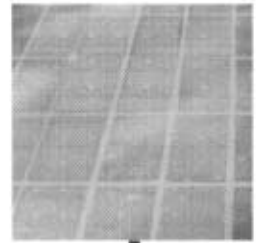
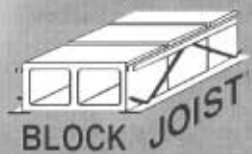


BLOCK JOIST™ SYSTEM



SPECIAL FEATURES OF THE BLOCK JOIST™ SYSTEM:

- LOW COST
- FIRE RESISTANT
- TERMITE-PROOF
- FAST & EASY TO
INSTALL
- ENERGY EFFICIENT
- ECOLOGICAL



**Mike Gaffney,
Gaffney & Associates
(Builder)**

I am building my fourth elevated terrace with the Block Joist™ System. It is also ideal for the parking level of 'over and under' garages. In a word, the Block Joist™ System is "wonderful".

**Randy Rinehart,
Rinehart Homes Ltd.
(Builder)**

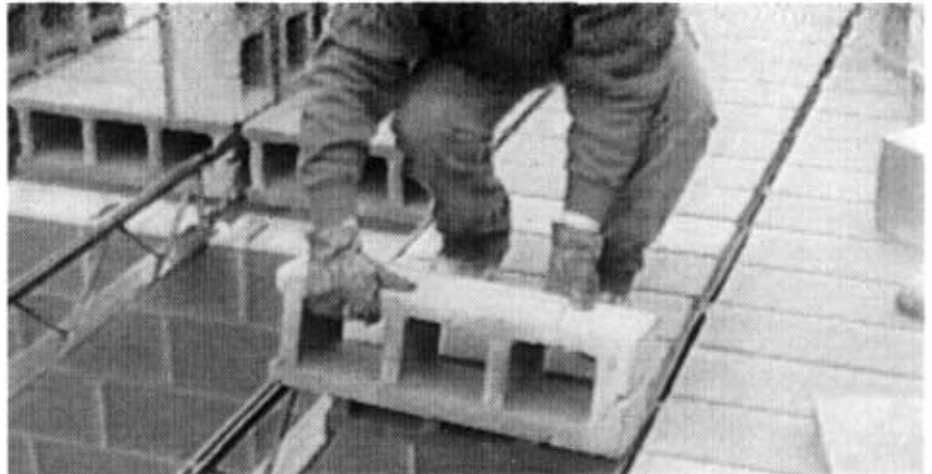
My client's eyes lit up when they realized that the Block Joist™ system was the perfect solution to some construction challenges they were facing. Its unique application is simple to use, eye-pleasing from an aesthetic point of view, and very definitely has a place in the building market.

**Dennis Moler, P.E.,
Moler & Associates
(Consulting Engineer)**

I like the Block Joist™ System because the design is simple and conservative. It doesn't require specially skilled installers, and yet it performs very well. The extensive research and development behind the system make me comfortable as a specifier.

What is the Block Joist™ System?

The name of this revolutionary building system says it all: Concrete blocks placed side-by-side on open web steel joists resulting in strong and level concrete floors and roofs. It's simple, quick and economical; the new and "sensible way to build your floor or roof".



The Ultimate in Simplicity

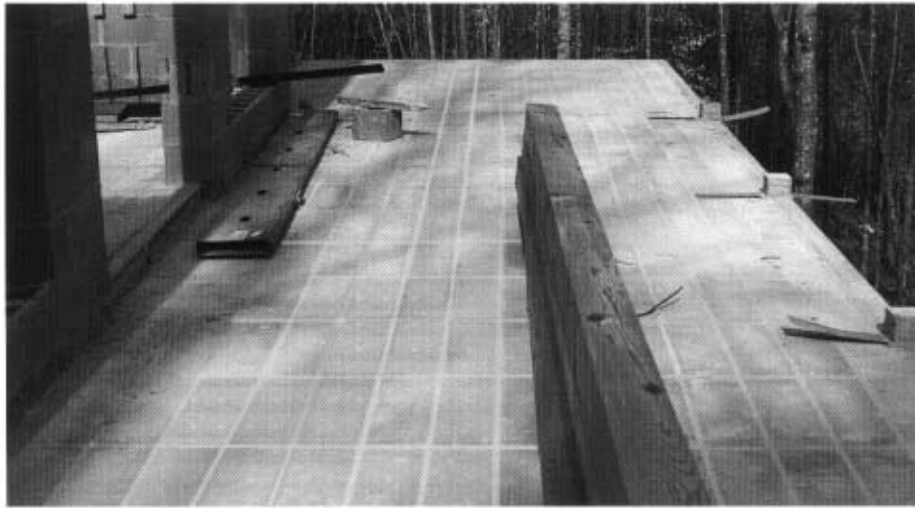
A Block Joist™ System installer needs only gloves, a spirit level, a pinch bar, a wide squeegee and a five-gallon bucket to follow these five simple steps:

- Step 1 Place the joists.
- Step 2 Place the concrete blocks between the joists.
- Step 3 Pour grout to fill the joists.
- Step 4 Place the transverse wires.
- Step 5 Dump grout on blocks & spread with a wide squeegee.

