



CONTRACTOR'S ALERT – 2017.5

HIGH LIFT GROUTING OPTIONS



Masonry grouting is accomplished by grouting the wall in increments up to 5 ft 4 in., commonly known as low-lift grouting, or by grouting wall heights up to 24 ft, referred to as high-lift grouting. Recent code changes have expanded high-lift grouting options depending on the masonry configuration.

- Wall configurations with deformed horizontal reinforcement in bond beams will usually follow the requirements of normal grouting, that is, grout will be placed in multiple increments of 5 ft-4 in. maximum.
- When the horizontal steel is limited to joint reinforcement, grout may be placed in increments of 12 ft-8 in. maximum. This condition typically occurs in partially grouted systems where cells contain only vertical deformed reinforcement.
- There is another option when deformed reinforcement is present in horizontal bond beams. Grout can be placed in increments exceeding 5 ft-4 in., but the increment is limited to first bond beam above the 5 ft-4 in. height. This method contains limitations as listed in the table.
- One other option that is gaining popularity is using self-consolidating grout. When certain conditions are met as listed in the table, grout may be placed in a single increment up to the pour height, or a maximum of 24 feet.

Even though increased grout lift heights may be possible, consolidation and reconsolidation is still required except for self-consolidating grout. Also, cleanouts are still required for all high lift grouting.

| Type of Grouting | Normal Grouting | Grouting with no Intermediate Bond Beams | Grouting with Intermediate Bond Beams | Self-Consolidating Grout |
|--------------------|---|--|---|--|
| TMS 602 Article | 3.5 D.1.c | 3.5 D.1.a | 3.5 D.1.b | 3.5 D.2 |
| Lift Limit | 5 ft - 4 in. | 12 ft - 8 in. | See Limitations | Pour Height* |
| Pour Limit | 24 ft - 0 in. | 24 ft - 0 in. | 24 ft - 0 in. | 24 ft - 0 in. |
| Configuration | | | | |
| Limitations | <ul style="list-style-type: none"> • Grout slump between 8 and 11 inches | <ul style="list-style-type: none"> • Masonry cured for at least 4 hours • Grout slump between 10 and 11 inches • Maximum lift height 12 ft-8 inches | <ul style="list-style-type: none"> • Limit grout lift to the bottom of lowest bond beam that is more than 5 ft-4 in. above bottom of grout lift • Grout lift cannot exceed 12 ft-8 inches • Masonry cured for at least 4 hours • Grout slump between 10 and 11 inches | <ul style="list-style-type: none"> • Masonry cured for at least 4 hours • *If masonry cured less than 4 hours, lift height limited to 5 ft-4 inches • Grout spread (flow) between 24 and 30 in. |
| Cleanouts Required | Yes | Yes | Yes | Yes |

3.5 D. Grout lift height (TMS 602-13, TMS 602-16)

- a. Where the following conditions are met, place grout in lifts not exceeding 12 ft 8 in. (3.86 m).
 - The masonry has cured for at least 4 hours.
 - The grout slump is maintained between 10 and 11 in. (254 and 279 mm).
 - No intermediate reinforced bond beams are placed between the top and the bottom of the pour height.
- b. When the conditions of Articles 3.5 D.1.a.i and 3.5 D.1.a.ii are met but there are intermediate bond beams within the grout pour, limit the grout lift height to the bottom of the lowest bond beam that is more than 5 ft 4 in. (1.63 m) above the bottom of the lift, but do not exceed a grout lift height of 12 ft 8 in. (3.86 m).
- c. When the conditions of Article 3.5 D.1.a.i or Article 3.5 D.1.a.ii are not met, place grout in lifts not exceeding 5 ft 4 in. (1.63 m).
2. For self-consolidating grout conforming to Article 2.2:
 - When placed in masonry that has cured for at least 4 hours, place in lifts not exceeding the grout pour height.
 - When placed in masonry that has not cured for at least 4 hours, place in lifts not exceeding 5 ft 4 in. (1.63 m) or the grout pour height

Note: By code definition, a '**grout lift**' is the height of grout deposited in a single pass and a '**grout pour**' is defined as the total height of wall to be grouted prior to the erection of additional masonry.

Industry Representatives

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