

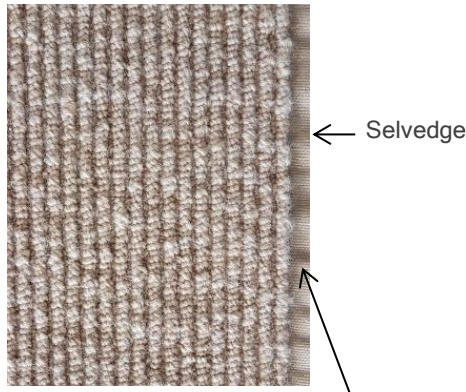
# PROJECT FLOORS

## 5.4 PREPARING A TUFTED CARPET SEAM

Understanding how the carpet is made is a key part of the seaming process.

- How the carpet yarn is stitched into the primary backing to create the pile can influence how the seam will be cut.

Loop pile



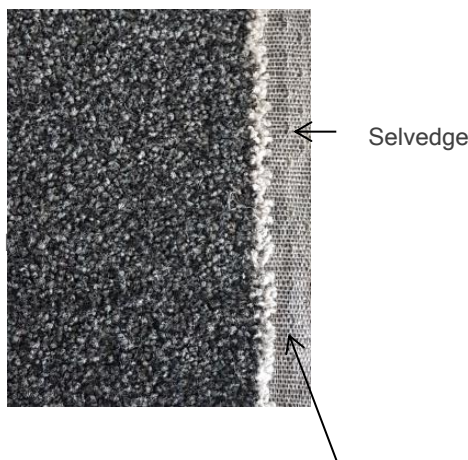
The yarn is stitched in a straight line

Loop pile (shift stitch)



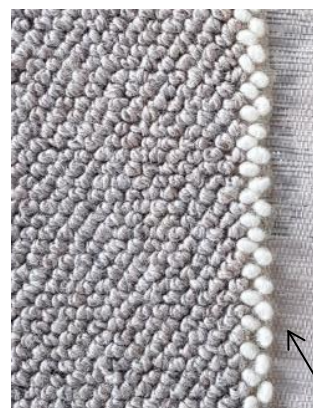
The yarn stitch moves back and forth sideways as the needle bar moves along the carpet.

Cut pile



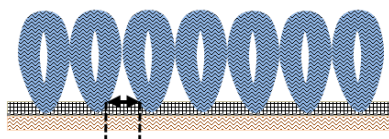
The yarn is stitched in a straight line. The loops are then cut to produce a cut pile.

Loop pile (slight shift stitch)



The yarn is not stitched in a straight line. It moves slightly in and out sideways as the needle bar moves along the primary backing (zipper affect).

- The thickness of the gaps between the pile will depend on the carpet that is being made. This gap is referred to as the gauge and is often measured in fractions of an inch; distance between needles over an inch. The finer the gap (gauge) the closer the yarn is together.



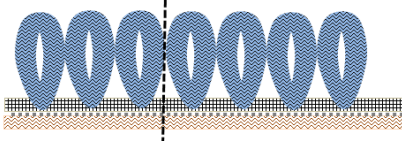
1/12<sup>th</sup> gauge is 1/12<sup>th</sup> of an inch distance between the needles.

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## 5.5 CUTTING A TUFTED CARPET SEAM

Depending on the carpet

- Cutting between the pile is the recommended practice for cutting a tufted carpet seam.



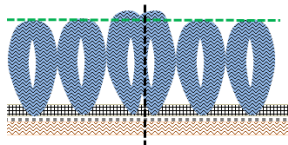
- Finding the row to cut through on a fine gauged carpet may require the use of a thinner row-finder tool.



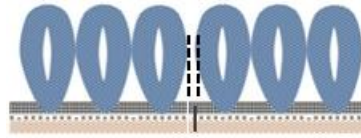
- When cutting wider gauged carpets, the gap between the pile should be cut to allow each cut edge to replicate the gaps between the pile across the carpet when the carpet is seamed together.



- Avoid cutting the edge too close to the pile. When the two edges are seamed together it will compress and raise the pile at the seam.

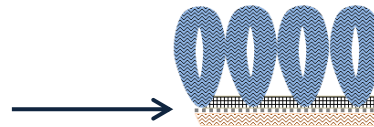


- Avoid leaving too much selvedge when cutting between the pile. This will create a visible gap between the pile when they are seamed together.



- The edge should be cleanly cut with enough backing overhang to support the yarn bond at the base.

- Avoid cutting into the base of the pile. This will weaken the pile bond at the edge.



- With future vacuuming and foot traffic the pile and primary backing will eventually sprout upwards.

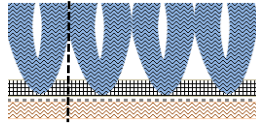


Various gauged carpets will often require a change in row-finder tools and cutting techniques.

When choosing the row to cut, come into a point where the backings are firmly adhered together and are not delaminating. Check also that the pile height is the same before seaming the carpet together.

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- Cutting through the row of a cut pile tufted carpet is also the best practice technique.



