee kicker * dead man * "dry" line * stay nails * crab stretcher.

29. **Curing adhesives** – It is highly recommended that traffic over field applied adhesive installation be restricted for a minimum of 24 – 48 hours to allow adhesives to cure properly. Premature trafficking can cause installation failure. Restrict carpet exposure to water from cleaning or other sources for a minimum of 30 days, after installation.

30. **Materials for protection** – If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover it with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of

hardboard or plywood in potentially affected areas. Caution: Do not place plastic sheeting over any carpet installation because it may present a slip hazard and may leave residues that result in rapid soiling after removal. In addition, it may trap moisture, which may promote mold growth, and retard adhesive curing. This applies to stretch-in installation also.

31. **Maintain temperature** – Do not allow the temperature of indoor carpet areas to fall below 50 degrees F (10 degrees C), regardless of the age of installation.

Wilton Weave Seam Preparation Procedures

This selected seam preparation method must be utilized to insure that all of the yarns within the carpet seam will be secure. Failure to follow these instructions can result in unacceptable seams and seam failure.

Length Wise Seam Directions

Step 1. Locate the specific yarn row in the pattern that is to be the seam edge. Normally, a blunt end tool such as an awl will be used.

Step 2. Using your tool of choice cut off the excess carpet starting 3 rows beyond the selected seam edge row.

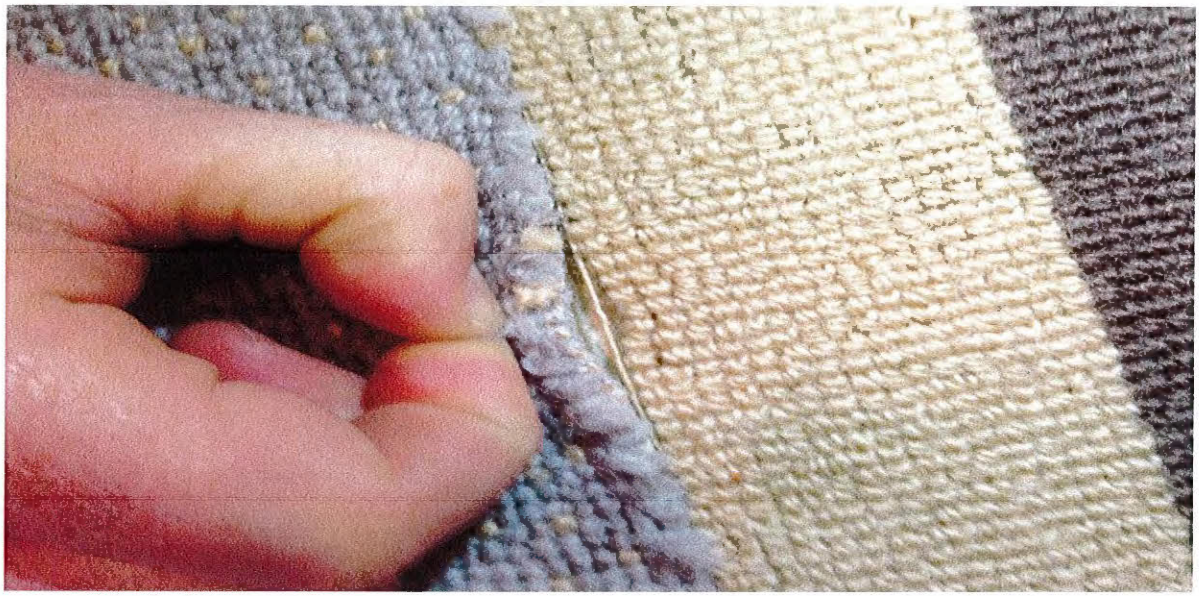
Step 3. Begin with the yarns at the cut edge and unravel the yarns row by row until the seam row is reached, It is absolutely imperative that the unraveling end is at the final seam edge. The chain row must remain intact. The chain warps are the pair of tiny yarns that create the xxxxxxxxxxx pattern seen on the edge of the carpet.

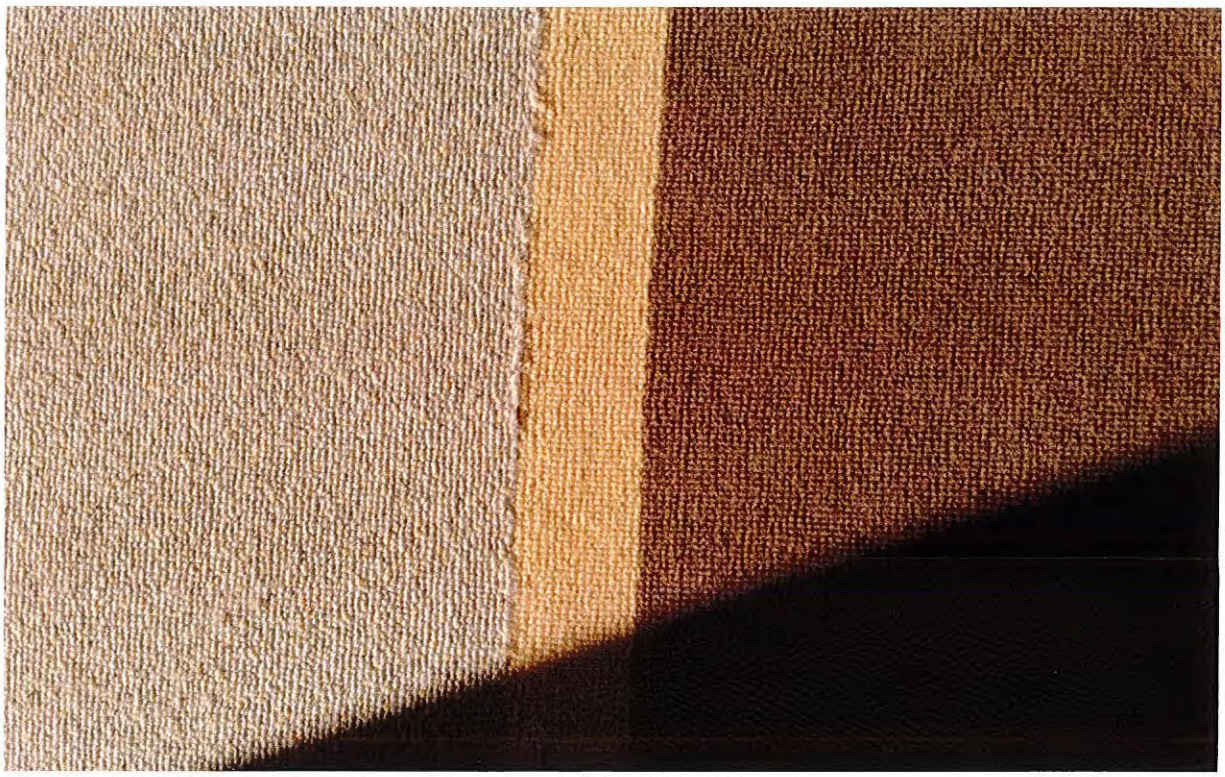
Step 4. On the backside edge, apply a bead of latex adhesive directly along the intact chain warp. Gently spread the wet latex on the exposed weft yarns and onto the edge.

Step 5. After the latex had dried to the touch, the exposed weft yarns can be trimmed off with shears. Using the upper blade of the shears as a guide to protect the chain warps, cut away the protruding weft yarns. This will leave a clean edge with intact chain warps and uncompromised face yarns.

Step 6. After the seaming edge has been cleanly trimmed, apply a bead of latex at the base of the yarn. Once the latex has dried, any protruding yarns can be pressed down into the edge and will be adhered to the edge. Be careful not to get latex adhesive on the face of the carpet during this process.

