Regal Stone™ Pro Series
Retaining Wall Units

Tri-Plane Face Unit

Straight Face Unit

Deco Face Unit

Rock Face Unit

Note: Product availability, face finish, and dimensions vary by manufacturer. Please contact local Keystone product representative for availability.
**GRAVITY WALL DESIGN/ESTIMATING CHART**

**REGAL STONE™ PRO SERIES**

**TYPICAL GRAVITY WALL SECTION**

7.1° Batter

### BACKSLOPE

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>Level</th>
<th>4H:1V</th>
<th>3H:1V</th>
<th>2H:1V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand/Gravel (θ=34° &amp; γ=120 PCF)</td>
<td>3.33'</td>
<td>3.33'</td>
<td>2.67'</td>
<td>2.00'</td>
</tr>
<tr>
<td>Silty Sand (θ=30° &amp; γ=120 PCF)</td>
<td>2.67'</td>
<td>2.67'</td>
<td>2.00'</td>
<td>1.33'</td>
</tr>
<tr>
<td>Silt/Lean Clay (θ=26° &amp; γ=120 PCF)</td>
<td>2.67'</td>
<td>2.00'</td>
<td>1.33'</td>
<td>&lt;1.0'</td>
</tr>
</tbody>
</table>

### MAXIMUM TOTAL HEIGHT

**GRAVITY WALL HEIGHT LIMITS**

Regal Stone Pro Wall Units

- Wall design height is total top to bottom height excluding caps.
- Minimum wall embedment is 6 inches for reasonably level toe slope condition.
- Leveling pad is 6" thick crushed stone base.
- Analysis based on Coulomb earth pressure analysis per NCMA Design Manual, 3rd Ed.
- Assumed soil design properties shown in chart.
- No additional surcharges considered in design charts other than slopes listed.
- All backfill material to be compacted to 95% Standard Proctor Density.
- See wall construction manual and specifications for all details pertaining to wall design, drainage, and installation.
KEYSTONE HARDSCAPES®
REINFORCED WALL DESIGN/ESTIMATING CHARTS
REGAL STONE™ PRO SERIES

NOTES:

• Wall design height is total top to bottom height excluding caps.
• Minimum wall embedment is 6 inches or 10% Height for reasonably level toe slope condition.
• Leveling pad is 6” thick crushed stone base.
• Analysis based on Coulomb earth pressure analysis per NCMA Design Manual, 3rd Ed.
• Assumed soil design properties shown in reinforcement charts.
  Soil properties assumed the same for reinforced, retained, and foundation zones.
• No surcharge (landscaping), 100 psf live load, and 3H:1V backslope conditions considered.
• Geogrid soil reinforcement long term design strength, LTDS = 1800 plf minimum.
• Reinforcement lengths provided are the full length of reinforcement in principal strength direction
  placed perpendicular to wall face.
• All backfill material to be compacted to 95% Standard Proctor Density.
• See wall construction manual and specifications for all details pertaining to wall design, drainage,
  and installation.
• Perform site specific engineering as required for any permit requirements.
Preliminary Design/Estimating Charts
Sand/Gravel Soil - $\phi = 34^\circ$, $\gamma = 120$ pcf

**CASE I**
- Level, No Surcharges
- Reinforced Soil Type
- Design Height 7.1'

**CASE II**
- Level, 100 psf Surcharge
- Reinforced Soil Type
- Design Height 7.1'

**CASE III**
- Reinforced Soil Type
- Design Height 7.1'

**KEY**
- Soil Reinforcement Level & Length
- Min. Reinforcement LTDS = 1800 plf

<table>
<thead>
<tr>
<th>Design Height</th>
<th>Reinforcement Required</th>
<th>Reinforcement Not Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.33'</td>
<td>4.0'</td>
<td>4.0'</td>
</tr>
<tr>
<td>2.67'</td>
<td>5.0'</td>
<td>5.0'</td>
</tr>
<tr>
<td>4.00'</td>
<td>6.0'</td>
<td>6.0'</td>
</tr>
<tr>
<td>5.33'</td>
<td>7.0'</td>
<td>7.0'</td>
</tr>
<tr>
<td>6.67'</td>
<td>8.0'</td>
<td>8.0'</td>
</tr>
<tr>
<td>8.0'</td>
<td>8.0'</td>
<td>8.0'</td>
</tr>
</tbody>
</table>

Sand/Gravel Soil - $\phi = 34^\circ$, $\gamma = 120$ pcf

- Design Height
- Soil Type
- Reinforced
- Level, No Surcharges
- Level, 100 psf Surcharge
- Design Height
- Reinforcement Required
- Reinforcement Not Required

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Final project specific designs shall be prepared by a licensed professional engineer.
Preliminary Design/Estimating Charts
Silty Sand Soil - $\phi = 30^\circ$, $\gamma = 120$ pcf

**CASE I**

**CASE II**

**CASE III**

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KEY

Soil Reinforcement Level & Length
Min. Reinforcement LTDS = 1800 plf

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### Preliminary Design/Estimating Charts

**Silt/Lean Clay Soil - \( \phi = 26^\circ \), \( \gamma = 120 \text{ pcf} \)**

**CASE I**

- **Level, No Surcharges**
- **Design Height** 7.1
- **Reinforced Soil Type**

**CASE II**

- **Level, 100 psf Surcharge**
- **Design Height** 7.1
- **Reinforced Soil Type**

**CASE III**

- **Design Height** 7.1
- **Reinforced Soil Type**

### Soils Reinforcement Level & Length

- Min. Reinforcement LTDS = 1800 plf

### Design Height

- **1.33'**
- **2.67'**
- **4.00'**
- **5.33'**
- **6.67'**
- **8.0'**

### Reinforcement

- **Reinforcement Not Required**
- **Reinforcement Required**

### KEY

- **Reinforcement Level & Length**
- **Min. Reinforcement LTDS = 1800 plf**