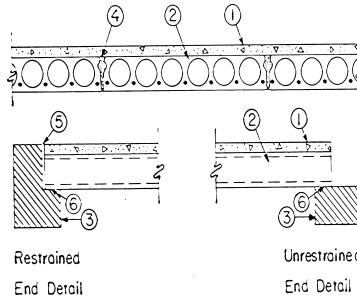


Design No. J957

Restrained Assembly Ratings — 2 and 3 Hr. (See Item 1)
Unrestrained Assembly Rating — 1 and 2 Hr.
Unrestrained Beam Rating — 1, 1-1/2, 2, 3 (See Items 8, 8A)
Load Restricted for Canadian Applications — See Guide BXUV7



1. **Concrete Topping** — 3000 psi compressive strength, 110 to 153 pcf unit weight. Normal weight aggregate.

Rating Hr	Min Thkns In.
2	0
3	1

- 1A. **Floor Topping Mixture*** — (Alternate to Concrete Topping) — 8 gal max water to 80 lbs min of floor topping mixture to 220 lbs max of sand. Compressive strength to be 1000 psi. Min thickness to be 1/2 in. min for 3 hr rating.
HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant and Firm-Fill 3310.
Floor Mat Materials* — (Optional) — Floor mat material nom 6 mm thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.
HACKER INDUSTRIES INC — Type Hacker Sound-Mat.
Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 10 mm thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/2 in. of floor-topping mixture.
HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.
Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in.
HACKER INDUSTRIES INC — Type Quiet Qurl 55/025
Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in.
HACKER INDUSTRIES INC — Type Quiet Qurl 60/040
Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in.
HACKER INDUSTRIES INC — Type Quiet Qurl 65/075
Metal Lath (Optional) — For use with 3/8 in. or 10 mm floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.
- 1B. **Finish Flooring — Floor Topping Mixture*** — 4 to 7 gal of water mixed with 80 lbs of floor topping mixture and 1.4 to 1.9 cu ft of sand. Compressive strength to be 1200 psi min. Min thickness to be 1/2 in.
RAPID FLOOR SYSTEMS — Type RF, RFP, RFU, RFR, Orcrete .
Floor Mat Materials* — (Optional) — Floor mat material nom 1/4 in. thick loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness a min 1 in. over the floor mat. Floor topping thickness a min 3/4 in. over Acousti-Mat I floor mat.
MAXXON CORP — Type Acousti-Mat I, Acousti-Mat II, Acousti-Mat II HP.
Alternate Floor Mat Materials* — (Optional) — Nom 0.8 in. thick floor mat material loose laid over the subfloor with Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.
MAXXON CORP — Type Acousti-Mat 3, Acousti-Mat 3 HP, Crack Suppression Mat (CSM)
Metal Lath — (Alternate to Crack Suppression Mat (CSM)) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.
Alternate Floor Mat Materials* — (Optional) — Nom 0.4 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 1-1/2 in.
MAXXON CORP — Type Enkasonic 9110, Enkasonic 9110 HP.
Alternate Floor Mat Materials* - (Optional) — Nom 0.2 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer may be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 3/4 in.
MAXXON CORP — Type Acousti-Mat LP-R
Metal Lath — (Optional) — For use with floor mat materials, 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd or Maxxon Corp. UL Classified Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1 in.
MAXXON CORP — Type Crack Suppression Mat (CSM)
- 1C. **Finish Flooring-Floor Topping Mixture*** — 3 to 7 gal of water mixed with 80 lbs of floor topping mixture and 1.0 to 2.1 cu ft of sand. Compressive strength to be 1000 psi min. Min thickness to be 3/4 in.
MAXXON CORP — Type D-C, GC, GC 2000, L-R, T-F, CT .
Floor Mat Materials* — (Optional) — Floor Mat material nom 1/4 in. thick loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness a min 1 in. over the floor mat. Floor topping thickness a min 3/4 in. over Acousti-Mat I floor mat.
MAXXON CORP — Type Acousti-Mat I, Acoustic-Mat II, Acousti-Mat II HP.
Alternate Floor Mat Materials* — (Optional) — Nom 0.8 in. thick floor mat material loose laid over the subfloor with Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.
MAXXON CORP — Type Acousti-Mat 3, Acousti-Mat 3 HP, Crack Suppression Mat (CSM)
Metal Lath — (Alternate to Crack Suppression Mat (CSM)) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.
Alternate Floor Mat Materials* — (Optional) — Nom 0.4 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 1-1/2 in.
MAXXON CORP — Type Enkasonic 9110, Enkasonic 9110 HP.

Alternate Floor Mat Materials* - (Optional) — Nom 0.2 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer may be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 3/4 in. **MAXXON CORP** — Type Acousti-Mat LP-R

Metal Lath — (Optional) — For use with floor mat materials, 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd or Maxxon Corp. UL Classified Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1 in.

