

## Procedure for Making Relationship Diagrams

Relationship diagramming is a central technique in Systematic Layout Planning (SLP). The *activity relationship diagram* converts vowel-letter ratings on the relationship chart to a graphic visualization of desired closeness among activity-areas. In the *space relationship diagram*, each activity-area is drawn to scale, thus showing the relative size (and sometimes the shape) of each area, as well as its best-related position.

The procedure for graphically making an activity-relationship diagram, based on the relationships of activity-areas having been charted, is as follows:

1. Starting with Activity-area 1, see if it relates to any other activity-area by an A rating.
2. If so, diagram this by starting more or less in the center of a plain piece of paper. Draw the symbol for Activity-area 1; place the numeral 1 inside it; about a half inch to the right, draw the symbol for the A-related activity-area and place its number inside; then connect the two symbols with four straight lines. Keep approximately one-sixteenth inch between each of the four lines. In metric, space symbols one centimeter apart and keep approximately two millimeters between lines.
3. Continue down the row for Activity-area 1, adding the respective symbol and number to the diagram for any A-rated relationships, placing each at the same half-inch distance from the symbol for the activity-area with which it bears an A rating. Continue for the row representing Activity-area 2, then 3, etc... Place these in the diagram, trying to maintain a half-inch distance between the symbols of each pair of A-related activity-areas. Don't try to look ahead. Progress down each of the rows until all A's are diagrammed. Don't worry if you have to start a second partial diagram below the first that is not connected to the first; it will connect up later on.
4. Count the number of 4-line relationships and be sure it equals the frequency count on the relationship chart for the number of A ratings.
5. If there are more than six or eight relationships diagrammed, the planner should redraw the diagram trying to get the symbols so located as to honor the half-inch distance for each set or bundle of four lines. Don't worry if the lines cross; don't worry if symbols hang off by themselves related only by one relationship.
6. After diagramming all A-rated relationships -- and redrawing, if necessary -- again go down each row, starting with Activity-area 1, and look for E-rated relationships.
7. Place these on the redrawn diagram of 4-line ratings. Place each symbol approximately one inch from any other E-related symbol, insofar as practically possible. Connect with three lines each pair of symbols representing an E-letter relationship.
8. Continue down the rows for all the activity-areas, diagramming E-rated relationships; count the number of 3-line relationships to be sure it equals the frequency count for E's on the relationship chart.

9. Redraw the diagram for best fit of A's and E's". Note: "best fit" is roughly that which makes the "area" inside each "band" of lines equal; but don't try for precision here. Of course, this redrawing may compromise the ideal of keeping the same distance between all symbols having the same relationship rating.
10. Continue similarly-down each row for the I's: add the related symbols to the diagram with two connecting lines; place symbols approximately two inches apart; count for correct number; and redraw the diagram. If either or both symbols are already drawn, connect them as they are located. Do not place any activity-area in the diagram more than once.
11. Diagram the O's the same way, placing them approximately three inches from other symbols having O-rated relationship. Ignore the U's. Diagram the X's with a zigzag or wiggly line. The zigzag is likened to a compressed spring pushing the symbols apart, just as the straight lines represent elastic bands pulling the activity-areas together.
12. Redraw the entire diagram for best fit. Check for inclusion of all relationships of each rating. Then color the relationships per the standard color code, which is similar to the sequence of the color spectrum.

You have now completed an activity relationship diagram. (See Figure on Page 3).

After determining the space required for each activity-area, and balancing the requirements against the space available, you are ready to make a space relationship diagram. The procedure is as follows:

1. Get a piece of gridded cross-section paper, preferably tracing paper, and establish a scale where one square equals a certain area.
2. Convert the space required for each activity-area on your space specifications sheet to a number of squares, at the scale established above.
3. Place the number of squares on the grid sheet "over" its respective symbol on the activity relationship diagram. Usually the "most-related activity-area" will be in the center and this is a good place to start.
4. Place the symbol and activity-area number inside the block of squares.
5. Add the number of lines between blocks as on the activity relationship diagram, letting them drift into each block for clearer legibility.
6. Honoring the relative positions of each activity-area, continue converting each to its respective block of squares.
7. When all blocks are diagramed, verify that they are all accounted for and that all relationship lines are shown.

