

**N830**

**Restrained Beam**

**Cellular or Corrugated Deck**

**Lightweight Concrete**

**CAFCCO® BLAZE-SHIELD® II, HP & ISOLATEK® Type II, HP**

| Joist Designation | Depth (in.) | Approx. Wt (lbs./ft.) | 1-Hour | 1-1/2 Hour | 2-Hour  | 3-Hour |
|-------------------|-------------|-----------------------|--------|------------|---------|--------|
| 8K1               | 8           | 4.9                   | 1 1/8+ | 1 5/16     | 2 1/16  | NR     |
| 10K1              | 10          | 5.1                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 12K1              | 12          | 5.0                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 12K3              | 12          | 5.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 12K5              | 12          | 7.1                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 14K1              | 14          | 5.2                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 14K3              | 14          | 6.0                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 14K4              | 14          | 6.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 14K6              | 14          | 7.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K2              | 16          | 5.5                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K3              | 16          | 6.3                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K4              | 16          | 7.0                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K5              | 16          | 7.5                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K6              | 16          | 8.1                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K7              | 16          | 8.6                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 16K9              | 16          | 10.0                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K3              | 18          | 6.6                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K4              | 18          | 7.2                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K5              | 18          | 7.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K6              | 18          | 8.5                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K7              | 18          | 9.0                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K9              | 18          | 10.2                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18K10             | 18          | 11.7                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K3              | 20          | 6.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K4              | 20          | 7.6                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K5              | 20          | 8.2                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K6              | 20          | 8.9                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K7              | 20          | 9.3                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K9              | 20          | 10.8                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20K10             | 20          | 12.2                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |

Maximum 30,000 psi (30 ksi joists)

+ Refer to Design N830 criteria for potential increased thickness on lower chord of joist

**N830**

**Restrained Beam**

**Cellular or Corrugated Deck**

**Lightweight Concrete**

**CAFCCO® BLAZE-SHIELD® II, HP & ISOLATEK® Type II, HP**

| Joist Designation | Depth (in.) | Approx. Wt (lbs./ft.) | 1-Hour | 1-1/2 Hour | 2-Hour  | 3-Hour |
|-------------------|-------------|-----------------------|--------|------------|---------|--------|
| 22K4              | 22          | 8.0                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K5              | 22          | 8.8                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K6              | 22          | 9.2                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K7              | 22          | 9.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K9              | 22          | 11.9                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K10             | 22          | 12.6                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 22K11             | 22          | 13.8                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K4              | 24          | 8.4                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K5              | 24          | 9.3                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K6              | 24          | 9.7                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K7              | 24          | 10.1                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K8              | 24          | 11.5                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K9              | 24          | 12.0                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K10             | 24          | 13.1                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24K12             | 24          | 16.0                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K5              | 26          | 9.8                   | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K6              | 26          | 10.6                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K7              | 26          | 10.9                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K8              | 26          | 12.1                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K9              | 26          | 12.2                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K10             | 26          | 13.8                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 26K12             | 26          | 16.6                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K6              | 28          | 11.4                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K7              | 28          | 11.8                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K8              | 28          | 12.7                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K9              | 28          | 13.0                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K10             | 28          | 14.3                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28K12             | 28          | 17.1                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K7              | 30          | 12.3                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K8              | 30          | 13.2                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K9              | 30          | 13.4                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K10             | 30          | 15.0                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K11             | 30          | 16.4                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 30K12             | 30          | 17.6                  | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH02            | 18          | 10                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH03            | 18          | 11                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH04            | 18          | 12                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |

Maximum 30,000 psi (30 ksi joists)

+ Refer to Design N830 criteria for potential increased thickness on lower chord of joist