Results of seam not properly prepared on a Wilton:





WOVEN CARPET CONSTURCTION TERMS

WILTON - VELVET - AXMINSTER

PITCH = Number of ends in 27" width
Most commonly known 252 - 216 - 189
252 = 9 1/3 ends per inch x 27
216 = 8 ends per inch x 27
189 = 7 ends per inch x 27

ROW = Number of wires of tufts per 1" in warp direction
General range of 6 row minimum to 10 row maximum

PILE HEIGHT OR WIRE HEIGHT = Pile wires ranging from 1/8" to ½"

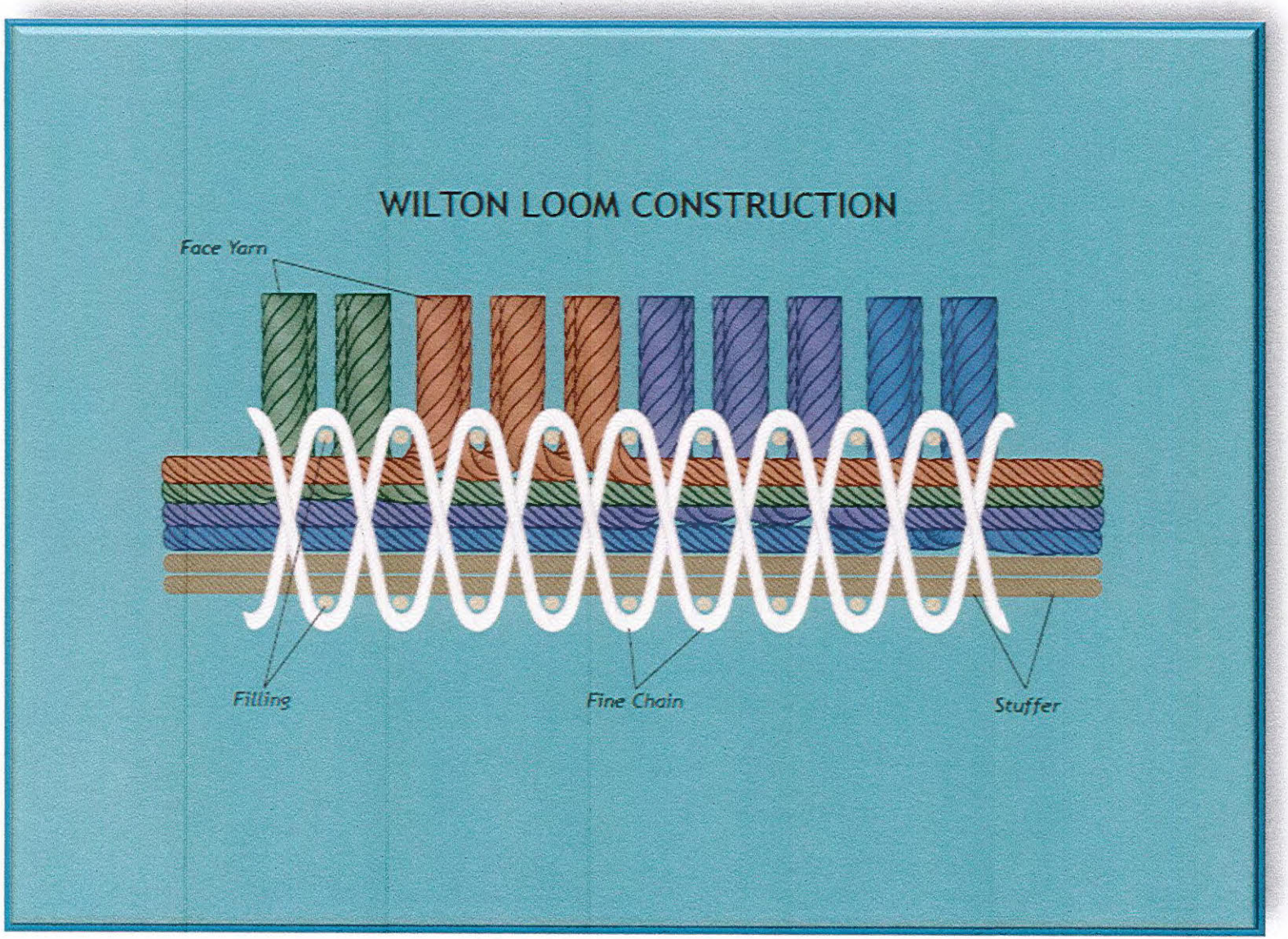
FRAMES = This is the number of ends of face yarn in one reed dent
5 frames maximum on Wilton
8 frames maximum on Axminster
A frame is merely a position on the creel there are a maximum of 5 positions on a Wilton loom and 8 positions on a Axminster loom. The positions may be filled with any number of colors that are desirable to effectively color a design by planting one or more colors in these positions.

HEDDLES = These are carriers of yarn both face yarn and backing yarns to the point of where they are woven together. Controlled by cams. Heddles can be laced in such a manner along with alternating pile wires to create various surface textures and small geometric designs on Velvet looms.

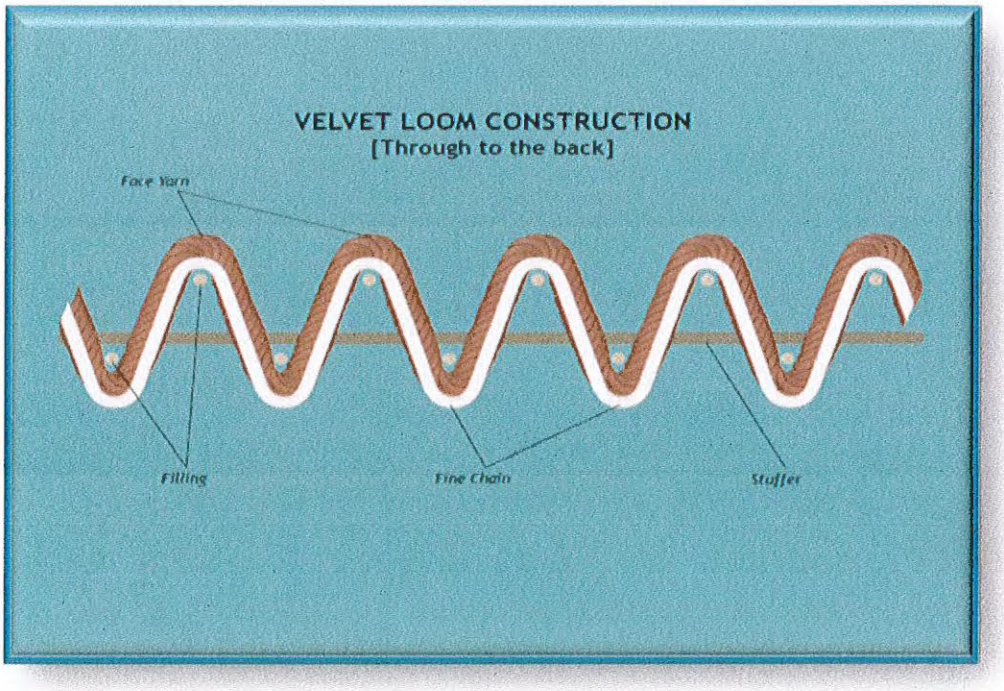
YARN COUNT = Means of measuring yarn in different ply's.
2/50 = 2 ply yarn measuring 50 yds. to one ounce.
3/50 = 3 ply yarn measuring 50 yds. to one ounce.
1/110 = 1 ply yarn measuring 110 yds. to one ounce.

STOCK DYE YARN = Yarn that has been dyed in a staple form then spun into yarn. Normal minimum lot size is 3,000 lbs.

SKEIN DYE YARN = Spun into a yarn form from white staple, reeled onto skeins and dyed in skein dye kettles in lots from 5 lbs. to 4,000 lbs.


WILTON LOOM CONSTRUCTION
Face Yarn
Filling
Fine Chain
Stuffer

VELVET


VELVET LOOM CONSTRUCTION
[Through to the back]
Face Yarn
Filling
Fine Chain
Stuffer

VELVET CARPET

The velvet is the simplest form of a weaving loom. There is however a wide variety of texture and color effects that can be produced with either loop or cut pile of varying heights. The loop pile is designated as round wire Velvet. A cut pile is simply a cut pile Velvet.

Velvet carpet yarns all appear on the face of the carpet. That means all the yarn is used to form the pile. Bulk is obtained by the warp, and stuffer yarns.

Velvets are known in the commercial market as quality carpet as they can be produced in good quality, with excellent tuft bind and density, in an economical manner. The backing is woven in a tremendous variety of qualities, in smaller quantities, designed directly for the end user.

A typical high quality Velvet may have 8 to 10 wires per inch and a pitch of 216 per 27 inch width.

Variations in the grades of Velvet depend on the number of weft or shot yarns used per row of tufts to bind the yarn in place. The most common is a two shot construction; that is, each row of tufts is held by two shots of the weft yarn. Velvet carpeting may be multi-colored or solid.

INSTALLATION GUIDE LINES FOR TUFTED & WOVEN WOOLS

The importance of understanding the construction of the product is as important as the installation itself. Understanding how to manipulate the product when needed to have it conform to its surroundings is essential.
Acclimation is a very important step in achieving this goal. Carpet should be cut and laid in the area it is to be installed, for a minimum of 24 to 48 hours before installation. Always add 3 inches to each cut, and when patterns are involved 3 inches plus full pattern should be added.

VELVET

Stretch-in Installation:

1. Velvet carpet has less stretch in the length than in the width. Tack strip to be used for Velvet is architectural strip with 3 rows of pins to "Tri tack" with 3 rows of pins.

