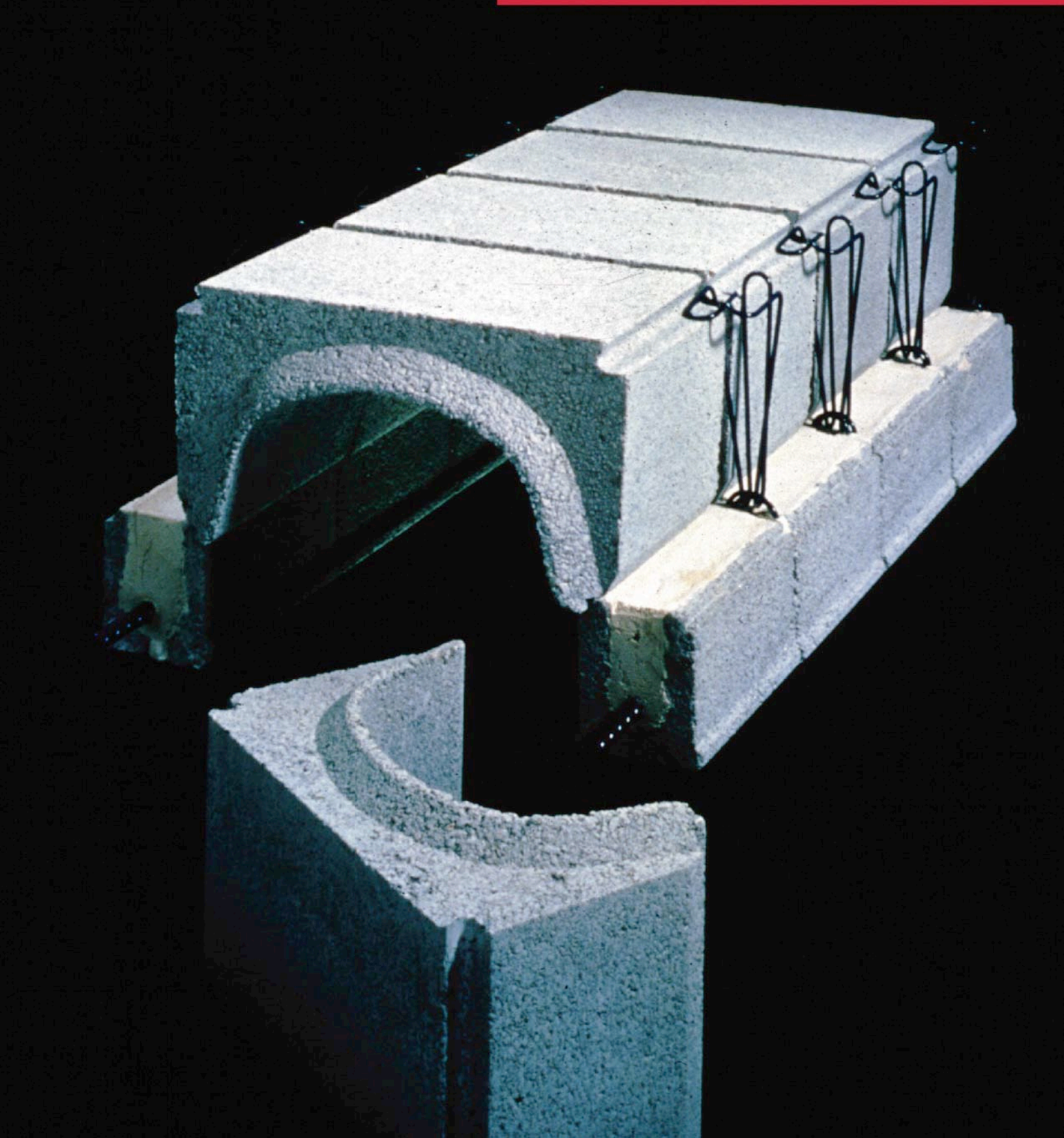
# SpanBloQ™

Patented

04200 / RBS
BuyLine

## High Performance Lightweight Concrete Floor & Roof Units

Another innovative EcoBloQ™ product line from
Rapid Building Systems



# Build With Speed and Quality When You Install The SpanBloQ™ System

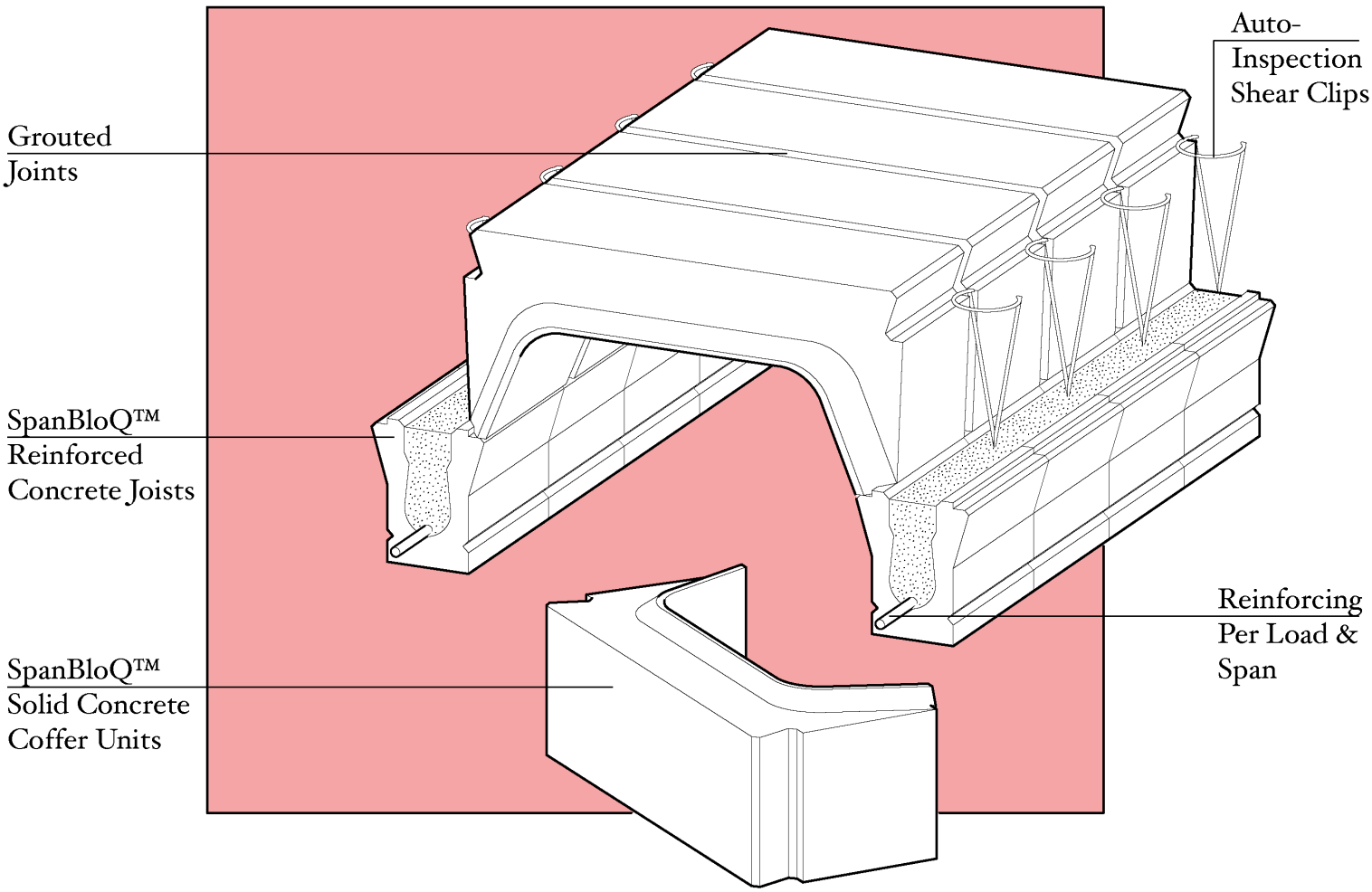
## *SpanBloQ™ is Lightweight, Fast and Economical*

- Firesafe and Soundproof
- Fully modularized to UAM
- Lower costs by using less labor
- No additional pouring of topping
- Extraordinary structural efficiency
- Assembled in the field without cranes
- Utilized in residential, commercial and industrial applications

## *Floors Assembled With Ease... and Speed*

SpanBloQ™ is a two-element system assembled in the field without the need for heavy equipment that utilizes unique auto-inspection features to minimize time and costs and maximize safety and durability.

Ideal for new construction and renovation of all types of structures where fire safety, acoustical privacy and energy efficiency are important.



# Competitive and Versatile

An economical alternative to formed and precast floors with free spans of up to 7 meters.
Fully modularized and compatible with the EcoBloQ™ family of building systems, as well as with conventional masonry, concrete and steel construction.
SpanBloQ™ is assembled into substantial horizontal diaphragms able to distribute seismic and high wind loads to structural shear walls and foundations.