**N830**

**Restrained Beam**

**Cellular or Corrugated Deck**

**Lightweight Concrete**

**CAFCCO® BLAZE-SHIELD® II, HP & ISOLATEK® Type II, HP**

| Joist Designation | Depth (in.) | Approx. Wt (lbs./ft.) | 1-Hour | 1-1/2 Hour | 2-Hour  | 3-Hour |
|-------------------|-------------|-----------------------|--------|------------|---------|--------|
| 18LH05            | 18          | 15                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH06            | 18          | 15                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH07            | 18          | 17                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH08            | 18          | 19                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 18LH09            | 18          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH02            | 20          | 10                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH03            | 20          | 11                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH04            | 20          | 12                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH05            | 20          | 14                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH06            | 20          | 15                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH07            | 20          | 17                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH08            | 20          | 19                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH09            | 20          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 20LH10            | 20          | 23                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH03            | 24          | 11                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH04            | 24          | 12                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH05            | 24          | 13                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH06            | 24          | 16                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH07            | 24          | 17                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH08            | 24          | 18                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH09            | 24          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH10            | 24          | 23                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 24LH11            | 24          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH05            | 28          | 13                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH06            | 28          | 16                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH07            | 28          | 17                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH08            | 28          | 18                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH09            | 28          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH10            | 28          | 23                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH11            | 28          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH12            | 28          | 27                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 28LH13            | 28          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH06            | 32          | 14                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH07            | 32          | 16                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH08            | 32          | 17                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH09            | 32          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH10            | 32          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH11            | 32          | 24                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |

Maximum 30,000 psi (30 ksi joists)

+ Refer to Design N830 criteria for potential increased thickness on lower chord of joist

**N830**

**Restrained Beam**

**Cellular or Corrugated Deck**

**Lightweight Concrete**

**CAFCO® BLAZE-SHIELD® II, HP & ISOLATEK® Type II, HP**

| Joist Designation | Depth (in.) | Approx. Wt (lbs./ft.) | 1-Hour | 1-1/2 Hour | 2-Hour  | 3-Hour |
|-------------------|-------------|-----------------------|--------|------------|---------|--------|
| 32LH12            | 32          | 27                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH13            | 32          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH14            | 32          | 33                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 32LH15            | 32          | 35                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH07            | 36          | 16                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH08            | 36          | 18                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH09            | 36          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH10            | 36          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH11            | 36          | 23                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH12            | 36          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH13            | 36          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH14            | 36          | 36                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 36LH15            | 36          | 36                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH08            | 40          | 16                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH09            | 40          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH10            | 40          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH11            | 40          | 22                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH12            | 40          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH13            | 40          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH14            | 40          | 35                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH15            | 40          | 36                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 40LH16            | 40          | 42                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH09            | 44          | 19                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH10            | 44          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH11            | 44          | 22                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH12            | 44          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH13            | 44          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH14            | 44          | 31                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH15            | 44          | 36                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH16            | 44          | 42                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 44LH17            | 44          | 47                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH10            | 48          | 21                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH11            | 48          | 22                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH12            | 48          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH13            | 48          | 29                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH14            | 48          | 32                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH15            | 48          | 36                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH16            | 48          | 42                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 48LH17            | 48          | 47                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH10           | 52          | 25                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH11           | 52          | 26                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |

Maximum 30,000 psi (30 ksi joists)

+ Refer to Design N830 criteria for potential increased thickness on lower chord of joist

**N830**

**Restrained Beam**

**Cellular or Corrugated Deck**

**Lightweight Concrete**

**CAFCCO® BLAZE-SHIELD® II, HP & ISOLATEK® Type II, HP**

| Joist Designation | Depth (in.) | Approx. Wt (lbs./ft.) | 1-Hour | 1-1/2 Hour | 2-Hour  | 3-Hour |
|-------------------|-------------|-----------------------|--------|------------|---------|--------|
| 52DLH12           | 52          | 29                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH13           | 52          | 34                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH14           | 52          | 39                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH15           | 52          | 42                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH16           | 52          | 45                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 52DLH17           | 52          | 52                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH11           | 56          | 26                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH12           | 56          | 30                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH13           | 56          | 34                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH14           | 56          | 39                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH15           | 56          | 42                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH16           | 56          | 46                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 56DLH17           | 56          | 51                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH12           | 60          | 29                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH13           | 60          | 35                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH14           | 60          | 40                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH15           | 60          | 43                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH16           | 60          | 46                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH17           | 60          | 52                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 60DLH18           | 60          | 59                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH12           | 64          | 31                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH13           | 64          | 34                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH14           | 64          | 40                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH15           | 64          | 43                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH16           | 64          | 46                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH17           | 64          | 52                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 64DLH18           | 64          | 59                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH13           | 68          | 37                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH14           | 68          | 40                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH15           | 68          | 44                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH16           | 68          | 49                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH17           | 68          | 55                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH18           | 68          | 61                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 68DLH19           | 68          | 67                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH14           | 72          | 41                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH15           | 72          | 44                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH16           | 72          | 50                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH17           | 72          | 56                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH18           | 72          | 59                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |
| 72DLH19           | 72          | 70                    | 15/16  | 15/16      | 1 11/16 | 3 1/16 |

Maximum 30,000 psi (30 ksi joists)

+ Refer to Design N830 criteria for potential increased thickness on lower chord of joist