1.2. **Architectural strip** with three rows of pins or two conventional strip with two rows of pins each, must be used for carpet with heavily latex backs, for most woven and Berber style carpet, and for any carpet in rooms exceeding 30 feet (9m) in length or width. To prevent possible injury to building occupants, the pins on tack strip must not protrude through the carpet be installed.

2. **A firm pad** should be used, preferably felt, horse hair, wool, rubber or Healthier Choice (frothed polyurethane foam, Greenguard). Note: A soft pad will create looseness and give no support to the carpet. It is not recommended to use masking tape, due to the paper drying out over time. It is also not recommended to use duct tape, because over time it will cause an unevenness from the pad wearing out on each side of the tape. This is the reason it is recommended to use duct tape on stair nosing, to keep the pad from wearing.

2.1 **To seam** Velvet there are 2 methods to use; Kool Glide iron or hot melt iron with premium seam tape. All methods require sealing with latex. Seam sealing is mandatory!
Carpet edges at seams must be trimmed using tools and techniques best suited for the carpet style (i.e. loop pile, cut pile and cut & loop pile). Trim edges far enough into the material to maintain the structural integrity of the carpet and to join edges without gaps or overlapping. Note: Although "row-cutting" both edges is preferred, other trimming techniques may be more

suitable on some carpet. Many carpets do not lend themselves to all methods of cutting. Some woven carpet selvages must not be trimmed.

2.2 **Prior to seaming**, both trimmed edges of the carpet sections to be joined must be sealed with an appropriate seam adhesive. Latex seam sealer or thermoplastic adhesives are acceptable.

Direct Glue Installation:

3. **Direct Glue** – The minimum trowel notch for direct gluing of Velvet is 1/8"x1/8"x1/8" U notch trowel.

Prior to installation the following conditions should be considered:
Carpet must be installed when the indoor temperature is between 65-95 degrees F (18-35 degrees C) with a maximum relative humidity of 65%. If ambient temperatures are outside these perimeters, the installation must not begin until the HVAC system is operational and these conditions are maintained for at least 48 hours before, during and 72 after completion.

3.1 **Before making an adhesive installation,** the owner or GC, or their designated testing agent, must submit to the flooring contractor a written report on the vapor emission level and the surface alkalinity of the concrete subfloor.
4. **Moisture** – Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using a hydrous calcium moisture test kit. This quantitative test method must be conducted carefully in strict compliance with ASTM Test Method F 1869. Moisture emission rate is measured in pounds of moisture over a 1000 sq. ft. area during a 24 hour period. Because calcium chloride testing requires a minimum of 60 hours to conduct, proper installation planning is required. As a general guideline, an emission rate of 3.0 lbs. (1.4kg) or less is acceptable unless otherwise specified by the carpet manufacturer.

5. **Alkalinity** – A pH range of 7-9 is satisfactory for alkalinity, however a reading above 9 requires corrective measures. Perform testing in accordance with ASTM Standard Practice F-710 or consult the adhesive manufacturer for recommended testing and corrective procedures.

6. **Adhesive Installations** – The owner or GC must have a concrete subfloor tested to determine the moisture emission rate and surface pH prior to installation. Caution: Any concrete floor, even when adequately cured and dry, can allow moisture vapor to pass through to its surface. Depending upon the type of carpet and method of installation, the moisture emission rate greatly influences the long term success of an installation. The use of a properly installed, uncompromised, approved moisture membrane is essential in preventing moisture migration into and through a concrete slab (Ref. ASTM F10).

7. **Relaxing/Acclimation** – To minimize wrinkling and buckling, and to facilitate installation, it is highly recommended that carpet be unrolled and allowed to relax in the installation area for a minimum of 24 hours at a temperature between 65-95 degrees F (18-35 degrees C). Carpet must be adequately protected from soil, dust, moisture and other contaminants. It is also recommended to pre-cut the carpet prior to acclimation.

8. **Ventilation** – During installation, maintain fresh ventilation using exhaust fans, and by operating the ventilation system at full capacity. Always exhaust air to the outside to avoid re-circulation. After installation, maintain fresh air ventilation for 48-72 hours at normal room temperature by operating the ventilation or exhaust fan system at full capacity. Open doors and windows, if possible. These procedures help exhaust, dissipate and eliminate lingering odors from the installation. There should be a minimum pf 18" of air space under wood sub-floors.

9. **Primers** – Using primers on floor surfaces generally is not required except for sanded wood sheet products, dusty, porous or acoustical concrete surfaces. Priming cannot overcome moisture vapor emissions and must not be used for that purpose. They must be compatible with adhesives, which should be applied only after the primer is cured. Where lightweight or acoustical concrete subfloor is present, refer to manufacturers recommendations for the proper installation procedure to use before the carpet is installed.

10. **Liquid adhesive removers** – There are a number of liquid adhesive removers available that effectively remove existing adhesive residue from sub-floors; however, there is evidence that some products may adversely affect the new adhesive or the new floor covering. Residues left in or on the concrete slab may cause failure of the new floor adhesive.

11. **Sweeping compounds** – These compounds may leave residue that interferes with adhesive bonding. They must not be used prior to an adhesive application. Vacuum dusty areas instead.

12. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams.

13. **Adhesive application** – The floor adhesive must be spread uniformly over the subfloor with the appropriate trowel, leaving ridges of sufficient height to achieve full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses

14. Trowel notches **wear down during use**. Maintain a clean and properly notched trowel throughout the installation process. After sufficient open time, the carpet must be pressed into the adhesive and rolled with the appropriate weight roller, as specified. Caution: Bond failure most often is caused by: inadequate adhesive application from the incorrect trowel notch size and/or trowel notch configuration * improper adhesive selection or quality * incorrect open time *

residual curing and parting compounds * moisture related issues * premature traffic or cleaning before adhesives have adequately cured.

15. **Open time** – Appropriate open time varies depending upon environmental conditions, subfloor porosity, carpet backing system and adhesive type. Refer to the manufacturer for recommendations regarding open time.

16. **Seam adhesive** (sealer) – An appropriate direct-glue seam adhesive must be applied to the edges that are trimmed for seaming and cover the thickness of both the primary and secondary backing without contaminating the face yarns. The seam adhesive is applied to the cut edge of one side only, that side being the first one placed into the floor adhesive. When the edges are butted together to form the seam, and while the seam adhesive still is transferable, this seals the first edge as well as the second.

17. **Rolling** – After sufficient adhesive application and open time, the carpet must be pressing into the adhesive and rolled with the appropriate roller. Rolling must be performed with the lightest roller that achieves full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. The roller for direct glue installation should be no more than and no less than 75 lbs.

18. All seams should be sealed with the appropriate seam sealer.

Double Glue Installation:

19. **Acclimation** (relaxing) carpet – Site conditions, environmental and ventilation conditions become even more important when performing double glue installations. In double glue installations, a separate cushion is adhered to the subfloor and the carpet is glue to the cushion

20. **Cushion installation** – Cushion must be installed in the longest continuous lengths possible with consideration to traffic patterns and carpet seam placement. Cushion seams must be at a right angle (90 degrees) to carpet seams or offset at least six inches. Cushion seams must be butted without compression, and leaving no gaps.

20.1 It is important that the glue have time to off gas and set up. Without time for off gassing, bubbles can appear anywhere from immediately to 6-12 months after installation. The glue should be tacky to the touch, but not transfer onto your finger, (pressure sensitive glue).

20.2 The recommended pad to be used for double stick installation is a 21 lb. rubber slab pad or Healthier Choice pad. Felt pad and wool pads are NOT recommended for this type of installation.

21. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all

carpet breadths to their proper position and trim seams. Care must be taken to avoid cutting into cushion under seams.

22. Trowel size for double glue installation, is as follows:

Pad to floor using pressure sensitive glue is 1/16"x1/16"x1/16" square notch trowel.
Carpet to pad with a smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel.
Carpet to pad with a rough back carpet, use a 1/8"x3/16"x1/8" U notch trowel.

23. The proper roller recommended for a double glue installation is a 35-50 lb. roller. Carpet should be rolled in both directions. After 2-3 hours, the carpet should be rolled again.