That's all there is to it!



Testing for construction loads on an ungrouted assembly



The porch at "Innovations '97"



The finished sun room

"Tough as Concrete and Strong as Steel"

Although relatively new to the construction scene, the Block Joist™ System has already won praise from both builders and engineers as a practical, sensible and highly effective way to construct concrete floors and roofs.

There are two types of patented Block Joist™ Systems:

1. The Fire-Resistive Block Joist™ System, which is designed as a simple-span reinforced concrete slab and can provide two-hour and three-hour ratings. (UL Design No. K907)
2. The Non-Combustible Block Joist System™, which is designed as a simple-span composite concrete slab with no reinforcing bars and no fire-resistance ratings.

**Doug Kingma,
Kingma
Developers, Inc.
(Builder of the
Blue Ridge Home
Builders
Association's
"Innovations 97"
Show Home)**

The ultra-durable Block Joist™ System is a wonderful product that is ideal when there is a need for greater rigidity or stronger load-bearing capabilities. The Show Home features the most innovative building techniques on the market today, and many of my clients are intrigued by the creative design of the Block Joist™ System.

**Pat Ellison
(Homeowner)**

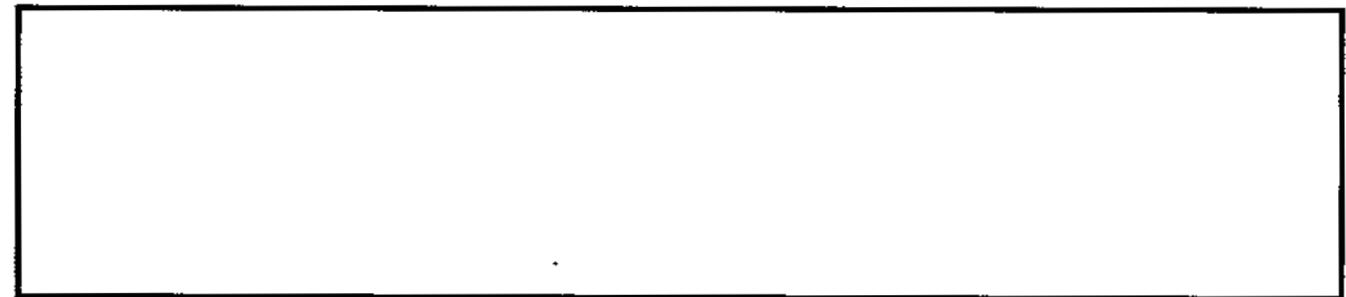
My sun room floor built with the Block Joist™ System gets compliments from everyone. The surface looks like hardwood, but is really vinyl strips that are applied directly to the concrete. No squeaking and no fear of termites, this Block Joist™ floor is a winner.

INSTALLATION INSTRUCTIONS FOR THE BLOCK JOIST™ SYSTEM, December 20, 1995 (As referenced by the codes)

1. Check the condition of all bearing walls and beams, verifying their proper location and elevation, and, if the walls are masonry, confirming that the top four inches are solid. Walls that vary more than 1 1/2 inches in elevation, or are not solid must be corrected before proceeding.
2. Set the Block Joists™ in accordance with the shop drawing layout. Block Joists™ must be supported at their ends at a point where the web bar is welded to the bottom chord. Make sure that the bearing lengths are at least 2 inches on steel and concrete bearing surfaces, and 3 1/4 inches on solid masonry unless the shop drawings specifically call for less than 3 1/4 inches, but in no case less than 2 inches. On concrete and masonry use bearing pads of 1/8 inch thick multi-monomer plastic (Korolath) for construction that will be exposed to moisture and either 1/8 inch thick tempered hardboard (Masonite) or plastic bearing pads for construction not exposed to moisture. These bearing pads may also be used as shims for correcting allowable variations in the elevations of concrete or masonry bearing surfaces. For bearing on steel beams, bearing pads are not needed but steel shims may be used to install the joists to the correct elevation.
3. Set one block at each end between each pair of joists. This assures the proper spacing of the joists and braces the ends of the interior joists. Brace the exterior joists throughout their length to prevent outward displacement. If there are no walls or beams available for this purpose, use temporary ties across the assembly.
4. Using a carpenter's level on top of the blocks, shim the joists as necessary at each end to achieve a level surface. Weld the joists to the steel beams, if required by the shop drawings.
5. Set the type of Block Joist™ Blocks called for by the shop drawings (fire-resistant assemblies require specific blocks) between the joists starting at one end, completing a row parallel to the bearing wall or beam before setting the next row tight against the first row. Continue across the span setting a row at a time. A continuous groove must be formed between each row of blocks. Keep the grooves aligned parallel to the bearing so that the W1.7 wires to be laid in the grooves can be continuous. When the blocks are slightly out of shape and the grooves tend to become misaligned, a pinch bar twisted in the groove will move the end of the block and allow adjustment of the alignment. This adjustment must be gradual from row to row so that the gap between blocks does not exceed 1/8 inch at any point. Gaps larger than 1/8 inch can cause grout leakage.