Aligning the straightedge with the backing strands of the secondary backing does not guarantee it is aligned with the row of a pile. The backings are often cross hatched and are adhered to the carpet after the rows of pile have been sewn into the primary backing.

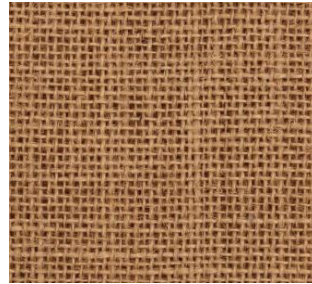


Row finders for cut pile carpets

- Use a row finder with a fine end to get down to the backing and separate the pile.
- In some situations this may not always be the best option if a carpet has a slight shift stitch or it may be a heavy carpet with a stiff backing that is not consistently straight along the edge.

If the alternative option to use a straightedge and cutting through from the back is selected, this method must be acceptable to the carpet manufacturer as cutting across rows may not suit the way the yarn is stitched into the backing.

- When using this method, place the metal straight edge as close as possible to a row and cut through the backing with a knife that has a well secured sharp blade.



Cross hatched woven jute secondary backing



Cross hatched woven synthetic secondary backing



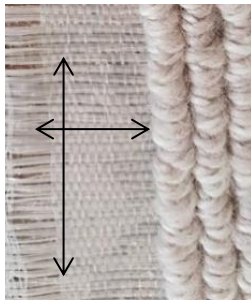
# PROJECT FLOORS

## 5.6 SEALING THE EDGES OF A TUFTED SEAM

A tufted carpet is a textile made up of interlaced backings and yarn. Latex adhesive is used to bind it all together. When carpet is cut along the edge, the interlaced strands are weakened making the cut edge at risk of unravelling, delamination and tuft loss.

Sealing the cut edges of a tufted carpet re-binds together both the primary and secondary backings along with the tufts into the backings. It is a requirement in [AS/NZS 2455.1:1:2007](#) and carpet manufacturers' worldwide.

- Primary backing is often cross hatched strands of polypropylene.



- Latex adhesive is applied over the backing to hold the yarn and backing together.

Both cut edges of a tufted carpet are to be sealed—the amount of sealer applied should be just enough to bind together the primary and secondary backings of each cut edge. After applied, the sealer should be wiped into the edge so there are no loose strands standing up and importantly the two cut edges can butt tightly together.

Applying too much seam sealer adds no benefit to the seaming process. It only increases the risk of excess sealer contacting or spilling onto the base of the pile, plus it can prevent the cut edges from butting tightly together.

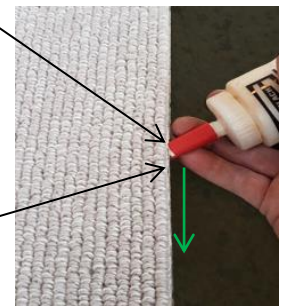


- The type of bottle above is very effective if used correctly.

- The back of the tip pushes the sealer into the edge as it is pulled along the edge. The lip governs the sealer on the backings so it does not touch the yarn above the backing.

- The tip with a slight open angle will allow the sealer to flow out.

- After the sealer is applied, wipe the sealer into the carpet edge making sure any loose primary backing strands are removed or sealed back into the edge and allow the two cut edges to butt tightly together.



Holding the bottle angled the opposing way will allow the sealer to flow out with little control and risk excess adhesive on the edge and spillage over the floor.



Block off the tip end as soon as the adhesive is applied to prevent clogging; and clean regularly.

By the nature of friction created between the carpet backing and the tip, the tips do wear down and will need replacing when they are no longer effective.

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## 5.7 SEAM PLANNING

Carpet seams will always be visible. How noticeable they will be is influenced by the type of carpet, installation system, where the seams are placed, the number of seams, the natural light, the colour and design of the carpet, the size and shape of an area and the quality of the seaming process.

Because of the varying shapes and sizes of buildings, planning the seam placement is a process of elimination.

- Seams where possible should run with the length of a room.
- Natural light should run with the seam rather than across the seam.
- Cross joins should be minimised where possible. It should be first determined at the planning stage if cross joining the carpet is recommended by the manufacturer.
- Cross joins (T joins) are not placed in doorways.
- Seam placement avoided where there will be turning/pivoting foot traffic.
- Where possible the pile direction should face away from natural light and run towards the main entry of an area.
- Fills in a room should be placed on the opposing side of a door. If there is a situation where it is better suited in terms of quality to place the join on the door side of a room, an agreement with the customer should be obtained before the installation starts.

Apart from a requirement of [AS/NZS 2455.1:1:2007](#), making the plan available to the customer before the installation begins, will clarify the areas to be installed, carpet type, colour, approximate seam placement, transition bars, underlay (if applicable) and a description of the work.

# PROJECT FLOORS

## 5.8 SEAMING CARPET

One of the most challenging tasks for a carpet installer is to make perfect carpet seams on a consistent basis. It is a craft that takes great care, skill and knowledge with virtually little room for error.

