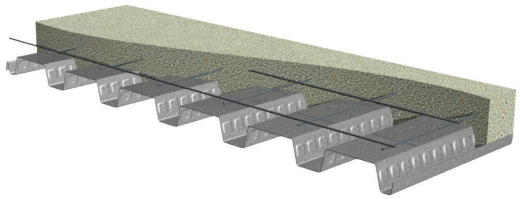
# PLB™-36/B-36 FORMLOK® COMPOSITE DECKS
## GRADE 50 STEEL

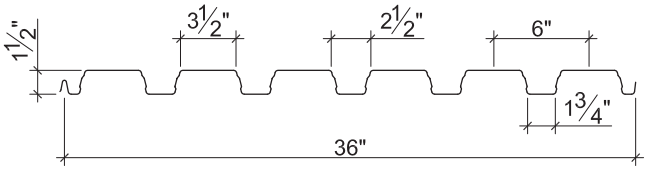
ASD

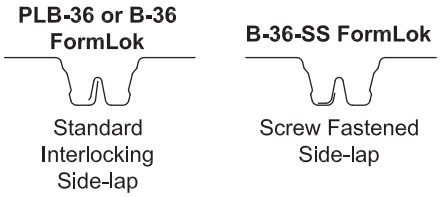
## B FORMLOK DECKS

- **PLB-36 FormLok Deck used with PunchLok® II System**
- **B-36 FormLok Deck used with TSWs or BPs**
- **B-36-SS FormLok Deck used with Side-lap Screws**



### Nominal Dimensions




### Section Properties

| Deck Gage | Deck Weight $w_{dd}$ (psf) | Base Metal Thickness t (in.) | Yield Strength $F_y$ (ksi) | Effective Moment of Inertia at Service Load $I_d = (2I_e+I_g)/3$ $I_d$+ (in⁴/ft) | $I_d$- (in⁴/ft) | Effective Section Modulus at $F_y$ = 50 ksi $S_e$+ (in³/ft) | $S_e$- (in³/ft) | Vertical Web Shear $V_n/\Omega$ (lb/ft) |
|---|---|---|---|---|---|---|---|---|
| **22** | 1.9 | 0.0299 | 50 | 0.178 | 0.192 | 0.176 | 0.188 | 2688 |
| **20** | 2.3 | 0.0359 | 50 | 0.219 | 0.231 | 0.230 | 0.237 | 3220 |
| **18** | 2.9 | 0.0478 | 50 | 0.302 | 0.306 | 0.314 | 0.331 | 4264 |
| **16** | 3.5 | 0.0598 | 50 | 0.381 | 0.381 | 0.399 | 0.410 | 5302 |

### Allowable Reactions at Supports Based on Web Crippling, $R_n/\Omega$ (lb/ft)

| Deck Gage | Bearing Length of Webs: One-Flange Loading, End Bearing 1½" | 2" | 3" | 4" | Interior Bearing 3" | 4" | Two-Flange Loading, End Bearing 1½" | 2" | 3" | 4" | Interior Bearing 3" | 4" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **22** | 850 | 934 | 1075 | 1163 | 1558 | 1670 | 893 | 962 | 1077 | 1149 | 1933 | 2082 |
| **20** | 1188 | 1301 | 1492 | 1609 | 2189 | 2339 | 1316 | 1413 | 1575 | 1675 | 2743 | 2946 |
| **18** | 2001 | 2182 | 2485 | 2667 | 3714 | 3949 | 2388 | 2550 | 2822 | 2986 | 4713 | 5038 |
| **16** | 3006 | 3264 | 3698 | 3954 | 5604 | 5935 | 3775 | 4015 | 4419 | 4657 | 7164 | 7627 |

## Standard Features

- ASTM A653 SS GR50 Min., with G60 or G90, white or gray primer bottom optional
- ASTM A1008 SS GR50 Min. with gray primer bottom
- Standard lengths – 6'-0" to 40'-0"
- IAPMO UES ER-2018 and UL Listed
- Tables conform to ANSI/SDI C-2017