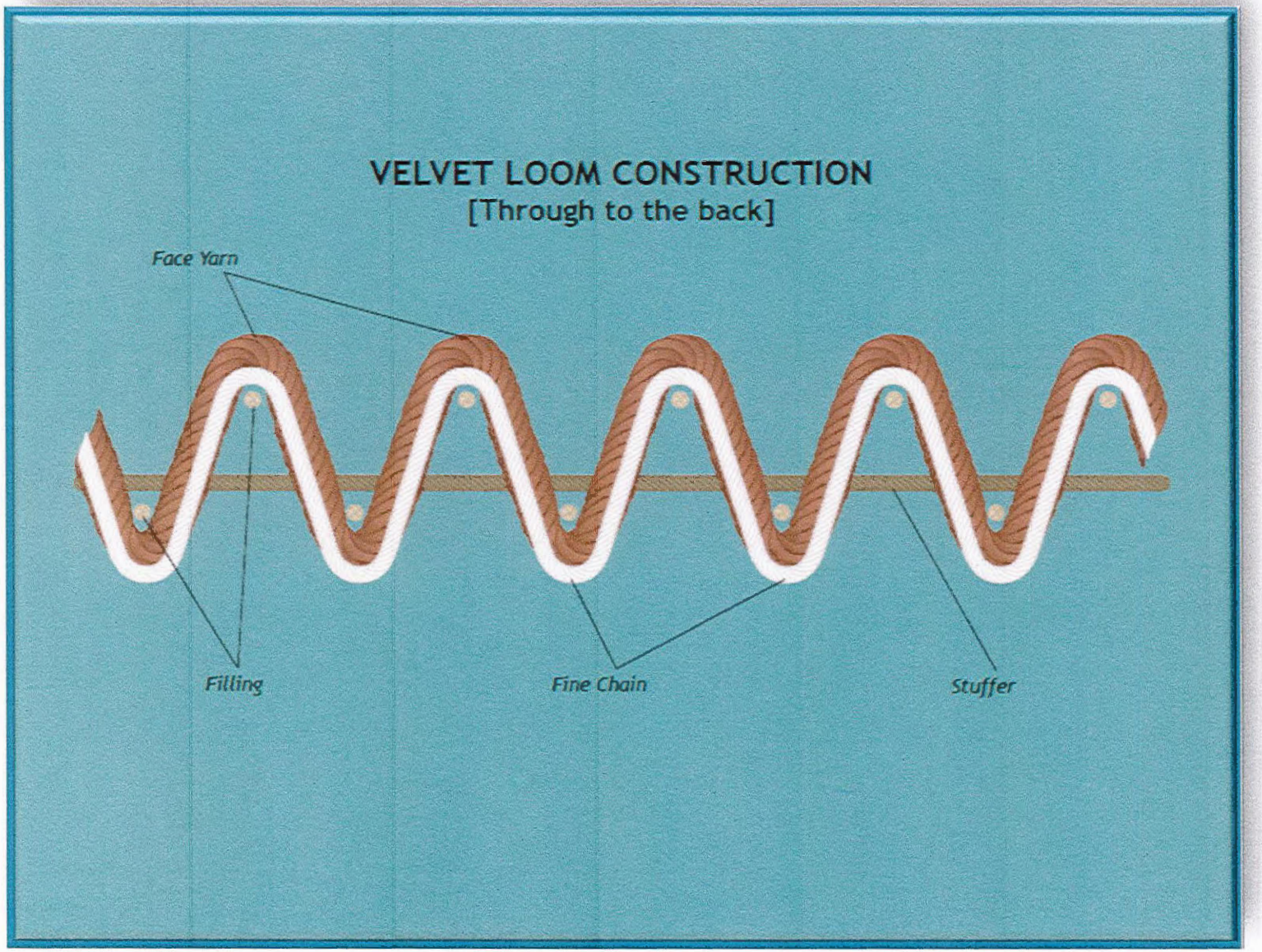
24. Pattern adjustment – Pattern adjustment during installation is possible and should be anticipated.

25. Pattern alignment – Match the pattern at the midpoint of the seams length. Work from the seam's midpoint to the seams ends, bringing the pattern into register using appropriate tools that might include; power stretcher * knee kicker * dead man * "dry" line * stay nails * crab stretcher.

26. Curing adhesives – It is highly recommended that traffic over field applied adhesive installation be restricted for a minimum of 24 – 48 hours to allow adhesives to cure properly. Premature trafficking can cause installation failure. Restrict carpet exposure to water from cleaning or other sources for a minimum of 30 days.

27. Materials for protection – If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover it with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas. Caution: Do not place plastic sheeting over any carpet installation because it may present a slip hazard and may leave residues that result in rapid soiling after removal. In addition, it may trap moisture, which may promote mold growth, and retard adhesive curing.

28. Maintain temperature – Do not allow the temperature of indoor carpet areas to fall below 50 degrees F (10 degrees C), regardless of the age of installation.


VELVET LOOM CONSTRUCTION
[Through to the back]
Face Yarn
Filling
Fine Chain
Stuffer

WOVEN CARPET CONSTURCTION TERMS

WILTON - VELVET - AXMINSTER

PITCH = Number of ends in 27" width
Most commonly known 252 - 216 - 189
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216 = 8 ends per inch x 27
189 = 7 ends per inch x 27

ROW = Number of wires of tufts per 1" in warp direction
General range of 6 row minimum to 10 row maximum

PILE HEIGHT OR WIRE HEIGHT = Pile wires ranging from 1/8" to ½"

FRAMES = This is the number of ends of face yarn in one reed dent
5 frames maximum on Wilton
8 frames maximum on Axminster
A frame is merely a position on the creel there are a maximum of 5 positions on a Wilton loom and 8 positions on a Axminster loom. The positions may be filled with any number of colors that are desirable to effectively color a design by planting one or more colors in these positions.

HEDDLES = These are carriers of yarn both face yarn and backing yarns to the point of where they are woven together. Controlled by cams. Heddles can be laced in such a manner along with alternating pile wires to create various surface textures and small geometric designs on Velvet looms.

YARN COUNT = Means of measuring yarn in different ply's.

2/50 = 2 ply yarn measuring 50 yds. to one ounce.

3/50 = 3 ply yarn measuring 50 yds. to one ounce.

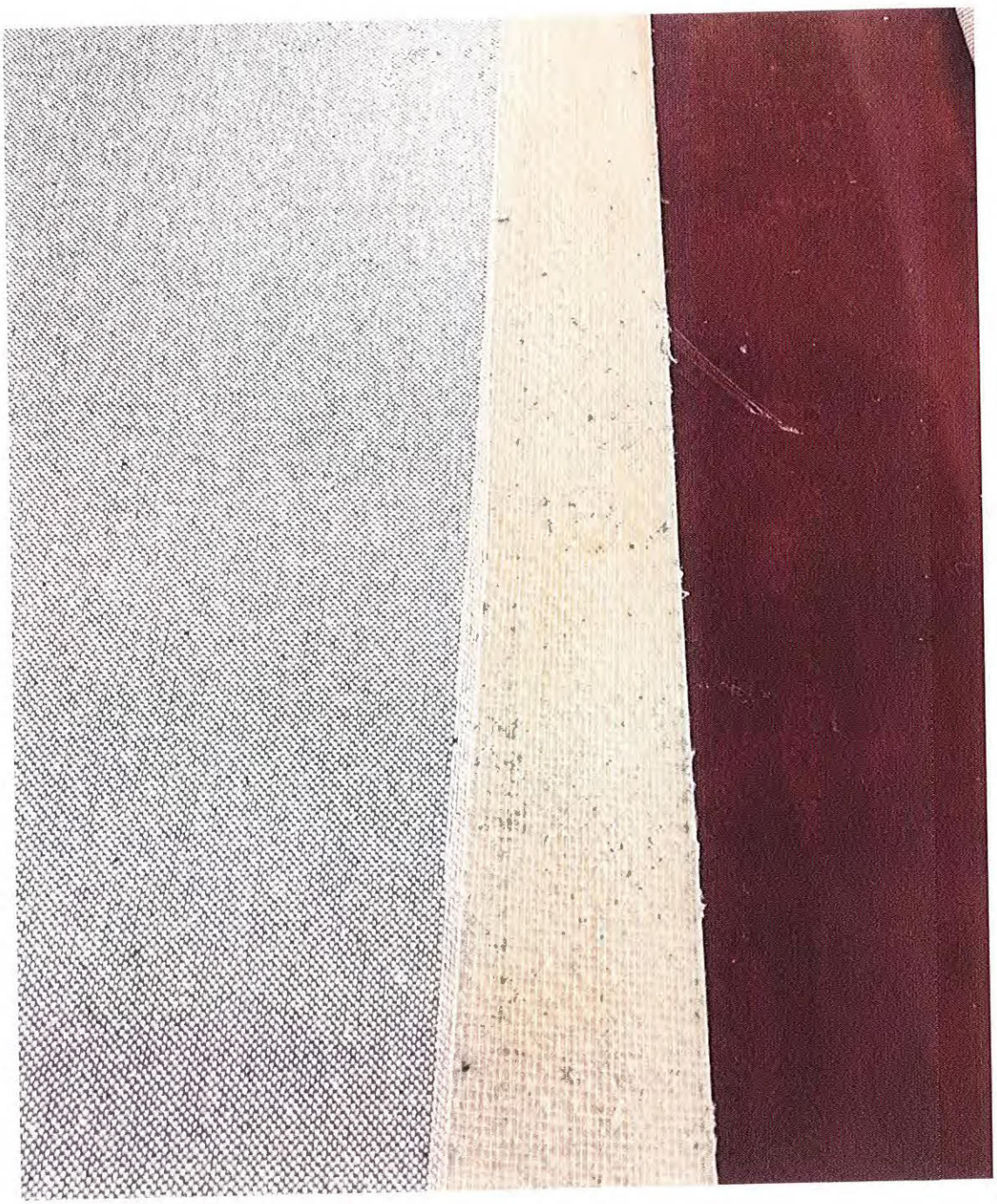
1/110 = 1 ply yarn measuring 110 yds. to one ounce.