Visible seams are normal, they are not a fault. Some carpet types, designs and colours, loop pile/texture will be more noticeable than others. Natural light casting across the seam will also highlight a seam. In some situations, natural light across the seam can cause a shadowing effect at the seam.

### Tips for seaming!

- Seam with the carpet nap direction. Seaming against the pile may stand the pile up which can reflect the light differently to the rest of the carpet making the seam look discoloured.

'Low and slow with the heat iron'. The adhesive must be fully melted, evenly spread and well transferred into the carpet backing. Setting the heat too hot can cause discolouration at the seam and damage to synthetic-backed carpets.

- The two carpet backing edges should finish flush and butt neatly together without the backings overlapping or gapping. The pile should stand freely and not get trapped between the backings.



Textured loop piles or piles with a slight shift stitch should be meshed together like a zip.

- Use of a roller can help disperse the adhesive into the backing.
- The smooth surface roller is less harsh than the spikey roller.
- The spikey roller is more suited to low level loop pile carpets on adhesive bonded installations.
- Rollers with spikes may cause damage to cut pile carpets that cannot be repaired.



Smooth surface roller

Spikey roller

- Seam weights used should be able to absorb and release heat and moisture as the heat tape cools. Metal or plastic tool box trays can prevent the heat and any moisture created during seaming from dispersing. This can cause seam discolouration, pile reversal or release the pre-set pile twist.
- Regularly removing the excess adhesive from the iron bottom will prevent the build-up of old burnt adhesive that can create a barrier between the bottom plate and the heat tape adhesive. Plus, a clean iron will release less smoke during the seaming process.

# PROJECT FLOORS

Peaking seams are normal and are explained by physics. They are not a fault. Conventional installation requires the carpet to be stretched in both directions. If the carpet is not sufficiently stretched across the width of the carpet, wrinkles may start to appear at a later stage; often along the length of the carpet first.

The seam is the weakest point and when stretched across the carpet it will naturally rise at that point.



## Seaming points:

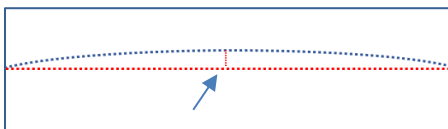
- ✓ Plan the seams so the light casts along the seam rather than across it.
- ✓ Stretch the carpet tighter along the seam rather than across it. This will reduce the pressure at the seam.
- ✓ Plan the stretching sequence to avoid the stretcher head being placed close to the seam when stretching across it.
- ✓ Use high quality heat tape. Wide heat tape with loop pile/texture seams in open areas can help with reducing the peaking appearance.

To help with matching patterned / textured carpets, plan ahead to pre-cut and lay out lengths in an ambient environment. This will release any roll tension that could cause mismatching.

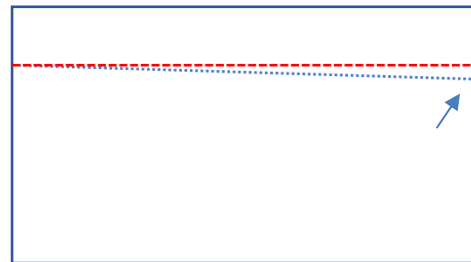
## Patterned/textured carpet

As much as carpet manufacturers do their best to keep patterns and textures straight when producing carpets by the tufted method. The weight and size of materials needed, combined with the process of stitching yarn into a moving backing then bonding a secondary backing does provide challenges when producing carpets.

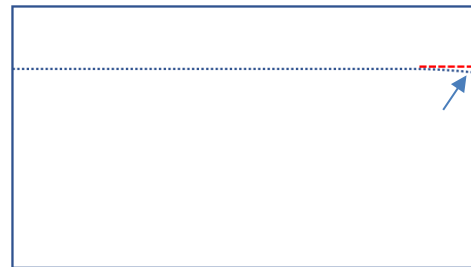
Each carpet manufacturer will have tolerances relative to their carpet. This can be up to 40mm across the width. The following illustrations are common terms used for describing how straight a carpet is in both the width and length.



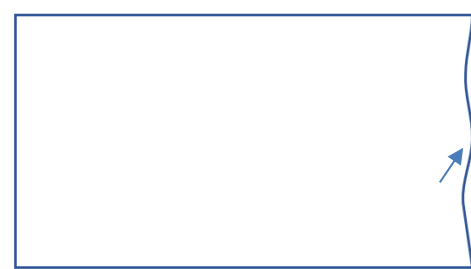
**Illustration 1:** Bow (pattern bend) across the width of the carpet.



**Illustration 2:** Skew (squareness) across the width of the carpet.



**Illustration 3:** Pattern drop-off (hook) on the side of the carpet.



**Illustration 4:** The movement in and out along the length of the carpet edge in a s-shaped pattern. This can be up to 25mm.

While in most situations a power stretcher will pull the edge straight, if there is an isolated sudden indent along the edge it is unlikely this can be stretched out.

Heat tape will not stretch at the same rate as the carpet. Where possible, pre-stretching the carpet edges before seaming helps with the tensioning process. It can also help straighten and pull the carpet edges together.



