

## Double, Two Unpaired Ties, 1:4 Ratio, “4:1 Beiderwand”

### Emery Classification

**Weave Compounded by Adding Sets of Elements, Supplementary:** one warp, two wefts, one of which is not needed for the integrity of the cloth.

### Weaving Category

**Tied Unit Weave;** the supplementary element is an *additional weft* which forms blocks of patterning. The structure is a double, two unpaired ties, 1:4 ratio, explained in the drawdown. This structure is sometimes called beiderwand because there are two layers of fabric with the blocks. However, true beiderwand is a double weave, two warps and two wefts. Here there is only one warp. Donna Sullivan cautions against using this name. The German word translates to “two walls”.

### Fabric Characteristics

Below is the front of the fabric.

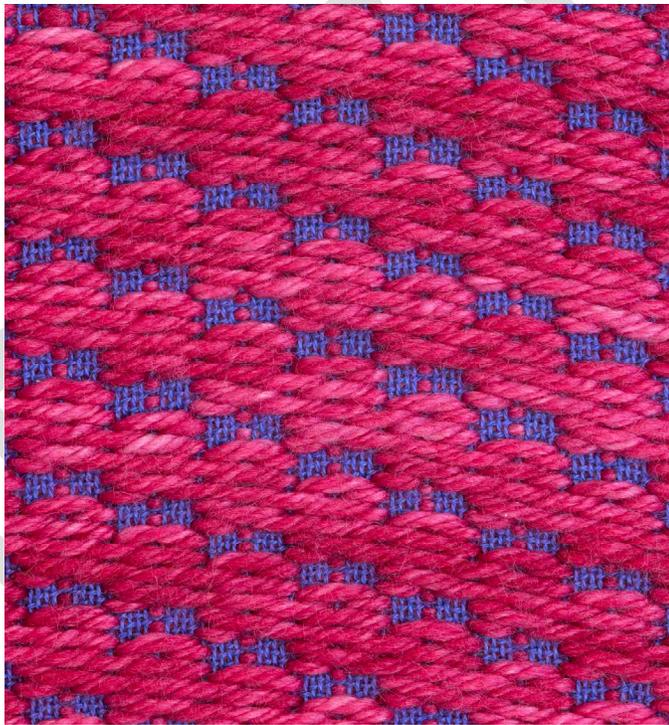


1 “4:1 Beiderwand”

The fabric has staggered floats, similar to other tied unit weaves and one column of weft showing through the background. The three blocks are threaded continuously.

As we all supplementary weaves, the fabric is formed by a warp, a ground weft and a supplementary weft. The warp and the ground weft form the ground cloth that gives the fabric its integrity. They are usually the same size, but sometimes the ground weft is smaller. The supplementary weft is usually larger to show the pattern and loftier to pack in the web.

Plain weave forms on the other side of the weft blocks; in this fabric sample it is visible on both sides. Below is the back of the fabric.

