

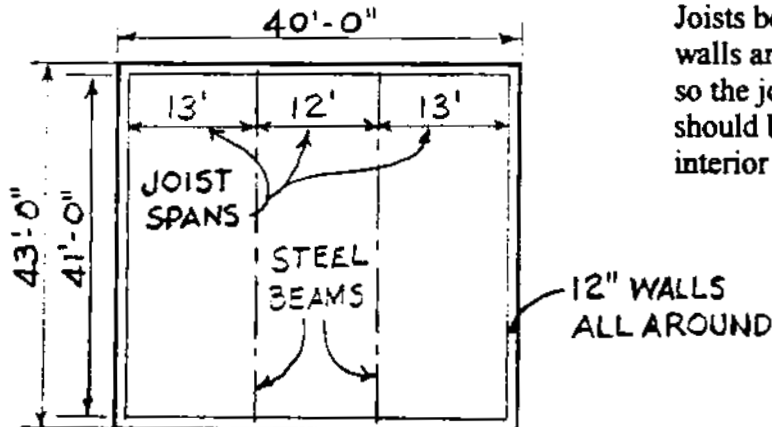
HOW TO PLAN FOR THE USE OF THE BLOCK JOIST SYSTEM

THE FIVE BASIC QUESTIONS TO ANSWER FIRST:

1. Is a fire resistance rating required? If so, how much? (1 hr., 2 hr., 3 hr., 4 hr.?)
2. Does the exposure call for hot-dip galvanizing the BLOCK JOISTS?
3. What are the joist spans required?
4. What is the superimposed load (dead load + live load) per square foot required?
5. Will there be a concrete topping?

A PRACTICAL EXAMPLE CAN BE HELPFUL:

Suppose a 40' x 43' platform will cover parking for six vehicles and provide support for a single-family wooden residence above. The structural layout looks like this:



Joists bear $3\frac{1}{4}$ " minimum on the 12" walls and can butt on the steel beams, so the joist length for the exterior bays should be $13'-3\frac{1}{2}"$, and for the interior bay $12'-0"$.

ANSWERS TO THE FIVE BASIC QUESTIONS FOR THIS EXAMPLE:

1. Fire rating required? - None specified (This system could provide a 3-hr. rating if needed.)
2. The unheated garage suggests the use of hot-dip galvanized BLOCK JOISTS.
3. Spans will be roughly 13' and 12'.
4. The specified superimposed load is 275 psf for the house and construction above.
5. There will be a concrete topping.

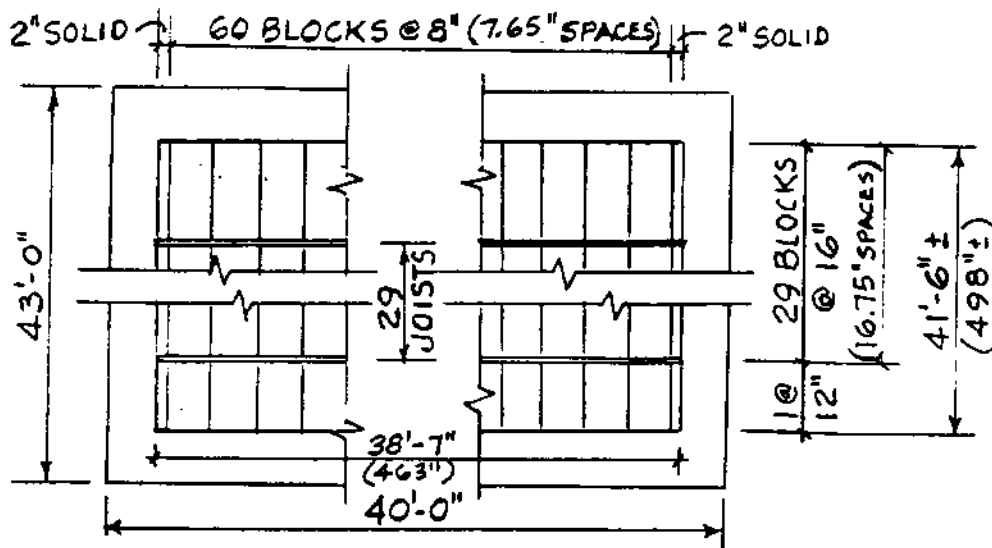
A look at the load tables for 8x8x16 and 8x8x24 blocks with toppings shows that a span of 13' supporting 275 psf requires the use of 8x8x16 blocks. The joist spacing will be 16.75" c-c. Converting the 41'-8" (assuming 4" block bearing on the parallel walls) to inches gives $12 \times 41 + 8 = 500"$. Dividing 500 by 16.75 = 29.85 spaces.

Allowing that the walls that are parallel to the joists will support the edge blocks means that 29 BLOCK JOISTS can support the 30 blocks, 29 of which can be 8x8x16 regulars and the last block can be an 8x8x12. (or an 8x8x14, if available.) ($0.85 \times 16.75 = 14.2"$) (block bearing on the walls can be less than 4")

Standard 7 5/8" high blocks should be figured to require 7.65" of space when butted firmly against one another. In this application the grouting should wait until all of the blocks in all three bays are in place. The joist length could be considered to be 13'-3 1/2" + 12'-0" + 13'-3 1/2", or 159 1/2" + 144" + 159 1/2", or 463". Dividing the 463" by 7.65" = 60.52 blocks. Therefore 60 regular 8x8x16's plus a 2" solid at each end would work nicely. (End blocks should usually be solid to prevent grout from running into the cores of the end blocks.)

Following the official Installation Instructions for the BLOCK JOIST System which are printed on the back covers of all of the color brochures, all of the joists in a bay are laid on their bearings and spaced with a block at each end. If the edge bearings are slightly different from those planned, shifting of the joists slightly to equalize the bearings of the edge blocks can be quickly and easily accomplished at that time.

THE BLOCK JOIST AND BLOCK LAYOUT WILL LOOK LIKE THIS:



The joist order for this example should be:

29 pcs. 7" BLOCK JOISTS, galvanized, x 12'-0" long
 58 pcs. " " " " " " x 13'-3 1/2" long

The blocks required for this example should be:

29 x 60 = 1,740 8x8x16 regular hollow blocks
 1 x 60 = 60 8x8x12 regular hollow blocks
 30 x 2 = 60 2x8x16 solid blocks (two will need to be cut to 12" long.)

- NOTES:
1. In this example the blocks can be regular blocks, that is, not BLOCK JOIST blocks, provided wire mesh is used in the concrete topping.
 2. Bearing pads will be 1/8" Korolath. They are automatically shipped with galvanized BLOCK JOISTS. No pads are needed on the steel beams, so their top elevation should be 1/8" higher than the top elevation of the bearing walls. (With a minimum 2" thick topping this is not a critical concern, however.)
 3. If the layout involves skews or other complexities, call the BLOCK JOIST Co.,LLC for help. (A computer program is available to lay out and list Bills of Materials for layouts that are not rectangular, but it only saves time for complicated layouts.)
 4. 8x8x24 blocks are generally not as uniform in height as 8x8x16's. Consequently, it is good practice to lay up a sufficient number of 8x8x24's and measure to see if the 7.65" spacing or some other number should be used. If the blocks do not meet ASTM C90 dimensional requirements (+ or - 1/8") do not attempt to use them!
 5. The two most important things to remember are:
 - (a) Joist center-to-center spacing should be 16.75" for 8x8x16 blocks, and 24.75" for 8x8x24 blocks.
 - (b) Block spacing should be 7.65" for standard blocks which are 7 5/8" high.