## Optional Features

- Inquire regarding cost and lead times for:
  - -Short cuts < 6'-0"
  - -Sheet Lengths > 40'-0"
  - -Alternative metallic and painted finishes
- Factory Vent Tabs

# PLB™-36/B-36 FORMLOK® DECK-SLABS
## NORMAL WEIGHT CONCRETE (145 pcf)

ASD

### Maximum Unshored Spans

| Slab Depth | | Deck | Maximum Unshored Construction Clear Span | | |
|---|---|---|---|---|---|
| Total | Topping | Gage | 1 | 2 | 3 |
| 3½" | 2" | 22 | 6'-7" | 7'-9" | 7'-10" |
| | | 20 | 7'-10" | 9'-2" | 9'-4" |
| | | 18 | 9'-0" | 10'-9" | 11'-2" |
| | | 16 | 9'-8" | 11'-11" | 11'-9" |
| 5" | 3½" | 22 | 5'-9" | 6'-9" | 6'-10" |
| | | 20 | 6'-10" | 8'-0" | 8'-1" |
| | | 18 | 7'-10" | 9'-5" | 9'-8" |
| | | 16 | 8'-5" | 10'-5" | 10'-5" |
| 6" | 4½" | 22 | 5'-4" | 6'-3" | 6'-4" |
| | | 20 | 6'-4" | 7'-5" | 7'-6" |
| | | 18 | 7'-4" | 8'-8" | 9'-0" |
| | | 16 | 7'-11" | 9'-8" | 9'-9" |

### Composite Deck-Slab Properties

| Concrete + Deck (psf) | Deflection $I_d = (I_{cr}+I_u)/2$ (in⁴/ft) | Moment $M_{no}/\Omega$ (kip-ft/ft) | Shear $V_{no}/\Omega$ (kip/ft) |
|---|---|---|---|
| 32.5 | 2.68 | 1.89 | 2.01 |
| 32.9 | 2.88 | 2.20 | 2.01 |
| 33.5 | 3.22 | 2.78 | 2.01 |
| 34.1 | 3.53 | 3.32 | 2.01 |
| 50.6 | 7.74 | 3.36 | 3.29 |
| 51.0 | 8.28 | 3.95 | 3.29 |
| 51.6 | 9.24 | 5.06 | 3.29 |
| 52.2 | 10.10 | 6.11 | 3.29 |
| 62.7 | 13.32 | 4.43 | 4.27 |
| 63.1 | 14.20 | 5.22 | 4.27 |
| 63.7 | 15.79 | 6.72 | 4.27 |
| 64.3 | 17.22 | 8.16 | 4.27 |

**Note:**

1. Maximum unshored spans do not consider web-crippling. Required bearing should be determined based on specific span conditions.

### Superimposed Allowable Load, $W_n/\Omega$, Limited by L/360 (psf)

NWC (145 pcf), $f'_c$ = 3000 psi

| Total Slab Depth | Deck Gage | Span (ft-in.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 4'-0" | 5'-0" | 6'-0" | 7'-0" | 8'-0" | 9'-0" | 10'-0" | 11'-0" | 12'-0" |
| 3½" | 22 | 911 | 571 | 387 | 275 | 203 | 154 | 117 | 88 | 67 |
| | 20 | 974 | 671 | 456 | 326 | 242 | 172 | 125 | 94 | 72 |
| | 18 | 973 | 772 | 584 | 410 | 275 | 193 | 140 | 105 | 81 |
| | 16 | 973 | 771 | 637 | 450 | 301 | 211 | 154 | 115 | 89 |
| 5" | 22 | 1593 | 1023 | 695 | 497 | 369 | 281 | 218 | 171 | 135 |
| | 20 | 1592 | 1212 | 826 | 593 | 442 | 338 | 264 | 209 | 168 |
| | 18 | 1592 | 1263 | 1044 | 774 | 580 | 448 | 353 | 282 | 229 |
| | 16 | 1591 | 1262 | 1043 | 887 | 711 | 551 | 436 | 331 | 255 |
| 6" | 22 | 2074 | 1353 | 920 | 659 | 490 | 374 | 291 | 229 | 183 |
| | 20 | 2073 | 1606 | 1096 | 788 | 589 | 452 | 354 | 281 | 226 |
| | 18 | 2073 | 1645 | 1360 | 1034 | 776 | 600 | 474 | 380 | 309 |
| | 16 | 2072 | 1645 | 1360 | 1156 | 956 | 742 | 588 | 475 | 389 |

