**Lecture 4& 5: Understanding Fabric Design and Analysis**

**Different drafting system**

**System of drafting/Classification of drafting**:

1. Straight draft.
2. Skip draft.
3. Pointed draft/ V –draft.
4. Broken draft.
5. Divided draft.
6. Grouped draft.
7. Combined draft.
8. Curved draft.

**1. Straight draft.**

* This draft is the simplest type of draft which forms the basis of many other drafts.
* It is the most common draft and it can be used with any number of heald shafts.
* Each successive thread is drawn on each successive heald shaft. The 1st thread is drawn through the first heald shaft and the 2nd through the second shaft and so on.  
  So the no. of heald shaft equals the no. of warp threads in a repeat.
* Used in twill design.

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| --- | --- | --- | --- | --- | --- | --- |
| 5 |  |  |  |  | X |  |
| 4 |  |  |  | X |  |  |
| 3 |  |  | X |  |  |  |
| 2 |  | X |  |  |  |  |
| 1 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |
| DRAFT PLAN (STRAIGHT) | | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  | X | X | X |  |
|  |  | X | X | X |  |  |
|  | X | X | X |  |  |  |
|  | X | X |  |  | X |  |
|  | X |  |  | X | X |  |
| # |  |  |  |  |  |  |
|  | WEAVE PLAN | | | | |  |

**2. Skip draft:**

* This draft is used in weaving the fabric with high density of warp threads.
* The no of heald used is multiple of 2 than the no of threads in warp repeat.
* This enables to decrease the density of heald on each shaft and to reduce the friction thread against thread and thread against shaft.
* In case plain of dividing each heald shafts into two, the odd number of threads are drawn through the 1st set of heald shafts and the even number of threads are drawn through the 2nd set.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 |  |  |  | X |  |  |  | X |
| 3 |  | X |  |  |  | X |  |  |
| 2 |  |  | X |  |  |  | X |  |
| 1 | X |  |  |  | X |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | DRAFTING PLAN (SKIP) | | | | | | | |
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|  |  |  |  |  |  |  |  |  |
|  |  | X |  | X |  | X |  | X |
|  | X |  | X |  | X |  | X |  |
|  |  | X |  | X |  | X |  | X |
|  | X |  | X |  | X |  | X |  |
|  |  | X |  | X |  | X |  | X |
|  | X |  | X |  | X |  | X |  |
|  |  | X |  | X |  | X |  | X |
|  | X |  | X |  | X |  | X |  |
| # |  |  |  |  |  |  |  |  |
|  |  | WEAVE PLAN | | | | |  |  |

**3. Pointed or V – draft:**

* Used to produce fabric with symmetrical design e.g. jig jag twill, Diamond.
* This is used where the straight draft can not be applied because large warps repeat.
* This draft can be considered as a combination of straight drafts.
* A straight draft is returned in the opposite direction at a predetermined point.
* The 1st and last heald shafts contain two warp ends.
* The number of heald shafts equals to half of the no of threads in warp repeat.



**4. Broken draft:**

* This draft can be considered as a modified pointed deaft.
* This is a combination of straight drafts with different directions of constructions.
* The direction is reversed the reversal of direction is not on the last or the first shaft as in pointed draft.
* When the direction is reversed the first thread of the next group is started higher or lower than the last thread of proceeding group.
* The last thread of 1st group is warp float and   
   1st thread of 2nd group is weft float
* The design is not considered to symmetrical design.
* Applied for producing herring bone twills, diaper design and so other design.



**5. Divided draft:**

* In this draft, the heald shafts are divided into two or more groups.
* For every group, suitable draft is selected.
* Used in double warp weaves, two ply weaves, pile weaves i.e. two or more set of warp yarns required.
* More frequently inter weaving threads are kept in the front heald shafts.
* In warp pile fabric, the ground warp threads are passed through the front heald shafts and the pile warp threads are passed through the front heald shafts and the pile warp threads are passed through the back heald shafts.



**6. Grouped draft:**

* This draft is used for producing check & stripe fabrics.
* Two sets of stripes are used in two set heald shafts.
* Warp of each group passed through a particular group of healds adjacently and the other set of warp is inserted through another group of healds adjacently.
* The repeat of draft is determined by the no. of stripes and the no. of threads in each stripe.



**7. Curved draft:**

* Used to produce decorated weave with large repeat unit.
* Used to reduce the no. of heald shafts.
* Irregular drafting and not classified.



**8. Combined draft:**

* In producing some special types of fabrics different type of drafts are required to be mixed.
* It is a very complicated type of draft.
* It can be chosen if there are some technological or economical reasons.
* Great experience is required for such drafting plan.



**Difference between Straight & Skip draft:**

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| Straight draft. | Skip draft. |
| 1. It is a straight type of draft. | 1. It is a cross draft. |
| 1. Straight draft is the simplest type draft and is the basis of many other drafts. | 1. It is comparatively a complicate type of draft. |
| 1. In case of straight draft design the weave plan and lifting plan are the same. | 1. Not same. |
| 1. In repeat the no of heald shafts is equal to the no of warp threads. | 1. The no of heald shafts are 2 or more times greater than the no of warp threads in a repeat. |
| 1. The heald shafts are individually lowered or lifted. | 1. A group of heald shafts (in each group 2 or more healds are lowered or lifted at a time. |
| 1. In twill design, this draft is used. | 1. In plain weave, this draft is used. |
| 1. The 1st thread is drawn through the 1st heald shaft and the 2nd through the 2nd shaft and so on. | 1. In case of dividing each heald shafts into two, the odd number of threads are drawn through the 1st set of heald shafts and the even number of heald shafts and the even number of threads are drawn through the 2nd set. |

**Difference between Broken draft & Divided Draft:**

|  |  |
| --- | --- |
| Broken draft | Divided draft. |
| 1. This draft can be considered as a modified pointed draft. | 1. It is a combination of two or more group of drafts. |
| 1. Heald shafts are not divided into two or more groups. | 1. Heald shafts are divided into two or more groups and for each group, suitable draft is chosen. |
| 1. In this draft, the direction is reversed the 1st thread of the next group is started higher or lower then the last thread of proceeding group. | 1. More frequently interweaving threads are kept in the front heald shafts. |
| 1. Used for producing herring bone twills, diaper design etc. | 1. Used for producing pile weaves, double warp weaves etc, two ply |