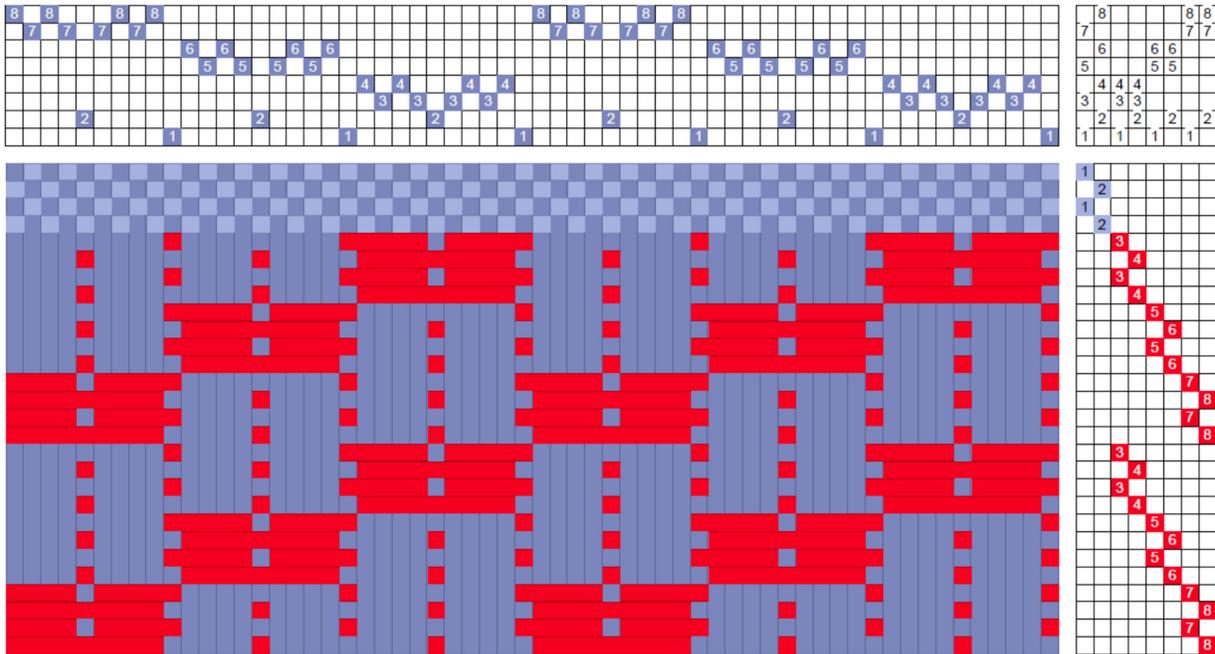


## Drawdown

The *sinking shed* drawdown that follows shows the three blocks available on eight shafts, repeated, and explains the nomenclature of the structure: double, two unpaired ties, 1:4 ratio.

*Double* refers to the *two shafts* per block. There are *two ties*, shafts 1 and 2. The ties are *unpaired* because they are *separated* by the two pattern shafts. The ratio is 1:4 because there are two ties per block and eight pattern threads (not pattern shafts); two to eight reduces to 1:4. To obtain the 1:4 ratio, the pattern shafts are organized in an extended reverse pointed twill with two

repeats separated by the tie on shaft 2 which forms the point. Each block starts with the tie on shaft 1.

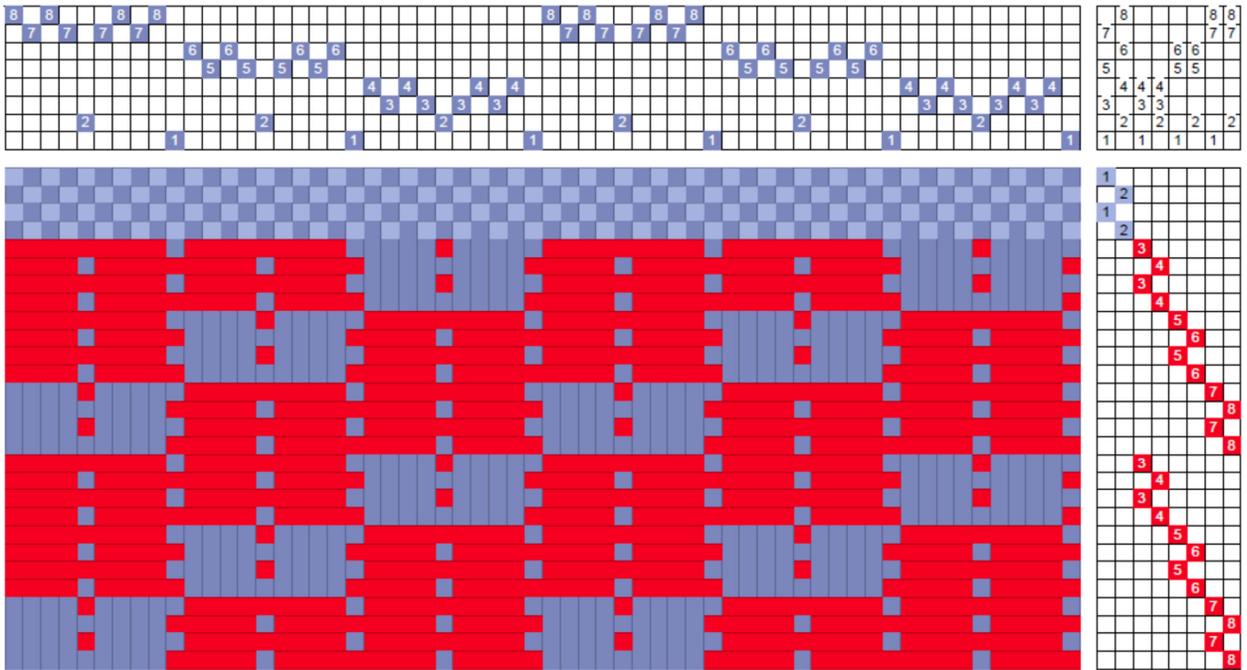


The treadling shows two repeats of the three blocks. For each block, the two picks are: tabby on shaft 1 plus all pattern shafts of the block, followed by tabby on shaft 2 plus all pattern shafts of that block. The two picks are repeated as desired.