MAXXON CORP — Type Crack Suppression Mat (CSM)

- 1D. **Alternate Floor Topping Mixture*** — Compressive strength to be 1200 psi minimum. Min thickness to be 3/4 in. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Type LRK

Floor Mat Materials* — (Optional) - Floor mat material nom 0.4 in. thick loose laid over the subfloor. Floor topping thickness a min 1 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Sound Reduction Mat

Alternate Floor Mat Materials* — (Optional) - Floor mat material ranging from 3/8 in. to 3/4 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Sound Reduction Board

Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 1/4 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

GRASSWORX L L C — Type SC50

- 1E. **Alternate Floor Topping Mixture*** — Compressive strength to be 3000 psi minimum. Min thickness to be 1/2 in. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Type HSLRK

Floor Mat Materials* — (Optional) - Floor mat material nom 0.4 in. thick loose laid over the subfloor. Floor topping thickness a min 1 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Sound Reduction Mat

Alternate Floor Mat Materials* — (Optional) - Floor mat material ranging from 3/8 in. to 3/4 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Sound Reduction Board

Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 1/4 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

UNITED STATES GYPSUM CO — Levelrock Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness a min 1/2 in. over the floor mat.

GRASSWORX L L C — Type SC50

- 1F. **Alternate Floor Topping Mixture*** — Compressive strength to be 1000 psi min. Thickness to be 3/4 in. min. Refer to manufacturer's instructions accompanying the material for specific mix design.

ALLIED CUSTOM GYPSUM PLASTERWORKS L L

C — Accu-Crete, AccuRadiant, AccuLevel G40 and AccuLevel SD30.

Alternate Floor Mat Material* - (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

ALLIED CUSTOM GYPSUM PLASTERWORKS L L

C — Type AccuQuiet P80, Type AccuQuiet C40, AccuQuiet D13, Type AccuQuiet RSM 20, Type AccuQuiet RSM 32, Type AccuQuiet RSM 48, Type AccuQuiet RSM 64, Type AccuQuiet RSM 120, and Type AccuQuiet D-18.

- 1G. **Alternate Floor Topping Mixture*** — Compressive strength to be 2100 psi min. Thickness to be 3/4 in. min. Refer to manufacturer's instructions accompanying the material for specific mix design.

BMI PRODUCTS OF NORTHERN ILLINOIS INC — Maxit 493

2. **Precast Concrete Units*** — Nom 8, 10, 12 or 14 in. thick units. Normal weight aggregate. Cross section similar to the above illustration.

BOCCELLA PRECAST L L C

HOLLOWCORE INC

PRESTRESSED SLABS INC

3. **End Details** — Restrained and unrestrained.

4. **Joint** — Clearance between slabs at bottom, full length, 1/16 in. min, 5/16 in. max, grouted full length with sand-cement grout (3500 psi min compressive strength) to a max depth of 4-1/2 in. This depth may be maintained by placing a compressible material in the bottom of the joint before applying grout.

Note: A 3/4 in. lateral expansion joint to be provided the full length and depth of the slabs every 14 ft. Expansion should be obtained with noncombustible, compressible material, for example, 24 sheets of 1/16 in. thick ceramic fiber paper (total thickness equals 1-1/2 in.).

5. **End Clearance** — Clearance for expansion at each end of slabs shall be equal to (3/16 plus or minus 1/16 in.) L/17 in., where "L" is equal to length of span in feet.

6. **Min Bearing** — 1-1/2 in.

7. **Beam — Optional** — (Not Shown) — W8x28 min size. The Precast Concrete Units shall be welded to the top flange of the beam by means of weld plates (spaced 48 in. OC max) incorporated in the Units.

8. **Spray-Applied Fire Resistive Materials*** — (Not Shown) — Applied by mixing with water and spraying in one or more coats the final thicknesses as shown in the table below, on the steel beam following the beam contour. Surfaces of the beam shall be clean and free of dirt, loose scale and oil. Min avg and min ind density of 15/14 pcf respectively. Min avg and min ind density of 22/19 pcf respectively for Types Z-106, Z-106/G, Z-106/HY. Min avg and min ind density of 19/18 pcf respectively for Type 7GP and 7HD. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Thkns on Beam In.
2	1	1	7/16
2	1-1/2	1-1/2	3/4
2	2	2	1
3	1-1/2	1-1/2	3/4
3	2	2	1
3	2	3	1-5/16

ARABIAN VERMICULITE INDUSTRIES — Types MK-5, MK-10 HB.

GRACE KOREA INC — Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-6/HB, MK-6s, MK-10 HB, Monokote Acoustic 1, Monokote Acoustic 5, Z-106, Z-106/G.

PYROK INC — Type LD.

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SOUTHWEST FIREPROOFING PRODUCTS CO —Types 4, 5, 5EF, 5GP, 5MD, 7GP, 7HD, 8EF, 8GP, 8MD, 9EF, 9GP, 9MD.
W R GRACE & CO - CONN —Types MK-4, MK-5, MK-6/HY, MK-6/HB, MK-6s, MK-10 HB, Monokote Acoustic 1, Monokote Acoustic 5, RG, Z-106, Z-106/G, Z-106/HY.