# Structural Efficiency

The extraordinary structural efficiency of SpanBloQ™ resides in the original geometry of its two concrete components:

- **SpanBloQ™ Joist** *(tension element)* -
  Configured as a light-weight prefabricated beam, which is factory fabricated to the exact load and span requirements of the project.

- **SpanBloQ™ Coffer** *(compression element)* -
  Interlocked with the joist in-situ to produce suspended diaphragms wherein the two components act together as a composite structural unit.

# Minimal Resources Required

- Minimum temporary shoring at every 1,20 meters, installed under joists prior to coffer assembly, saves time and cost of extensive supports required by conventional poured slabs.

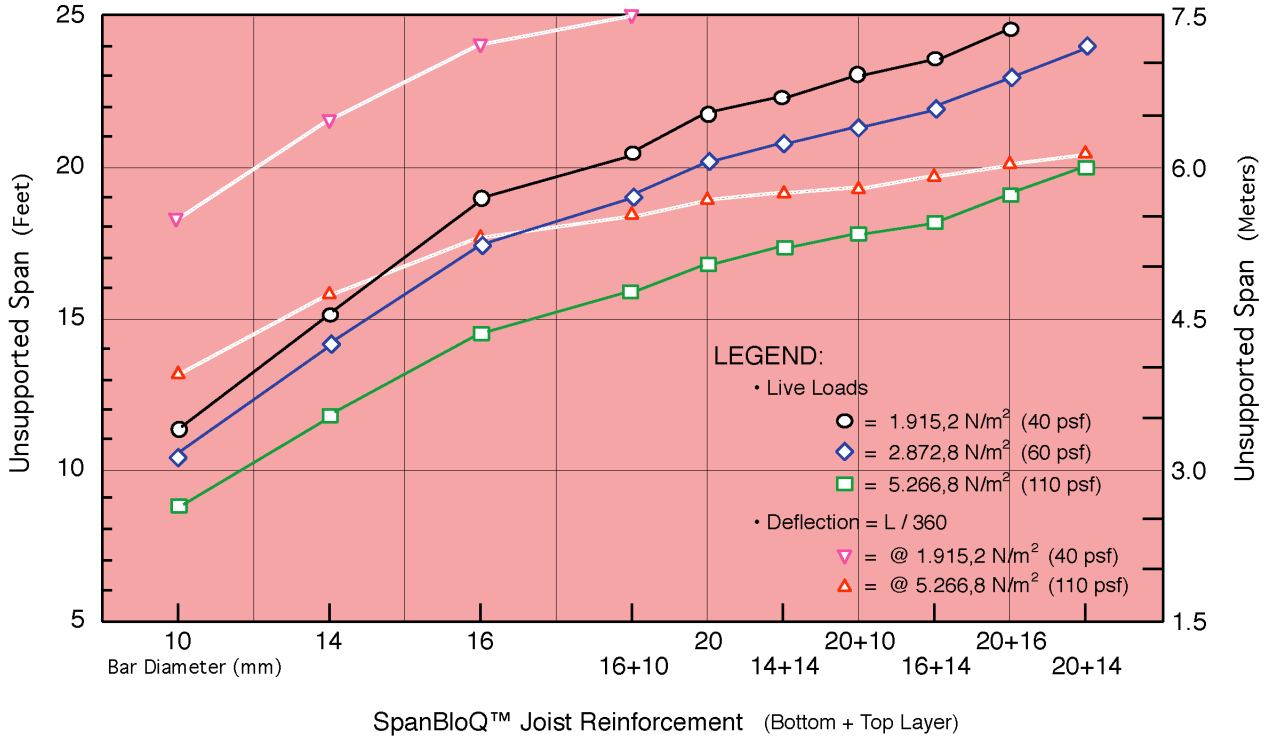
- Elimination of structural topping normally required in precast systems, produces additional saving and permits earlier use of building.

- Because no additional pouring of topping is required once the system is assembled, SpanBloQ™ saves time and expense, while permitting quick installation of floor finishes, roofing membranes, ceilings, as well as

# Quality and Safety

The quality and safety of the SpanBloQ™ System are assured by its innovative auto-inspection features, which require the proper and sequential assembly of all its components.