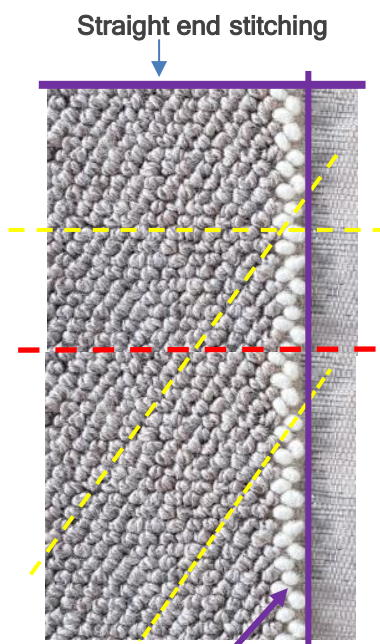
# PROJECT FLOORS

## Cross joins

Cross joins should always be minimised and planned out in advance at the point of sale. Apart from aesthetic reasons, because the yarn stitching runs continuously through the length of a tufted carpet, the yarn will be cut when a cross join is performed. Performing cross joins takes great skill and care with clean precise cutting using sharp tools. Both carpet edges should be sealed to lock the cut yarn ends into the backings, as set out in both [AS/NZS 2455.1:1:2007](#) and manufacturer installation instructions.

The stitching type for the carpet should be first considered as to whether it is possible to successfully join the carpet end to end.

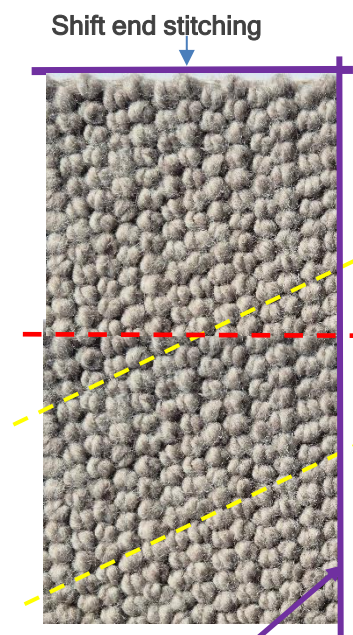
**Photo 1** - carpets with a slight shift stitch (zipper affect) along the length of the carpet may have straight stitch across the end. These carpets will be easier to cut between the row. If the stitching is close together, a fine row finder will help to clear and open the row so the cut can be cleanly made.



**Photo 1:** Side shift stitch (in-and-out) with a straight end stitch.

**Photo 2** - carpets with a straight stitch along the side may have a slight shift (zipper affect) across the end. These carpets require high skill and care when cutting across the end.

When preparing a join, a fine bladed row finder diagonally and straight through the join can be used to check the texture lines up.



**Photo 2:** Side straight stitch with a shift end stitch (zipper affect).



**Photo 3:** Use a fine bladed row finder to open the pile across the carpet.



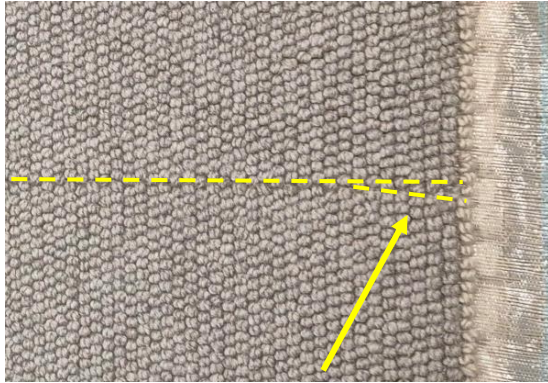
**Photo 4:** A fine bladed row finder through the angle will assist lining up the cross join.



# PROJECT FLOORS

## Working with loop pile carpet edge drop off

Where pattern/machine shift line drop off at the carpet edge is apparent, trim off as much selvage as possible; first make sure that there is enough carpet to do so.

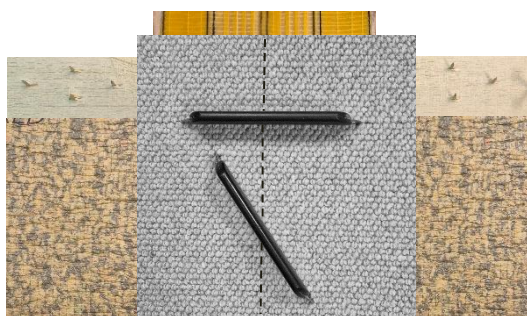


Trim selvage to remove drop off

If it is minor, heat seaming against the drop off may help straighten up the row. If this requires seaming against the pile direction, immediately after seaming the join, brush gently by hand towards the pile lay.

**Pre stretching**—seams can help with lining up patterns / textures. It may also be an option if there is a larger edge drop off.

**Step 1:** Set up the starting point so that the pre stretching of the seam will be against the hook. After trimming and sealing both edges, place heat tape under the seam. Using a row finder, line both carpet ends and attach the carpet to the gripper.