8A. **Spray-Applied Fire Resistive Materials*** — (Not Shown) - As an alternate to Item 8 — Applied by spraying with water to the final thickness as shown in the table below, to the steel beam following the beam contour. Surfaces of the beam shall be clean and free of dirt, loose scale and oil. Min avg and min ind density of 13 and 11 pcf, respectively for Type D-C/F or II. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section, Sprayed Material.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Thkns on Beam In.
2	1	1	3/8
2	1-1/2	1-1/2	11/16
2	2	2	1
3	1-1/2	1-1/2	11/16
3	2	2	1
3	2	3	1-5/8

ISOLATEK INTERNATIONAL —Type D-C/F, HP or II.

8B. **Spray-Applied Fire Resistive Materials*** — (Not Shown) - As an alternate to Item 8 and 8A — Applied by spraying with water to the final thickness as shown in the table below, to the steel beam following the beam contour. Surfaces of the beam shall be clear and free of dirt, loose scale and oil. Minimum average and minimum individual density of 15 and 14 pcf, respectively. For method of density determination, refer to Design Information Section, Sprayed Material.

Restrained Assembly Rating, Hr	Unrestrained Assembly Rating, Hr	Unrestrained Beam Rating, Hr	Min Thkns On Beam In.
2	1	1	5/16
2	1-1/2	1-1/2	1/2
2	2	2	11/16
3	1-1/2	1-1/2	1/2
3	2	2	11/16
3	2	3	1-1/16

BERLIN CO LTD —Types 300, 300ES, 300N or SB.
ISOLATEK INTERNATIONAL —Types 300, 300AC, 300ES, 300HS, 300N or SB
LUCKY CORE INSULATING MATERIALS
MANUFACTURING L L C —Types 300, 300ES, 300N, or SB.
NEWKEM PRODUCTS CORP —Types 300, 300ES, 300N or SB.

8C. **Spray-Applied Fire Resistive Materials*** — (Not Shown) As an alternate to Item 8, 8A, and 8B — Applied by spraying with water to the final thickness as shown in the table below, to the steel beam following the beam contour. Surfaces of the beam shall be clear and free of dirt, loose scale and oil. Minimum average and minimum individual density of 17.5 and 16 pcf, respectively for Type 300TW. Minimum average and minimum individual density of 22 and 19 pcf, respectively for Type 400. For method of density determination, refer to Design Information Section, Sprayed Material.

Restrained Assembly Rating, Hr	Unrestrained Assembly Rating, Hr	Unrestrained Beam Rating, Hr	Min Thkns On Beam In.
2	1	1	5/16
2	1-1/2	1-1/2	1/2
2	2	2	11/16
3	1-1/2	1-1/2	1/2
3	2	2	11/16
3	2	3	1-1/16

ISOLATEK INTERNATIONAL — Types 300TW or Type 400
LUCKY CORE INSULATING MATERIALS
MANUFACTURING L L C —Type 400.
NEWKEM PRODUCTS CORP —Type 400.

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units.

Rating Hr	Min Thkns In.	
	Restrained Beam Rating Hr	Unrestrained Beam Rating Hr
1	7/16	7/16
1-1/2	1/2	3/4
2	13/16	1
3	1-5/16	1-5/16
4	1-5/8	1-5/8

CARBOLINE CO —Types 15, 15HY, 22

8D. **Spray-Applied Fire Resistive Materials*** — (Not Shown) As an alternate to Item 8, 8A, 8B and 8C — Applied by mixing with water and spraying in one or more coats the final thicknesses as shown in the table below, on the steel beam following the beam contour. Surfaces of the beam shall be clean and free of dirt, loose scale and oil. Min avg and min ind density of 15/14 pcf respectively. Min avg and min ind density of 22/19 pcf respectively for Types Z-106, Z-106/G, Z-106/HY. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Thkns on Beam In.
2	1	1	3/8
2	1-1/2	1-1/2	5/8
2	2	2	7/8
3	1-1/2	1-1/2	5/8
3	2	2	7/8

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FIRE-RESISTANCE RATINGS - ANSI/UL 263 (BXUV)

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Thkns on Beam In.
3	2	3	1-7/16

W R GRACE & CO - CONN — MK-6HY, MK-6HY Extended Set, MK-6/HB, MK-6s, MK-10 HB, MK-10 HB Extended Set, RG, Sonotex 1, Sonotex 5, Z-106, Z-106/G, Z106/HY.

GRACE KOREA INC — Types MK-6CBF, MK-6ED, MK-6HY, MK-6HY Extended Set, MK-6/HB, MK-6s, MK-10 HB, MK-10 HB Extended Set, Sonotex 1, Sonotex 5, Z-106, Z-106/G.

9. **Metal Lath** — (Not Shown) — Required when Type 7HD is applied - Metal lath shall be 3/8 in. expanded diamond mesh, weighing 3.4 lb per sq yd. Secured to underside through steel washers with an outside diam of 1/2 in. with fasteners spaced 12 in. OC in both directions with lath edges overlapped approx 3 in.

*Bearing the UL Classification Mark