8. Then color, or indicate by black-and-white shading, the type of space for each activity-area's block.
9. Note two things in addition: 1. The space relationship diagram will subsequently be adjusted to a conceptual or planned layout by moving the blocks together: 2. At the detail level of planning (Phase III), a template or drawing of each machine or piece of equipment will be used instead of a block of squares.

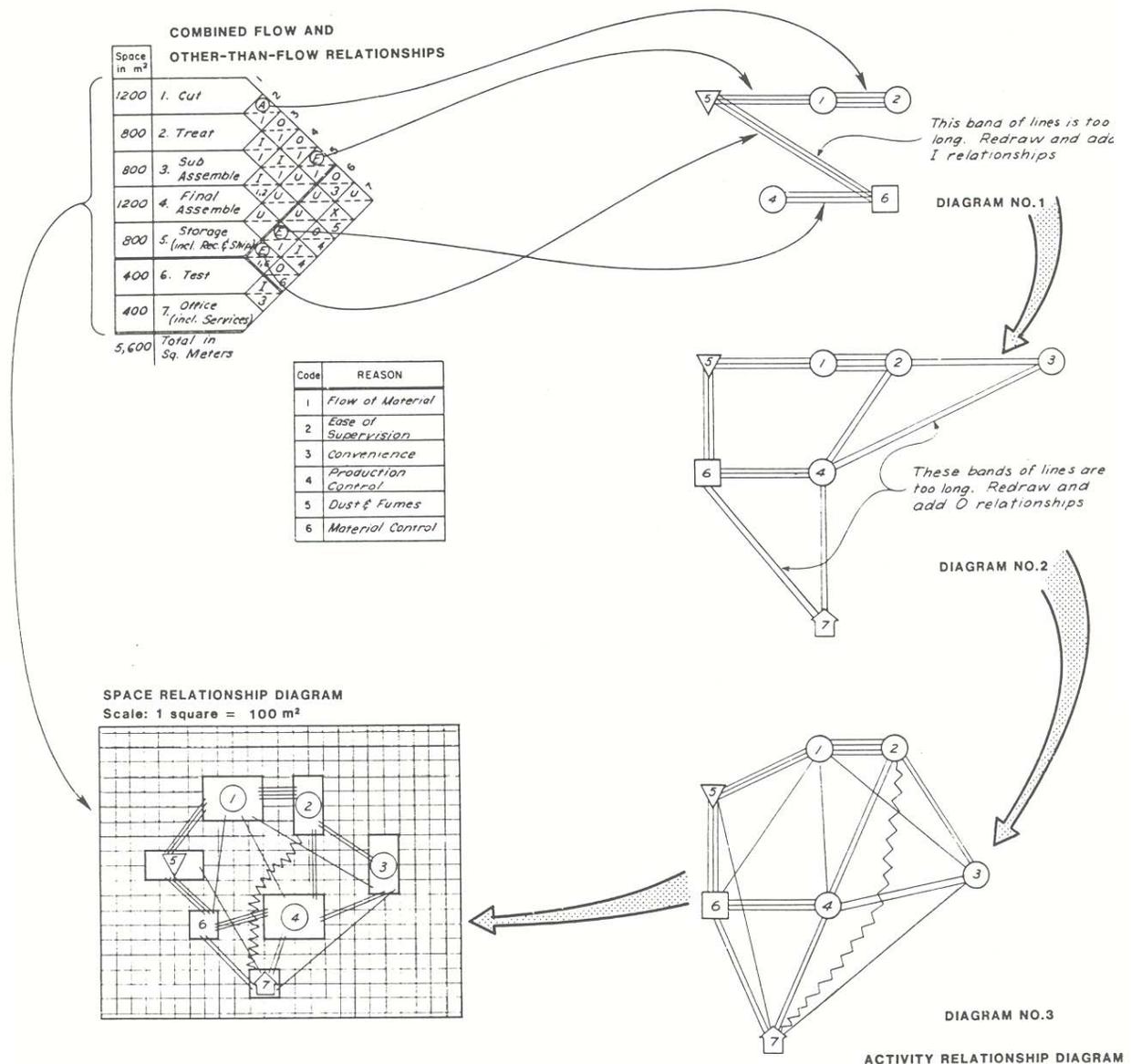


Figure: Constructing Relationship Diagrams

This Planning Guide is excerpted from Volume II of the two-volume set:

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For additional illustrations of activity-relationship diagramming, and for a good explanation of how to use the rated-and-reason supported relationship chart, see the booklet:

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