**Notes:**

1. For high loads long term concrete creep should be considered.
2. See Composite Deck-Slab Strength Web Based Solutions for alternate slabs or LRFD design.

# PLB™-36/B-36 FORMLOK® DECK-SLABS
## LIGHT WEIGHT CONCRETE (110 pcf)

ASD

### Maximum Unshored Spans

| Slab Depth | | Deck | Maximum Unshored Construction Clear Span | | |
|---|---|---|---|---|---|
| Total | Topping | Gage | 1 | 2 | 3 |
| 3½" | 2" | 22 | 7'-1" | 8'-5" | 8'-6" |
| | | 20 | 8'-7" | 10'-0" | 10'-2" |
| | | 18 | 9'-10" | 11'-8" | 11'-11" |
| | | 16 | 10'-6" | 12'-11" | 12'-6" |
| 4" | 2½" | 22 | 6'-10" | 8'-0" | 8'-1" |
| | | 20 | 8'-2" | 9'-6" | 9'-8" |
| | | 18 | 9'-4" | 11'-2" | 11'-6" |
| | | 16 | 10'-0" | 12'-4" | 12'-1" |
| 4¾" | 3¼" | 22 | 6'-5" | 7'-6" | 7'-7" |
| | | 20 | 7'-8" | 8'-11" | 9'-1" |
| | | 18 | 8'-9" | 10'-6" | 10'-10" |
| | | 16 | 9'-5" | 11'-8" | 11'-6" |

### Composite Deck-Slab Properties

| Deck Gage | Concrete + Deck (psf) | Deflection $I_d = (I_{cr}+I_u)/2$ (in⁴/ft) | Moment $M_{no}/\Omega$ (kip-ft/ft) | Shear $V_{no}/\Omega$ (kip/ft) |
|---|---|---|---|---|
| 22 | 25.1 | 2.10 | 1.78 | 2.01 |
| 20 | 25.5 | 2.26 | 2.07 | 2.01 |
| 18 | 26.1 | 2.55 | 2.59 | 2.01 |
| 16 | 26.7 | 2.80 | 3.07 | 2.01 |
| 22 | 29.7 | 3.11 | 2.22 | 2.41 |
| 20 | 30.1 | 3.35 | 2.58 | 2.41 |
| 18 | 30.7 | 3.77 | 3.26 | 2.41 |
| 16 | 31.3 | 4.14 | 3.89 | 2.41 |
| 22 | 36.6 | 5.16 | 2.96 | 3.06 |
| 20 | 37.0 | 5.55 | 3.46 | 3.06 |
| 18 | 37.6 | 6.25 | 4.39 | 3.06 |
| 16 | 38.2 | 6.86 | 5.27 | 3.06 |

**Note:**

1. Maximum unshored spans do not consider web-crippling. Required bearing should be determined based on specific span conditions.