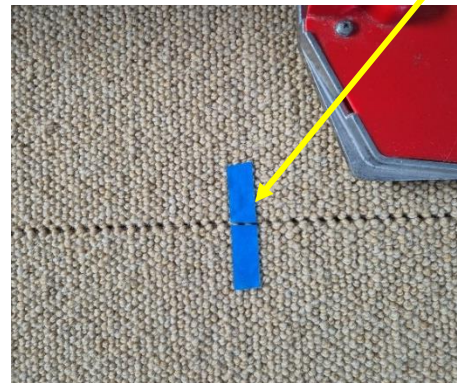


**Illustration 3:** Straightening up the carpet rows when attaching to the carpet gripper will create pressure if there is a hook.

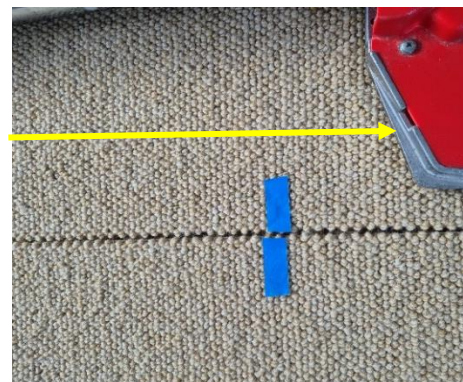
Depending on the size of the hook a slight bubble will be created around the skirting area.

**Step 2:** This step is an option that takes the guess work out of how much to pre stretch the join and helps to prevent over stretching one side of the join which could cause a texture mismatch somewhere along the seam.

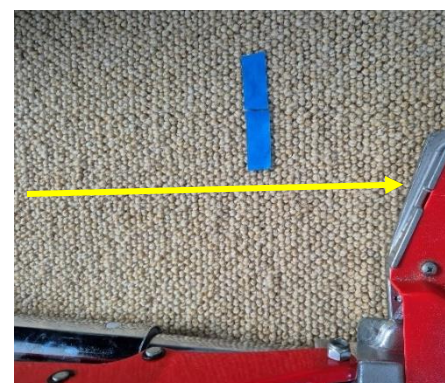
After setting up the stretcher place a piece of masking tape across the seam just behind the stretcher head; then cut the tape.



**Step 3:** Apply a small amount of tension to one side of the carpet gradually removing any bubbling at the fixed end. Do not over stretch. Attach the carpet to the gripper; at least the full width of the stretcher head.



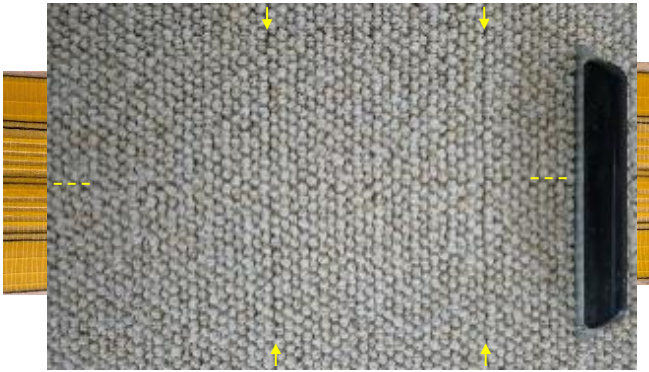
**Step 4:** Stretch up the joining carpet so the masking tape lines up again.



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**Step 5:** At this point you will see what work is needed to merge the seam like a zip when heat bonding. Using a row finder, check along the entire seam both straight and on the angle then adjust to match. The heat bond process will help also as the carpet will soften during seaming.

**Step 6:** Heat bond the seam. The row finder tool can be quickly used to check alignment during seaming against the hook. When the join cools the seam will need to be fully stretched during the installation



Check the join aligns across the carpet



Check the join aligns through the angle



# PROJECT FLOORS

## 5.9 STRETCHING CARPET

Using a power stretcher with the conventional gripper system is a requirement of [AS/NZS 2455.1:1:2007](#) plus carpet manufacturer's specifications world-wide.

The knee kicker is an assist tool (not a power stretcher) used to first attach the carpet to the carpet gripper before stretching. Also to assist the power stretcher in confined spaces where it is not possible to use a power stretcher.

Installing carpet to [AS/NZS 2455.1:1:2007](#) and manufacturer's specifications are a point of reference for the 'fit for purpose' criteria in the Consumer Law which all flooring businesses are obliged to meet.

While there is a basic approach to the stretching process, a lot of forward thinking is needed to plan for the starting point, change of shapes, angles, identifying and stretching away from fiddly areas.



- Always put a bit of thought in to the planning and setting out of the carpet before stretching.
- Make sure any seams and fills are **parallel** to walls, window frames and doors by check measuring before starting.
- Plan to stretch away from tricky areas where possible. Check that what you will be stretching off will be secure and can handle the pressure from the power stretcher.

### Working with loop pile carpets



**Photo 1:** Ribbing and skirting when finishing to low door frames, tile transitions or any open visual areas provides a tidy consistent edge and reduces the risk of tufts sprouting with vacuuming.