# SpanBloQ™ Load Graph



## SPECIFICATIONS

| FEATURE | SpanBloQ™ | |
|---|---|---|
| Section (cm) | 12 x 15 (joist) | 48 x 20 (coffer) |
| Unit Weight | 31 Kg / m (joist) | 16,4 Kg (coffer) |
| System Depth | 35 cm (w/26 x 26 cm duct space) | |
| Joist Spacing | 52,5 cm | |
| Fire Resistance* | 1,25 Hours | |
| Noise Resistance* | 52,3 Db | |
| Dead Load** | 2.921,8 N / $m^2$ | |
| Live Load*** | 5.286,4 N / $m^2$ | |

* Fire and noise resistance may be increased by addition of ceiling.

* System Assembly includes reinforced joists and field-grouted joints.

** Performance features shown here for system assembly with conventionally reinforced SpanBloQ™ joists at maximum span.

Another Innovation from:

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# SPANBLOQ™ GUIDE SPECIFICATIONS

**1.0 GENERAL -** Work under this Section includes furnishing and installing suspended concrete masonry diaphragms for floors and/or roofs, together with all ties, anchors, clips, reinforcement and grout, as specified herein and as shown in the drawings.

**2.0 MATERIALS -** Suspended floors/roofs designated on the plans shall be constructed of structural, load-bearing concrete masonry units meeting the standard quality control requirements, characteristics and special dimensional tolerances of the "SPANBLOQ™ SYSTEM", and unless otherwise specified herein, manufactured in conformance with ASTM C-90 specifications applicable for Grade N, Type II or Type I Units, utilizing aggregates classified as ASTM C-33 or C-331.

The system shall consist of prefabricated joists mechanically interlocked and clipped to solid concrete masonry coffer units with vertical metal ties designed to produce composite beam action, after receiving structural grout in the longitudinal system recesses, and to transfer compressive forces along the coffer rows via grouted joints in the direction transverse to the span.

Grout for joist manufacture and for field-filling of SpanBloQ™ joints and recesses shall be fine grout complying with the requirements of ASTM C-476 and with a minimum strength of 3,000 psi (21 MPa) at fourteen (14) days. Grouting of joists at the plant shall be performed with the aid of vibration.

Metal clips used as shear reinforcement and for composite action transfer shall be two-piece hinging metal installed at 8" (20 cm) increments maximum, and made of not less than 8 gauge steel wire, double-loop, manufactured in compliance with the requirements of ASTM A-82, double strand, and galvanized per ASTM A-641 when used in unprotected exterior structures such as sheds and balconies.

Reinforcing steel for SpanBloQ™ joists, and for any additional site-installed reinforcement, shall be deformed billet bars manufactured per ASTM A-615, with tensile yield capacity of 60 Ksi (414 MPa), galvanized as required for exposed structure applications, or as otherwise required by the Architect.

**2.1** - Physical Characteristics of SpanBloQ™ units delivered to the site shall not be inferior to:
- Compressive strength = 3,000 psi (average) 2,800 psi (unit)
  20.7 MPa (average) 19.3 MPa (unit)
- Maximum water absorption = 10 lb/cu.ft. (160 kg/m3)
  (as measured on oven-dry units)

**2.2** - Dimensional tolerances of SpanBloQ™ units shall not differ by more than 0.0625" (1.5 mm) from the manufacturing dimensions specified by the Licensor of the system (RBS).

**2.3** - Concrete unit additives, such as air-entraining agents, water repellents, silica and integral pigments utilized in SpanBloQ™ units shall require documentation of their inclusion in applicable ASTM Standards, or test and experience records substantiating that said admixtures are not detrimental to the durability and/or performance of the SpanBloQ™ system, but in any case their proportions may not exceed 10% of the cement weight in the block mix.

**2.4** - Mortar shall be Type M or S per ASTM C-270, and Grout shall comply with ASTM C-476.

**2.5** - Reinforcements shall comply with ASTM A-615 or A616 for deformed bars, and ASTM A-153 for anchors and ties. RBS approved adhesive shall be used in lieu of wire reinforcing.

**3.0 - CERTIFICATION** - Coffer units used for SpanBloQ™ construction shall bear certification from manufacturer corresponding to a minimum unit compressive strength of 1,800 psi (12.4 MPa), or 2,000 psi Average for 3 units (13.8 MPa), in addition to all other quality control requirements established by licensor of the System, including dimensional tolerances not to exceed +/- 1/16" (1.6 mm).

SpanBloQ™ joists shall be prefabricated under controlled temperature conditions by forming lengths as required to suit spans identified on the drawings, and each length-span and bearing capacity type of joist shall be labeled to correspond therewith, and so identified at the plant.