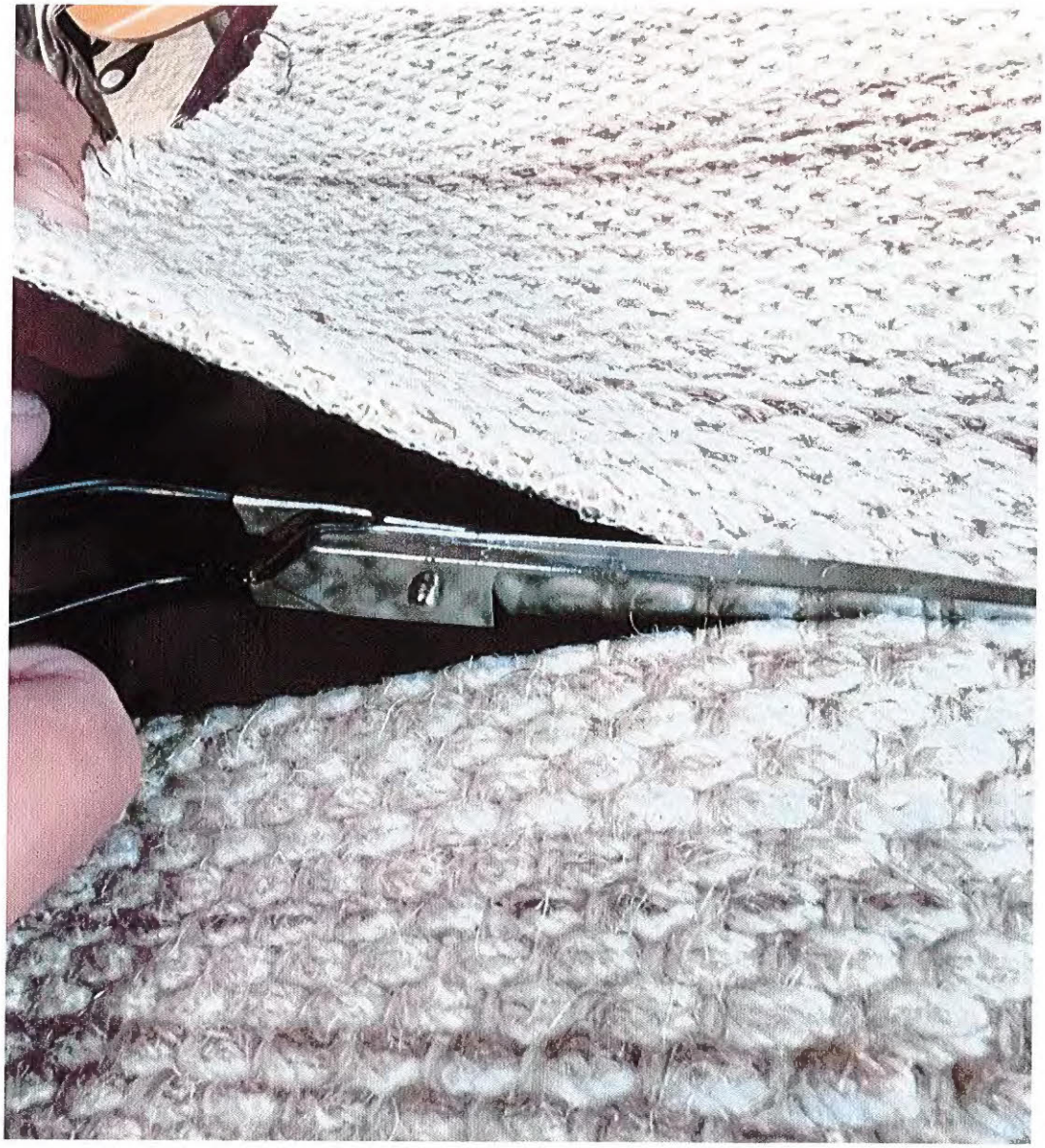
STOCK DYE YARN = Yarn that has been dyed in a staple form then spun into yarn.
Normal minimum lot size is 3,000 lbs.

SKEIN DYE YARN = Spun into a yarn form from white staple, reeled onto skein and dyed in skein dye kettles in lots from 5 lbs. to 4,000 lbs.


Hand-Woven

Carefully remove 2 inches of the monks cloth on each side of the seam edge

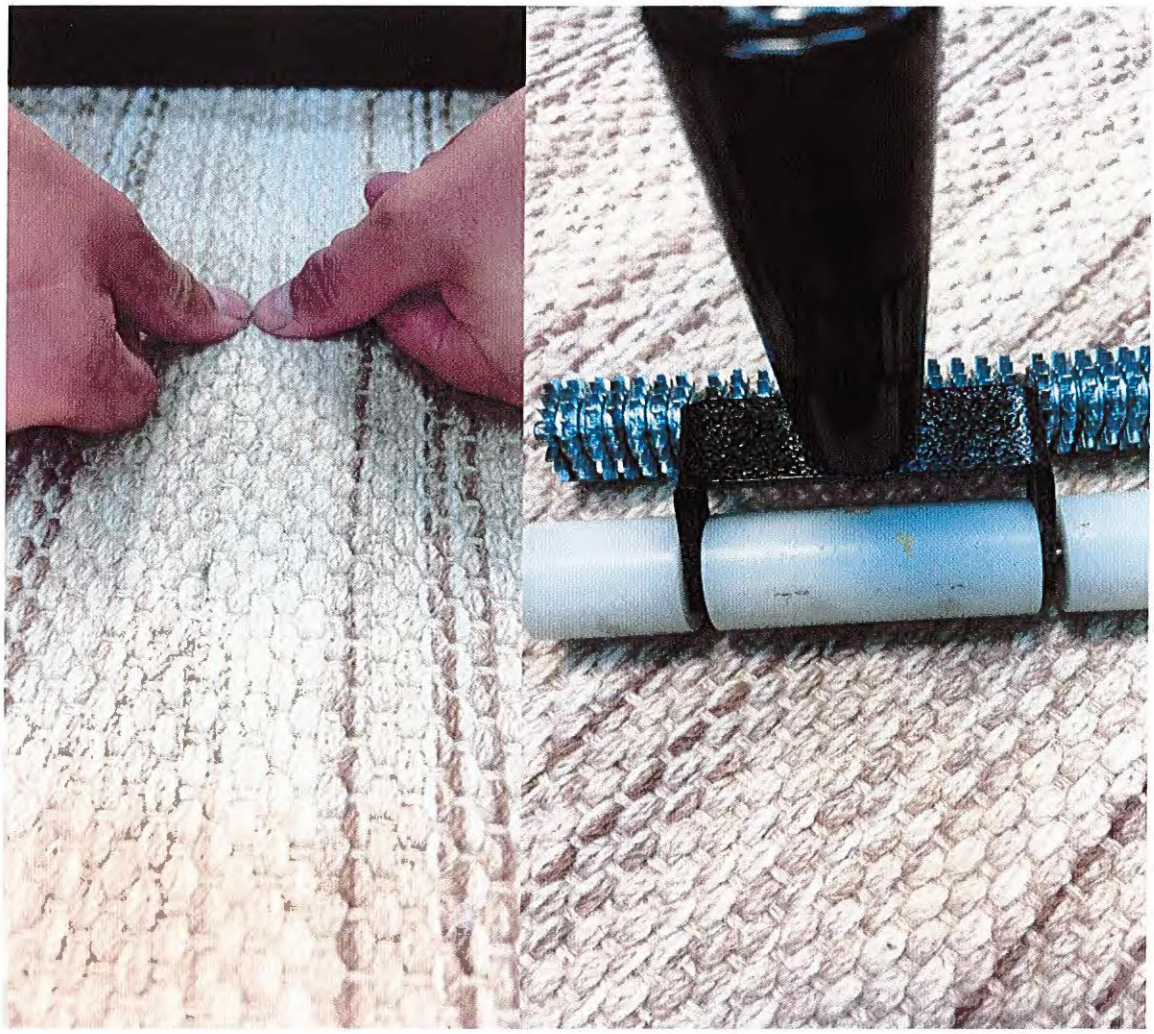




Cut the seam edge with a sharp pair of shears down the warp row without cutting any of the chain-stitch

Immediately latex seam edge with premium rubber-based latex.