A COUPLE OF WORDS OF CAUTION: The SHAPE TOLERANCE for ASTM C90 blocks is 1/8 inch. If the blocks vary in height as they are made (voids vertical) from end to end by more than 1/8 inch, they must be rejected because they do not meet the specifications, and they will not perform satisfactorily in the Block Joist™ System. Also, while setting the blocks, DO NOT STOCKPILE BLOCKS on the unfinished assembly. No more than the number of blocks required to complete the slab being constructed shall be placed on the partially completed assembly, and they must never be placed more than one high on the partially completed assembly.
6. Lay continuous W1.7 wires in the grout grooves, bending them down over the last joist at each side of the span, or extending them into the non-load bearing wall, as required by the shop drawings. Lap splices must be at least 8 inches long.
7. For fire-resistant assemblies, insert #4 or #5 reinforcing bars, as specified by the shop drawings, from the bearing end of the assembly between the joist and the end web of the block. Bars should be inserted from the ends of the blocks where the face shell is thinnest, otherwise the bars are likely to be "hung-up" on the abrupt lip of the face shell. Reinforcing bars must be precut to the full length of the joists; no splicing of reinforcing bars is permitted. Bottom cover for the reinforcing bars must be between 1 7/16 and 1 11/16 inches. Bottom cover is the distance from the bottom face of the blocks to the bottom of the reinforcing bars. If the cover is more than 1 11/16 inches contact the Block Joist™ Company for revised tables of loading.
8. Using a typical 2-quart plastic funnel, filled with grout to the point where water flowed out in 8 seconds, adjust the water content of the 2 1/2 to 1 masonry sand to portland cement by volume grout until it evacuates the funnel in 10-12 seconds. Continue to monitor the grout from batch to batch to maintain this ideal flow of 10-12 seconds. In the absence of a funnel, the grout has the proper flow when it can be poured directly from a 5-gallon bucket into the 1/2 inch space between the bars of the top chord of the joist without spillage. If agitation cannot prevent segregation, the grout is too wet.
9. Pour the grout into the longitudinal joints until all of the joists are completely encased in grout from end to end. Some settlement occurs as the blocks absorb the excess water from the grout. Make at least three 2 inch cubes, or 3x6 in. or 4x8 in. cylinders, for compression testing for each 10 cubic yards of grout, but not less than three for any day's pour.
10. Wet the top surface of the blocks.
11. Pour the grout on the wet blocks and spread it with a wide squeegee, using diagonal strokes to fill the top part of the longitudinal joints and the transverse grooves, embedding the W1.7 wires. This diagonal stroking avoids scouring the grout out of the joints and grooves as cross-stroking tends to do. Keep the blocks wet ahead of the squeegee for easy spreading and positive filling of the grout grooves.
12. Immediately after completing the grouting operation, cover the entire assembly and the cubes or cylinders with polyethylene sheets in such a manner that the sheets remain in place. Blocks used as weights are handy for this purpose. Do not allow the grout to freeze.
13. Do not remove the polyethylene sheets or apply loads or topping until the grout attains a compressive strength of 1,650 psi. 28-day strengths must reach 2,000 psi, 2,500 for fire-resistant assemblies.

USE A BLOCK JOIST™ FLOOR OR ROOF ON YOUR NEXT CONSTRUCTION PROJECT!
FOR MORE INFORMATION AND ALL OF THE MATERIALS, CALL:



BOCA



TM

RESEARCH
REPORT
NO. 96-9



Evaluation
Report
No. 9633



Design No. K907
Floors - 2 to 3 Hours
Roofs - 2 Hours