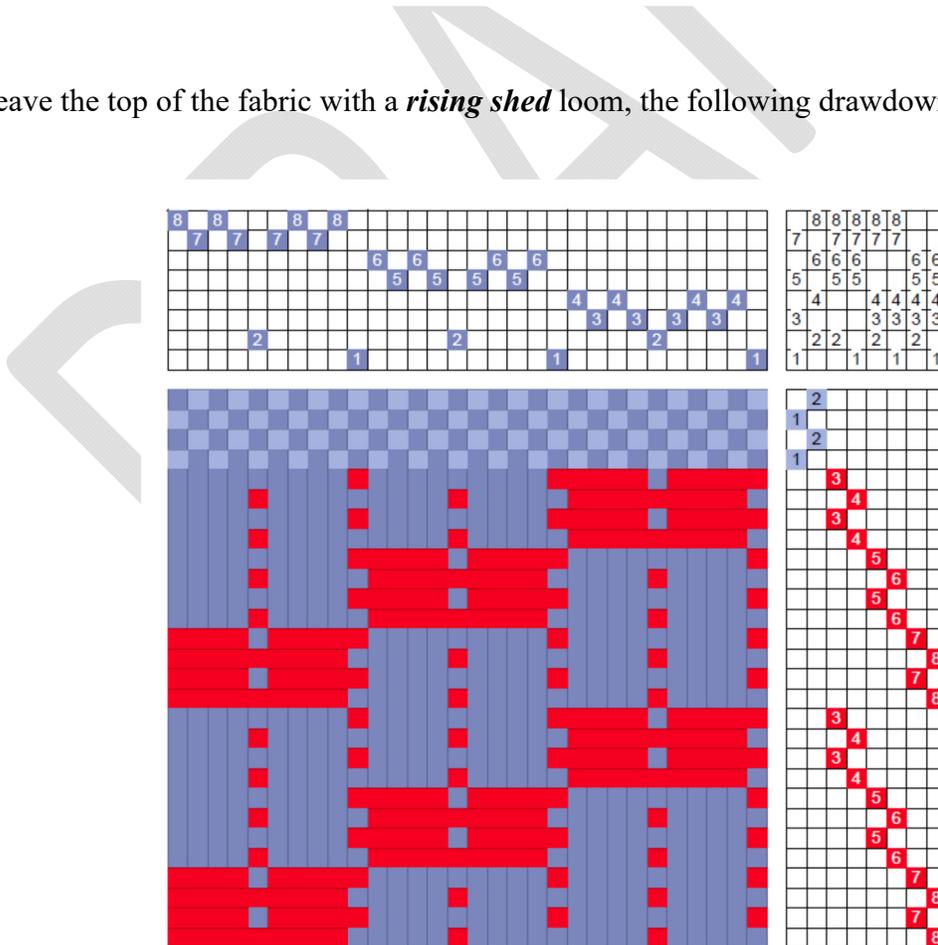
Not shown in the drawdown is that each pattern pick used in treadling order is followed by one of the tabbies; they intersect with the warp to form the ground cloth.

The tabbies are all odd shafts vs. all even shafts. This results in the plain weave background, shown in the drawdown.

Next is the *rising shed* drawdown showing the other side of the fabric.



To weave the top of the fabric with a *rising shed* loom, the following drawdown can be used.



4 "4:1 Beiderwand"

## **Function**

As we usually find in tied unit weaves, this fabric is used for household textiles. However, a single block has weft floats alternating over seven and five threads. The fabric sample shows some sagging of the floats in the front. Thus, appropriate yarns size and sett must be used to avoid snagging.

## **Sett**

To allow room for the supplementary weft, the sett should be more open than the one for plain weave. The sample was woven using 10/2 mercerized cotton sett at 18 epi, more open than the 24 epi I may use for plain weave. However, as mentioned above floats that resulted from using this yarn were sagging, so smaller yarn for warp would be preferable.

## **Width of Blocks**

The width of the block is ten threads. In the fabric sample the blocks are singles. As with all tied unit weaves, blocks can be repeated in the threading and combined in the treadling.

The weft floats in each block alternate between over seven threads and over five. The floats are delimited either by the warp of the tie thread on shaft 2 or the first pattern warp thread of the adjacent block.

## **Number of Blocks Available**

There are three blocks with eight shafts; two shafts are used for tabbies and shared by all blocks; two shafts are needed for each pattern block. Thus, every additional block required two additional shafts.

## **Notes**

The “4:1” designation on the Beiderwand name comes from the way true Beiderwand is woven. See the reference by Madelyn Van der Hoogt for the explanation.

The treadling shown is referred to as “singles” in summer and winter. The other classical treadlings of “in pairs” from summer and winter can also be used.

## References

Emery, Irene. *The Primary Structure of Fabrics*. Washington, D.C.: The Textile Museum, 1980.

Strickler, Carol (ed.) *A Weaver's Book of 8-Shaft Patterns from the Friends of Handwoven*.

Loveland, CO: Interweave Press, 1991.

Sullivan, Donna. *Summer & Winter. A Weave for All Seasons*. Loveland, CO: Interweave Press, 1991.

Van der Hoogt, Madelyn. <https://handwovenmagazine.com/doubleweave-part-2-beiderwand-and-lampas/>, November 24, 2015.

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