Using a premium low-melt seam tape and your iron set at no higher than 2.5, weld your two pieces together.



Always use a seam-roller and applied pressure to the edges of the seam tape to achieve maximum glue-transfer.

INSTALLATION GUIDE LINES FOR TUFTED & WOVEN WOOLS

The importance of understanding the construction of the product is as important as the installation itself. Understanding how to manipulate the product when needed to have it conform to its surroundings is essential.
Acclimation is a very important step in achieving this goal. Carpet should be cut and laid in the area it is to be installed, for a minimum of 24 to 48 hours before installation. Always add 3 inches to each cut, and when patterns are involved 3 inches plus full pattern should be added.

HAND WOVEN

The Hand Woven is the simplest form of a weaving loom. There is however a wide variety of texture and color effects that can be produced with either loop or cut pile of varying heights.

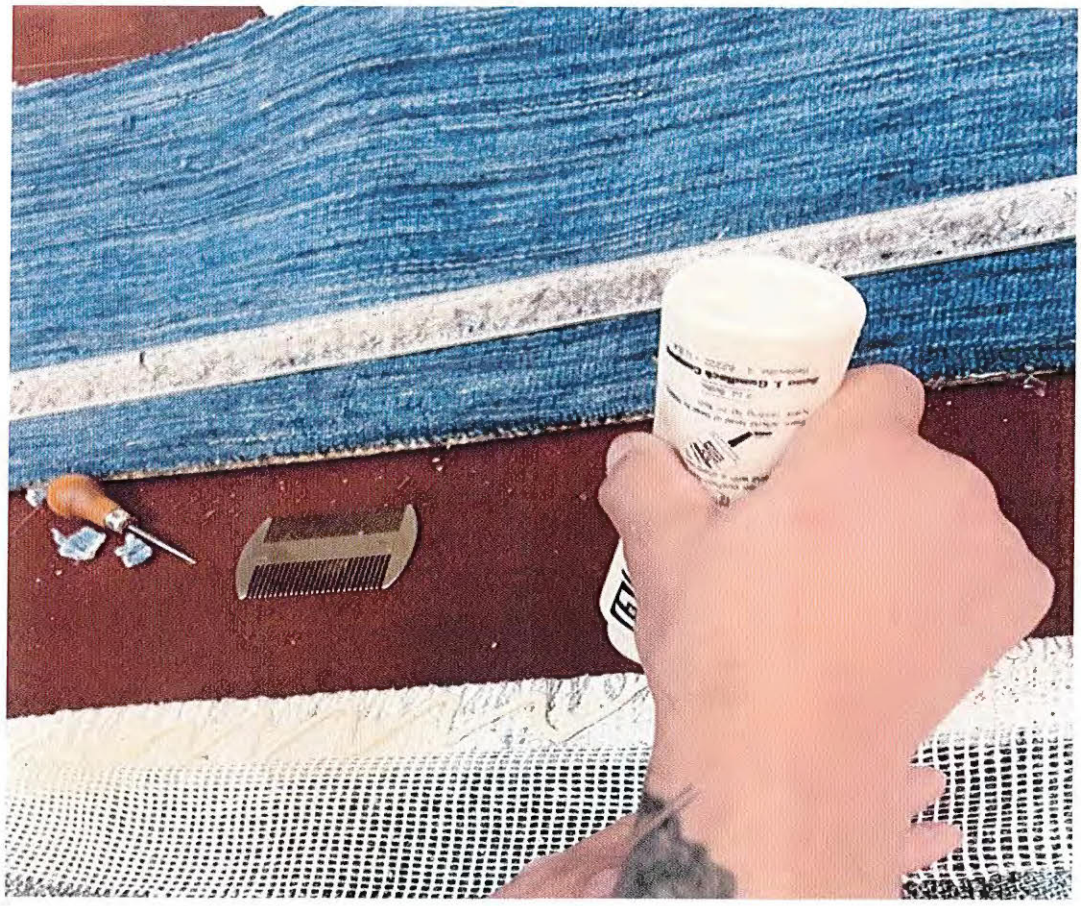
Hand Woven carpet yarns all appear on the face of the carpet. That means all the yarn is used to form the pile. Bulk is obtained by the warp, and stuffer yarns.

Variations in the grades of Hand Woven depend on the number of weft or shot yarns used per row of tufts to bind the yarn in place. The most common is a two shot construction; that is, each row of tufts is held by two shots of the weft yarn. Hand Woven carpeting may be multi-colored or solid.

HAND WOVEN CUT PILE

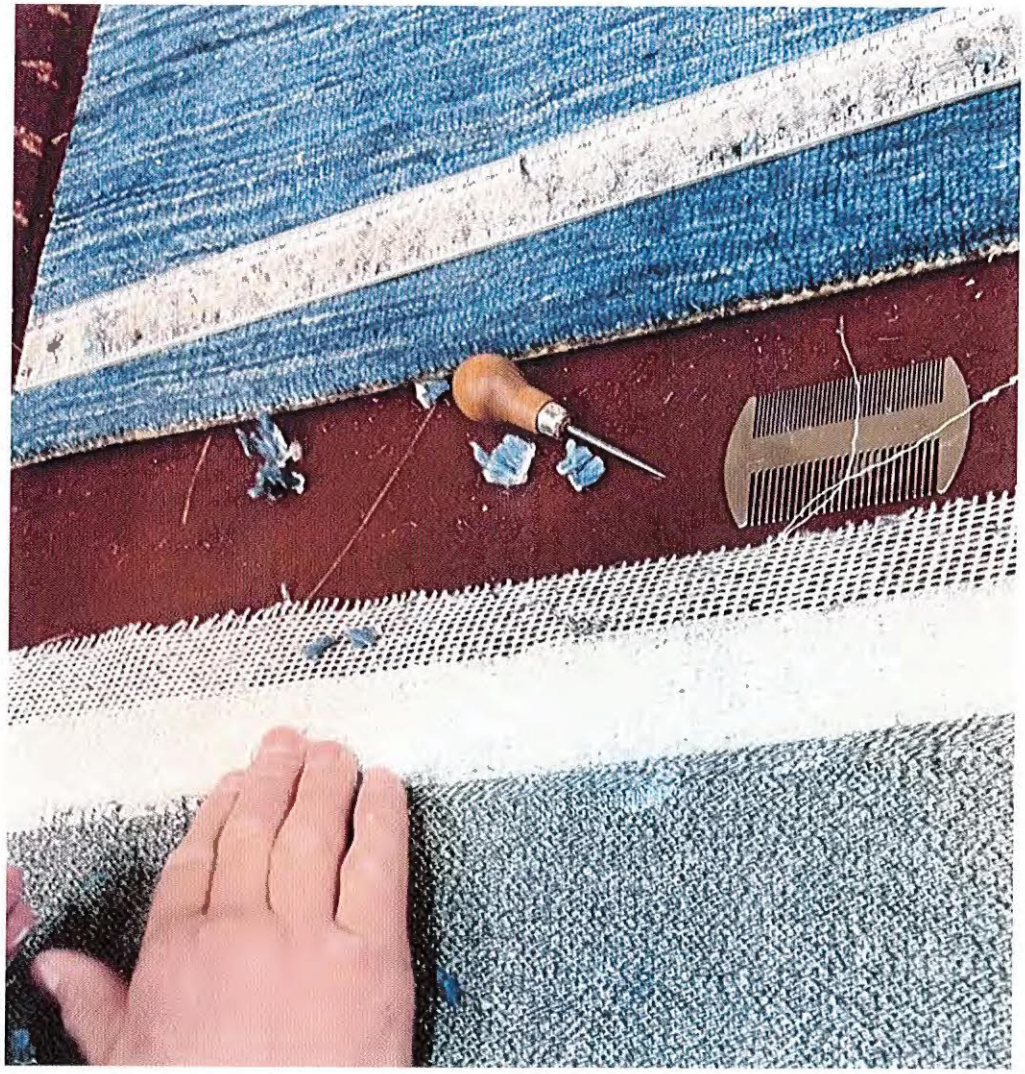
Using an awl and pliers, begin deconstructing the seam edge, exposing 1 1/2 inches of weft yarn.