**Photo 2:** Keep the gripper a little closer at transitions.

- Allow carpet to tuck in. Rib as you go.
- The amount to allow might be one rib or two ribs depending on the carpet.
- Test an area first. Similarly, set the carpet trimmer and test.
- **'Do not trim flush'** the carpet must tuck into the gully (see page 55).
- Seal the edge and allow to dry before tucking in.
- Gently tuck **'Backing before Pile'** to prevent damaging the edge or pushing the pile off the backing.

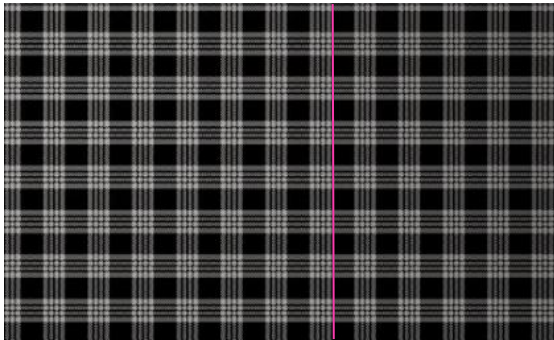




# PROJECT FLOORS

## Keeping patterns straight

When working with carpets that have strong defining patterns or lines as part of the colour / texture, a laser or string line can be a useful aid.



**Bowed walls**—or edges that are not straight, rather than skirt against a wall or visual edge that is bowed, a laser / string line can be used to help keep the pattern straight before attaching to the wall.

**Joining areas**—where carpet runs through dining, lounge and passages areas, a laser / string line can help as a quick check that lines are straight as the carpet flows through each room.

**Carpet**—pattern not straight or where there is excessive bow skew.

When there is a need to straighten up a pattern, the following steps using a string line can be a useful option.

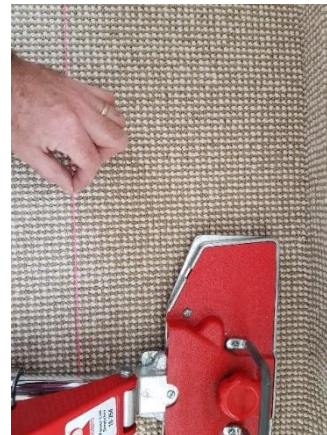
**Step 1:** Make a first stretch and attach the carpet to the gripper. Make a measurement that will allow the string line to run behind the stretcher head.



**Step 2:** A stay nail is needed at both corners of the wall that is to be stretched to. Hook up and pull the string line taut between both stay nails.



**Step 2:** Stretch up half a stretcher head at a time— lining up the pattern with the string line. Attach to the gripper. Ping the string line as you go as some piles will pull the string line with the stretch.



If the 2<sup>nd</sup> stay nail is placed through the carpet, this will need to be removed as the stretch gets closer to it.



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Before stretching the pin plates for both the power stretcher and knee kicker should be adjusted for the type of carpet to be installed.

- When attaching the carpet to the gripper, tension created with the knee kicker should allow the carpet to hook the carpet over the gripper pins.
- Be careful **not to flatten the pins** when attaching the carpet. The carpet should be tort on the gripper.



- Power stretching in both directions is part of the process and a requirement in AS/NZS 2455.1:1:2007. While joins will be more visible with tension on the width as they rise, if the carpet is not sufficiently stretched across the width of the carpet, wrinkles may gradually develop along the length of the carpet at a later stage (carpet tends to relax more in the width than the length).

Wrinkles can also develop over time if the area is regularly exposed to wheeled traffic e.g. wheel chairs. The installation system in this situation may be better suited for a bonded or double-bonded method.

- If recommended by the carpet manufacturer, a re-stretcher can also be used as an assist tool to the power stretcher in situations where a power stretcher will not fit or there is part of a room that has no sound support to power stretch from.