Each joist shall contain sufficient longitudinal reinforcement to resist stresses resulting from the dead and live loads specified. Main bars shall be seated on SpanBloQ™ wire clips positioned at every 8" (20 cm) maximum, acting as stirrups, and serving as chairs for the main reinforcement bars. Provide main reinforcement hooked extensions as called for on the drawings and/or as required for end anchorage.

Joists shall be formed with a negative camber corresponding to the calculated deflection under live load conditions, plus 1/4" (6 mm), but in any case not less than 1/2" total (13 mm).

**4.0 INSPECTION, SAMPLING AND TESTING -** Furnish five samples of coffer and joist units to be used, in order to demonstrate overall quality and adherence to dimensional requirements. Purchaser may inspect, test and reject masonry units in accordance with ASTM C-140.

**6.0 INSTALLATION -** SpanBloQ™ joists shall be labeled to match their assigned spans, and transported and handled with caution, taking care to avoid cracks and maintain their camber by keeping them in vertical (as installed) position at all times and by lifting joists from ends or quarter points, but never from their central portion. SpanBloQ™ clips may be used as handles for pickup. Inspect and verify bearing surfaces to ensure they are clean, level and at the correct span for the joists. Approved plastic bearing strips may be used under joists. Responsibility for verification of the structural adequacy of the supports to bear the loads imposed by SpanBloQ™ is by the Structural Engineer or Architect of record.

Prior to joist installation, locate and level temporary shoring at a maximum of every four (4) feet (1.20 M) of span under every joist. Shoring shall be capable of maintaining joist camber during installation of coffers and completion of diaphragm, including allowance for loads resulting from coffer staging and transportation overhead, as well as from weight of grout containers, equipment, and installation personnel.

Install joists at 16" (40 cm) on center over load-bearing walls or beams, using single coffer units at both ends temporarily set as spacers. Place joists on supporting walls/beams as required to transfer vertical loads, but using not less than 21/2" (6 cm) bearing, provided the bearing surface is capable of supporting such concentrated load.

Anchor joists as required to transfer horizontal service loads to vertical bearing assemblies in accordance with structure exposure to seismic and wind forces and/or as required by local regulations.

Place coffers onto joist grooves between clips, and swing joist clips to engage coffer edges at recess. Wires may need to be bent slightly to attain positive engagement. Proceed with coffer installation maintaining orientation of all coffer lips in the same direction, and using engaged coffers as work surface until completing assembly within area of installed joists.

Inspect work to ensure all coffers are properly seated on joists, all clips are fully engaged on coffer surfaces, and all partial or special spans have been treated according to the details. Take special care not to drop tools, heavy objects or equipment onto SpanBloQ™ surface, in order to avoid cracks, chips or structural damage to the system components. Prior to joint grouting, inspect underside of installation to ensure all coffers tightly fit against each other, and that no large openings may exist to allow grout leak. Protect floor or equipment underneath from potential grout drips.

Mix and test grout per Specifications and pump into joints and recesses between individual SpanBloQ™ coffers and at anchorage points, following immediately with a pencil vibrator to consolidate grout and to ensure thorough and complete filling of all recesses and evacuation of air bubbles from same. Touching engaged clips and reinforcement with vibrator tip, will assist in drawing grout to the full depth of the recesses.

After grouting and vibrating joints, and before grout sets, trowel joints flush with coffer tops to produce a smooth and level surface suitable for finish flooring installation.

Shoring must stay in place until grout has attained 2,000 psi (13.8 MPa) strength. Openings for ducts, pipes, etc., must be located at middle of coffer units and must be executed by core drilling or masonry saw, but never by using hammer and chisel. Verify with Engineer regarding location and clustering of openings so as not to compromise the structural integrity of the system or any of its sections.

Cover freshly finished SpanBloQ™ sections with plastic or canvas, as required to maintain moist surface conditions during grout curing. All quality control measures applicable to grouting and cold weather protection shall be adopted from ACI 530, as necessary.

**7.0 FINISH -** Once joints have cured, SpanBloQ™ top surface may be covered directly with tile or carpet padding in the case of floors, or with rigid insulation and roofing in the case of roofs. Underside of system may be left exposed, painted, or sprayed with a textured coating. Suspended tile or gypsum board ceilings may also be installed and secured to joists according to details suggested by licensor of system.

**8.0 CLEAN-UP -** After obtaining approval from Engineer, remove shoring, scaffolding, and equipment. Clean up debris, refuse and surplus materials and deliver system in broom-clean condition.

**9.0 - QUALITY ASSURANCE** - In general, all masonry work shall be performed to comply with assembly dimensional tolerances and quality control requirements of ACI 530 and ACI 530.1