Apply a heavy bead of premium rubber-based latex on the seam edge, covering the chain stitch and folding the weft yarns down.

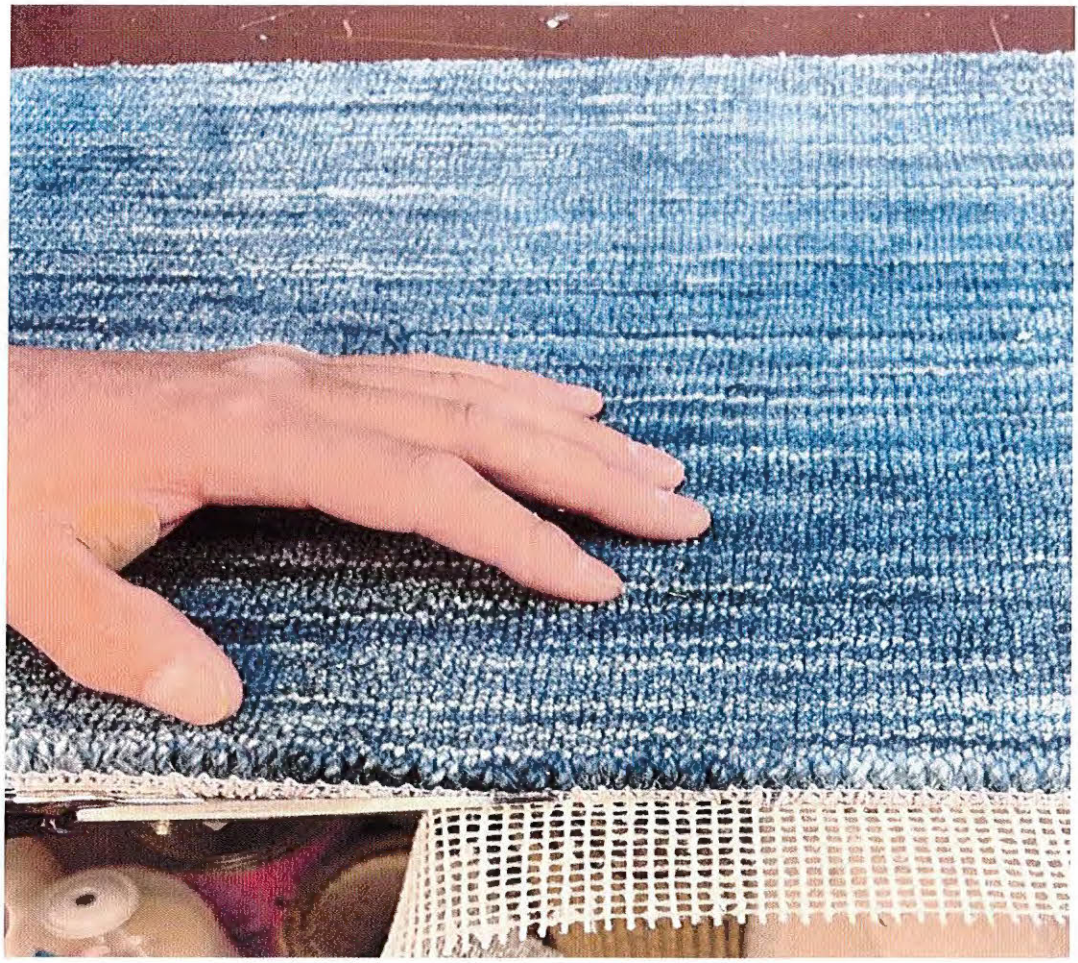


Apply a heavy bead of latex and spread it out, covering the entire 2" surface

Run a bead of latex on the edge of the backing, then fold the weft yarns into the latex.

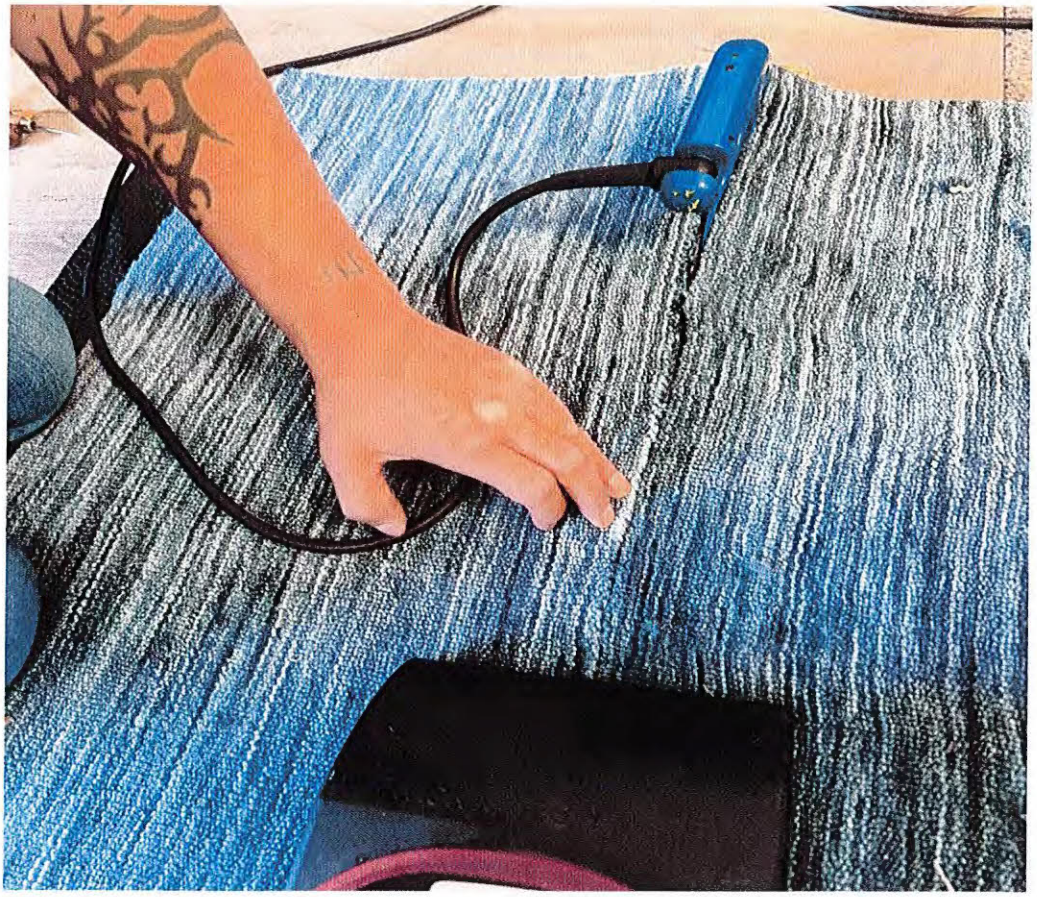


Fold the primary backing into the wet latex, applying pressure and smoothing it out.



After the latex dries, trim off the excess primary backing.

Run another bead of latex, making sure the chain stitch is completely encapsulated.



Use a premium low-melt seam tape with your iron set no higher than 2.5. Always use a seam roller and applied pressure for maximum glue transfer.

Installation Guidelines for Hand Woven Carpet:

HAND WOVEN

Stretch-in Installation:

1. **Hand Woven carpet** has less stretch in the length than in the width. Tack strip to be used for Hand Woven is architectural strip with 3 rows of pins to "Tri tack" with 3 rows of pins.

1.2. **Architectural strip** with three rows of pins or two conventional strip with two rows of pins each, must be used for carpet with heavily latex backs, for most woven and Berber style carpet, and for any carpet in rooms exceeding 30 feet (9m) in length or width. To prevent possible injury to building occupants, the pins on tack strip must not protrude through the carpet be installed.

2. **A firm pad** should be used, preferably felt, horse hair, wool, rubber or Healthier Choice (frothed polyurethane foam, Greengard). Note: A soft pad will create looseness and give no support to the carpet. It is not recommended to use masking tape, due to the paper drying out over time. It is also not recommended to use duct tape, because over time it will cause an unevenness from the pad wearing out on each side of the tape. This is the reason it is recommended to use duct tape on stair nosing, to keep the pad from wearing.