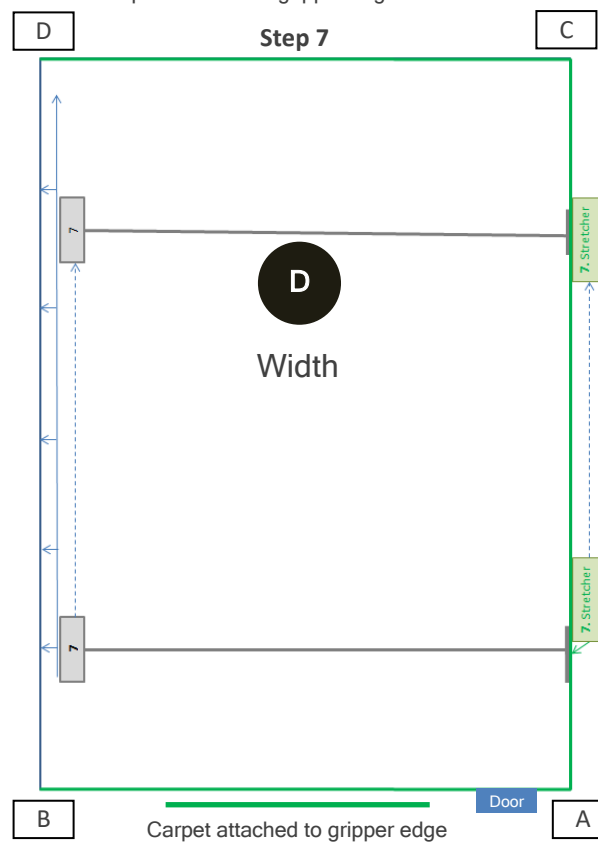
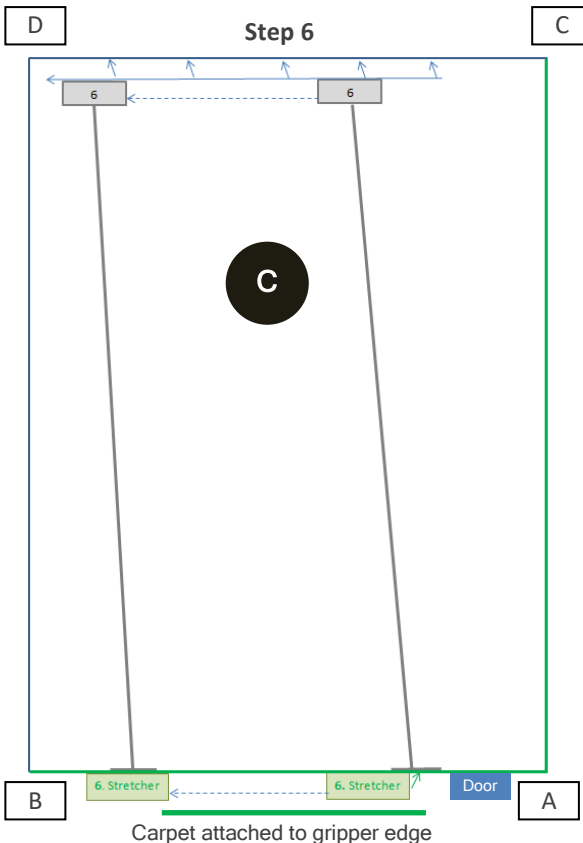
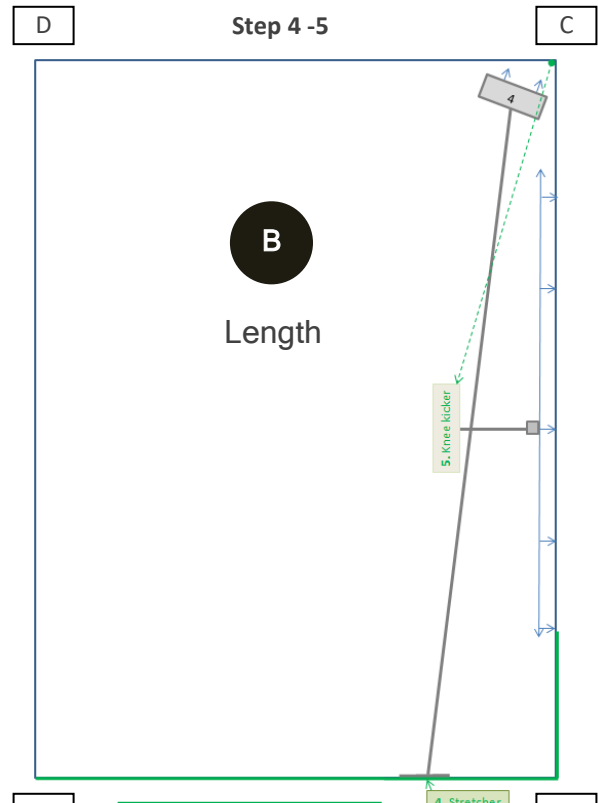
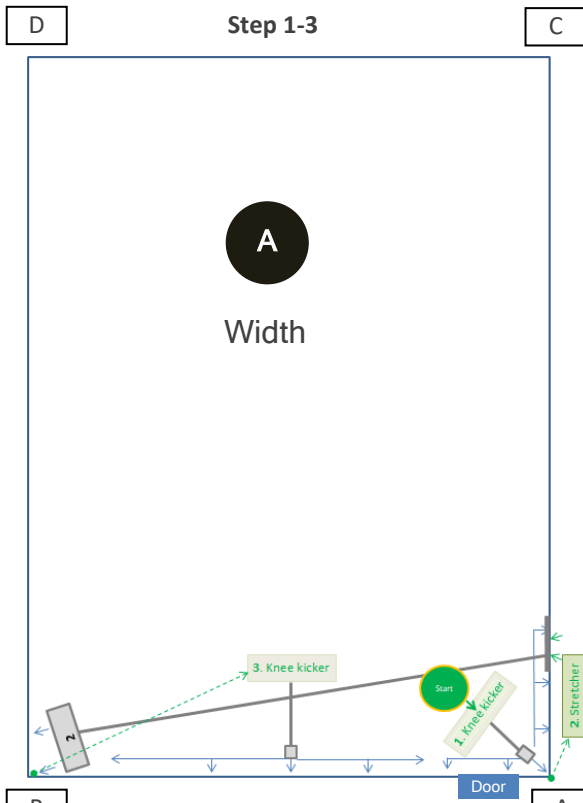
- Because of the different backing types and heaviness of carpet, the amount of stretch needed should be in line with the carpet manufacturer instructions. Where there is no recommendation 1% in length and width as a gauge is often used.