### Superimposed Allowable Load, $W_n/\Omega$, Limited by L/360 (psf)

LWC (110 pcf), $f'_c$ = 3000 psi

| Total Slab Depth | Deck Gage | Span (ft-in.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 4'-0" | 5'-0" | 6'-0" | 7'-0" | 8'-0" | 9'-0" | 10'-0" | 11'-0" | 12'-0" |
| 3½" | 22 | 866 | 545 | 371 | 265 | 178 | 125 | 91 | 68 | 53 |
| | 20 | 981 | 636 | 434 | 288 | 193 | 135 | 98 | 74 | 57 |
| | 18 | 981 | 779 | 515 | 324 | 217 | 152 | 111 | 83 | 64 |
| | 16 | 980 | 779 | 566 | 356 | 238 | 167 | 122 | 91 | 70 |
| 4" | 22 | 1078 | 679 | 462 | 332 | 247 | 186 | 135 | 102 | 78 |
| | 20 | 1175 | 796 | 543 | 391 | 285 | 200 | 146 | 109 | 84 |
| | 18 | 1175 | 933 | 693 | 480 | 321 | 226 | 164 | 123 | 95 |
| | 16 | 1174 | 933 | 772 | 527 | 353 | 248 | 180 | 135 | 104 |
| 4¾" | 22 | 1442 | 909 | 620 | 446 | 333 | 255 | 200 | 158 | 127 |
| | 20 | 1492 | 1069 | 731 | 527 | 395 | 304 | 239 | 182 | 140 |
| | 18 | 1491 | 1185 | 938 | 679 | 511 | 374 | 273 | 205 | 158 |
| | 16 | 1491 | 1185 | 981 | 822 | 585 | 411 | 299 | 225 | 173 |

**Notes:**

1. For high loads long term concrete creep should be considered.
2. See Composite Deck-Slab Strength Web Based Solutions for alternate slabs or LRFD design.

## PLB-36/B-36 FormLok Deck-Slab Information

| Total Slab Depth (in.) | Theoretical Concrete Volume ($yd^3$/100 $ft^2$) | Min. $A_s$ for T&S ($in.^2$) | Recommended Reinforcing for Temperature and Shrinkage | | | | |
|---|---|---|---|---|---|---|---|
| | | | WWR (OR) | Bekaert Dramix® Steel Fiber Alternates to WWR (pcy) | | | |
| | | | | 3D 65/60BG | 3D 80/60BG | 4D 65/60BG | 4D 80/60BG or 5D 65/60BG |
| **Normal Weight Concrete (145 pcf)** | | | | | | | |
| **3½** | 0.78 | 0.028 | 6x6-W1.4xW1.4 | 27 | 22 | 33 | 34 |
| **4** | 0.94 | 0.028 | 6x6-W1.4xW1.4 | 22 | 14 | 33 | 34 |
| **4½** | 1.09 | 0.028 | 6x6-W1.4xW1.4 | 19 | 14 | 33 | 34 |
| **5** | 1.24 | 0.032 | 6x6-W2.1xW2.1 | 18 | 14 | 33 | 34 |
| **6** | 1.55 | 0.041 | 6x6-W2.1xW2.1 | 18 | 14 | 33 | 34 |
| **Light Weight Concrete (110 pcf)** | | | | | | | |
| **3½** | 0.78 | 0.028 | 6x6-W1.4xW1.4 | N/A | 33 | 33 | 34 |
| **4** | 0.94 | 0.028 | 6x6-W1.4xW1.4 | 30 | 27 | 33 | 34 |
| **4¾** | 1.17 | 0.029 | 6x6-W2.1xW2.1 | 22 | 23 | 33 | 34 |
| **5¾** | 1.48 | 0.038 | 6x6-W2.1xW2.1 | 22 | 23 | 33 | 34 |

**Notes:**

1. Recommended WWR reinforcing is for minimum temperature and shrinkage per SDI-C. Larger WWR may be required to comply with UL Fire Resistant Designs.
2. FRC reinforcement is based on IAPMO UES ER-497 and ER-465.
3. Dramix® 4D 65/60BG, 4D 80/60BG and 5D 65/60BG should only be used when both required for diaphragm reinforcement and with minimum $f'_c$ = 4000 psi.
4. Dramix® fibers may be used in UL or ULC fire rated assemblies in lieu of WWR. See UL file R13907 for additional information.
5. For information on Bekaert Dramix® fibers contact 770-514-2295 or infobuilding@bekaert.com.
6. DRAMIX is a registered trademark of Bekaert.