2.1 **To seam** Hand Woven use hot melt iron with premium seam tape. All methods require sealing with latex. Seam sealing is **mandatory!**
Carpet edges at seams must be trimmed using tools and techniques best suited for the carpet style (i.e. loop pile, cut pile and cut & loop pile). Trim edges far enough into the material to maintain the structural integrity of the carpet and to join edges without gaps or overlapping. Note: Although "row-cutting" both edges is preferred, other trimming techniques may be more suitable on some carpet. Many carpets do not lend themselves to all methods of cutting. Some woven carpet selvages must not be trimmed.

2.2 **Prior to seaming**, both trimmed edges of the carpet sections to be joined must be sealed with an appropriate seam adhesive. Latex seam sealer is acceptable.

Direct Glue Installation:

3. **Direct Glue** – The minimum trowel notch for direct gluing of Velvet is 1/8"x1/8"x1/8" U notch trowel.

Prior to installation the following conditions should be considered:
Carpet must be installed when the indoor temperature is between 65-95 degrees F (18-35 degrees C) with a maximum relative humidity of 65%. If ambient temperatures are outside these perimeters, the installation must not begin until the HVAC system is operational and these conditions are maintained for at least 48 hours before, during and 72 after completion.

3.1 **Before making an adhesive installation,** the owner or GC, or their designated testing agent, must submit to the flooring contractor a written report on the vapor emission level and the surface alkalinity of the concrete subfloor.
4. **Moisture** – Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. Test all concrete floors for moisture emission rates using a hydrous calcium moisture test kit. This quantitative test method must be conducted carefully in strict compliance with ASTM Test Method F 1869. Moisture emission rate is measured in pounds of moisture over a 1000 sq. ft. area during a 24 hour period. Because calcium chloride testing requires a minimum of 60 hours to conduct, proper installation planning is required. As a general guideline, an emission rate of 3.0 lbs. (1.4kg) or less is acceptable unless otherwise specified by the carpet manufacturer.

5. **Alkalinity** – A pH range of 7-9 is satisfactory for alkalinity, however a reading above 9 requires corrective measures. Perform testing in accordance with ASTM Standard Practice F-710 or consult the adhesive manufacturer for recommended testing and corrective procedures.

6. **Adhesive Installations** – The owner or GC must have a concrete subfloor tested to determine the moisture emission rate and surface pH prior to installation. Caution: Any concrete floor, even when adequately cured and dry, can allow moisture vapor to pass through to its surface. Depending upon the type of carpet and method of installation, the moisture emission rate greatly influences the long term success of

an installation. The use of a properly installed, uncompromised, approved moisture membrane is essential in preventing moisture migration into and through a concrete slab (Ref. ASTM F10).

7. **Relaxing/Acclimation** – To minimize wrinkling and buckling, and to facilitate installation, it is highly recommended that carpet be unrolled and allowed to relax in the installation area for a minimum of 24 hours at a temperature between 65-95 degrees F (18-35 degrees C). Carpet must be adequately protected from soil, dust, moisture and other contaminants. It is also recommended to pre-cut the carpet prior to acclimation.

8. **Ventilation** – During installation, maintain fresh ventilation using exhaust fans, and by operating the ventilation system at full capacity. Always exhaust air to the outside to avoid re-circulation. After installation, maintain fresh air ventilation for 48-72 hours at normal room temperature by operating the ventilation or exhaust fan system at full capacity. Open doors and windows, if possible. These procedures help exhaust, dissipate and eliminate lingering odors from the installation. There should be a minimum pf 18" of air space under wood sub-floors.

9. **Primers** – Using primers on floor surfaces generally is not required except for sanded wood sheet products, dusty, porous or acoustical concrete surfaces. Priming cannot overcome moisture vapor emissions and must not be used for that purpose. They must be compatible with adhesives, which should be applied only after the primer is cured. Where lightweight or acoustical concrete subfloor is present, refer to manufacturer's recommendations for the proper installation procedure to use before the carpet is installed.

10. **Liquid adhesive removers** – There are a number of liquid adhesive removers available that effectively remove existing adhesive residue from sub-floors; however, there is evidence that some products may adversely affect the new adhesive or the new floor covering. Residues left in or on the concrete slab may cause failure of the new floor adhesive.

11. **Sweeping compounds** – These compounds may leave residue that interferes with adhesive bonding. They must not be used prior to an adhesive application. Vacuum dusty areas instead.

12. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams.

13. **Adhesive application** – The floor adhesive must be spread uniformly over the subfloor with the appropriate trowel, leaving ridges of sufficient height to achieve full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses

14. **Trowel notches wear down during use**. Maintain a clean and properly notched trowel throughout the installation process. After sufficient open time, the carpet must be pressed into the adhesive and rolled with the appropriate weight roller, as specified. Caution: Bond failure most often is caused by: inadequate adhesive application from the incorrect trowel notch size and/or trowel notch configuration * improper adhesive selection or quality * incorrect open time * residual curing and parting compounds * moisture related issues * premature traffic or cleaning before adhesives have adequately cured.

15. **Open time** – Appropriate open time varies depending upon environmental conditions, subfloor porosity, carpet backing system and adhesive type. Refer to the manufacturer for recommendations regarding open time.

16. **Seam adhesive** (sealer) – An appropriate direct-glue seam adhesive must be applied to the edges that are trimmed for seaming and cover the thickness of both the primary and secondary backing without contaminating the face yarns. The seam adhesive is applied to the cut edge of one side only, that side being the first one placed into the floor adhesive. When the edges are butted together to form the seam, and while the seam adhesive still is transferable, this seals the first edge as well as the second.

17. **Rolling** – After sufficient adhesive application and open time, the carpet must be pressing into the adhesive and rolled with the appropriate roller. Rolling must be performed with the lightest roller that achieves full and complete coverage of the substrate and carpet backing, including penetration into the backing's deepest recesses. The roller for direct glue installation should be no more than and no less than 75 lbs.

18. **All seams** should be sealed with the appropriate seam sealer. The roller to be used should no more than and no less than 75 lbs.

Double Glue Installation:

19. **Acclimation** (relaxing) carpet – Site conditions, environmental and ventilation conditions become even more important when performing double glue installations. In double glue installations, a separate cushion is adhered to the subfloor and the carpet is glue to the cushion

20. **Cushion installation** – Cushion must be installed in the longest continuous lengths possible with consideration to traffic patterns and carpet seam placement. Cushion seams must be at a right angle (90 degrees) to carpet seams or offset at least six inches. Cushion seams must be butted without compression, and leaving no gaps.

20.1 It is important that the glue have time to off gas and set up. Without time for off gassing, bubbles can appear anywhere from immediately to 6-12 months after installation. The glue should be tacky to the touch, but not transfer onto your finger, (pressure sensitive glue).

20.2 The recommended pad to be used for double stick installation is a 21 lb. rubber slab pad or Healthier Choice pad. Felt pad and wool pads are NOT recommended for this type of installation.

21. **Carpet layout** – Layout the carpet according to the seaming diagram. Carpet must be cut 3-4 inches longer than the area measurement. Where applicable, allow for pattern repeat. Align all carpet breadths to their proper position and trim seams. Care must be taken to avoid cutting into cushion under seams.

22. **Trowel size** for double glue installation, is as follows:

Pad to floor using pressure sensitive glue is 1/16"x1/16"x1/16" square notch trowel.
Carpet to pad with a smooth back carpet, use a 1/8"x1/16"x1/8" U notch trowel.
Carpet to pad with a rough back carpet, use a 1/8"x3/16"x1/8" U notch trowel.

23. The proper roller recommended for a double glue installation is a 35-50 lb. roller. Carpet should be rolled in both directions. After 2-3 hours, the carpet should be rolled again.

24. **Pattern adjustment** – Pattern adjustment during installation is possible and should be anticipated.

25. **Pattern alignment** – Match the pattern at the midpoint of the seams length. Work from the seam's midpoint to the seams ends, bringing the pattern into register using appropriate tools that might include; power stretcher * knee kicker * dead man * "dry" line * stay nails * crab stretcher.

26. **Curing adhesives** – It is highly recommended that traffic over field applied adhesive installation be restricted for a minimum of 24 – 48 hours to allow adhesives to cure properly. Premature trafficking can cause installation failure. Restrict carpet exposure to water from cleaning or other sources for a minimum of 30 days.

27. **Materials for protection** – If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover it with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas. Caution: Do not place plastic sheeting over any carpet installation because it may present a slip hazard and may leave residues that result in rapid soiling after removal. In addition, it may trap moisture, which may promote mold growth, and retard adhesive curing.

28. **Maintain temperature** – Do not allow the temperature of indoor carpet areas to fall below 50 degrees F (10 degrees C), regardless of the age of installation.

For those of you who want to take this a step further, we offer:

- One Day Sales Seminar
- Installation Training & Certification course
- Carpet Installation Inspector course.

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