- In situations with long stretches and/or heavy carpets, a smaller stretch taken first can help maximise the tension when the full length stretch is taken.

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The size and shape of a room will determine the stretching sequence. The following two-way power stretch guide is a common method used if there is no recommendation from the carpet manufacturer. A rule of thumb when planning where to start is to stretch away from the tricky areas where possible.





# PROJECT FLOORS

## 5.10 TRIMMING AND TUCKING

Accurate consistent trimming at the edges is an important part of the carpet gripper method. A small surplus of carpet is needed as an allowance to tuck over the gripper pins and lock the carpet into the gully.

Too much allowance when trimming and the carpet will struggle to fit into the gully and cause the carpet to double back on itself leaving an untidy finish.

With no allowance to tuck over the gripper, the carpet will soon ride off the gripper and allow the carpet to lose tension. It will also unravel at the edges.

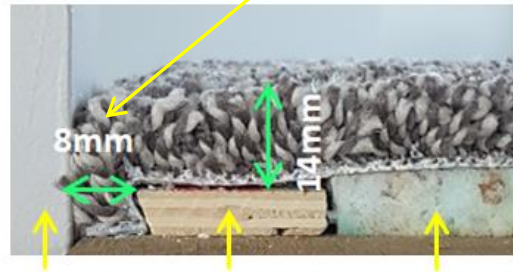
- Trimmer setting is approximate to the carpet gripper thickness riding up the skirting; approximately 7mm up from the crease point.



Both the trimming and tucking process involves brushing against the skirting. It is quite possible that paint touch ups could be needed after the installation particularly where paint is fresh and has not had sufficient time to cure. This should be discussed with the customer at the planning stage.

- ✓ Tucking carpet in at the edge should lock in over the gripper pins.

Gripper gap allowance to skirting is no more than 60% of the carpet. Example is an 8mm gap for a 14mm carpet height.

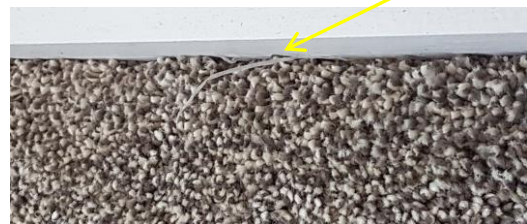


Skirting      Carpet gripper      Underlay

- ✗ If the carpet is cut short or flush, the backing is not locking over the pins. Over time with foot traffic and vacuuming the carpet can work loose on the pins and lose tension. Fraying at the edge may also occur.

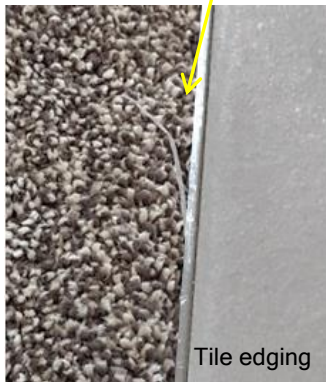


- Any loose strands should be trimmed off and removed. If not, over time with vacuuming they will continue to reappear.



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- **Finishing to a tile edge** - depending on the carpet type and manufacturer instructions, trimming and tucking carpet into a tile edge may need the cut edge of the carpet sealed before tucking into the edge. Sealing will help protect the cut edge and prevent future unravelling or backing strands sprouting caused with foot traffic and vacuuming. Lightly flatten pins with low gauge carpets, or use low pinned gripper where necessary.



- Heavy backed carpets may be more suited or recommended by the carpet manufacturer, to use a pinned carpet-to-tile transition bar up against a tiled edge.



**Tile edging trim**—trim the carpet into end.

- **Finishing to a tile edge trim**—trim the carpet so the cut edge reaches into the back of the bar beyond the top edge.
- **Finishing to a naplock bar**—cut the bar with a 0.5mm gap from each end. A fine gap is allowed to prevent damage to the door jamb or skirting when it is folded down.



- Trim the carpet so the cut edge reaches into the back of the bar beyond the top of the fold.



**Naplock bar**—trim the carpet into the end.

Any transition bar should be securely fixed and follow a straight line. Long lengths should be set to a laser or string line.

- Use a rubber mallet or place a round edged block of wood on the bar to tap down with a mallet.
- Up against doorjamb where the mallet will not reach use a block of wood and tap down with the mallet.



Vacuuming on completion not only enhances the professional image of a flooring company to the customer, it also provides the opportunity for the installer to check and tidy up any loose tufts and backing strands at the skirting and doorjamb.

