

SUGGESTED PUMPING MIX FOR NORLITE STRUCTURAL LIGHTWEIGHT CONCRETE

Water-Cement Ratio

The mix designs on the following pages are based upon an estimated active water demand. That portion absorbed by the aggregate is not considered for determining yield since it has no volumetric effect.

Due to the absorbed condition this water is not available to affect the cement paste. Therefore, as noted in ASTM C 125 (Concrete and Concrete Aggregates), absorbed water is not considered when calculating the water-cement ratio.

110 p.c.f.

Air Dry Unit Weight:

Aggregates: Norlite 3/4" - No. 4, Natural Sand

Probable 28 Day Compressive Strength

| | <u>2500</u> | <u>3000</u> | <u>3500</u> | <u>4000</u> | <u>4500</u> | <u>5000</u> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Cement, lb. (sk.) | 470 (5.0) | 517 (5.5) | 564 (6.0) | 611 (6.5) | 658 (7.0) | 705 (7.5) |
| Norlite, 3/4" to No. 4 lbs. (oven dry) | 750 | 750 | 750 | 750 | 750 | 750 |
| Natural Sand, (SSD) lb. | 1490 | 1450 | 1410 | 1370 | 1330 | 1290 |
| Active water, gal. (lb.) | 36 ± 1(300) | 36 ± 1(300) | 36 ± 1(300) | 36 ± 1(300) | 36 ± 1(300) | 36 ± 1(300) |
| Slump, in. (in place) | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| Air Content, % (in place) | 4-6 | 4-6 | 4-6 | 4-6 | 4-6 | 4-6 |

Norlite, % Absorption

Plastic Unit Weight (p.c.f. ± 1)

| | | | | | | |
|-----|-------|-------|-------|-------|-------|-------|
| 5% | 112.5 | 112.5 | 112.5 | 112.5 | 112.5 | 112.5 |
| 15% | 115.3 | 115.3 | 115.3 | 115.3 | 115.3 | 115.3 |
| 25% | 118.0 | 118.0 | 118.0 | 118.0 | 118.0 | 118.0 |

Norlite, % Absorption

Air Dry Unit Weight (p.c.f. ± 2)

| | | | | | | |
|----|-----|-----|-----|-----|-----|-----|
| 0% | 110 | 110 | 110 | 110 | 110 | 110 |
|----|-----|-----|-----|-----|-----|-----|

110 p.c.f.

Air Dry Unit Weight:

Aggregates: Norlite 3/8" - No. 8 Natural Sand

Probable 28 Day Compressive Strength

| | <u>3000</u> | <u>3500</u> | <u>4000</u> |
|---|-------------|-------------|-------------|
| Cement, lb. (sk.) | 611 (6.5) | 658 (7.0) | 705 (7.5) |
| Norlite, 3/8" to No. 8 lbs. (oven dry) | 800 | 800 | 800 |
| Natural Sand, (SSD) lb. | 1300 | 1250 | 1210 |
| Active water, gal. (lb.) | 37 ± 1(308) | 37 ± 1(308) | 37 ± 1(308) |
| Slump, in. (in place) | 3-4 | 3-4 | 3-4 |
| Air Content, % (in place) | 4-6 | 4-6 | 4-6 |

Norlite, % Absorption

Plastic Unit Weight (p.c.f. ± 1)

| | | | |
|-----|-------|-------|-------|
| 15% | 115.4 | 115.4 | 115.4 |
| 20% | 116.8 | 116.8 | 116.8 |
| 25% | 118.3 | 118.3 | 118.3 |

Norlite, % Absorption

Air Dry Unit Weight (p.c.f. ± 2)

| | | | |
|----|-----|-----|-----|
| 0% | 110 | 110 | 110 |
|----|-----|-----|-----|

NOTE: These concrete mix proportions are based on the use of an air-entraining admixture conforming with the requirements of Standard Specification for Air-Entraining Admixtures for Concrete, ASTM Designation: C 260, and a water reducing admixture conforming with the requirements of Standard Specifications for Chemical Admixtures for Concrete, ASTM Designation: C 494. The following specific gravities were used to compile mix proportions. Cement 3.15, 3/4" Norlite 1.25, 3/8" Norlite 1.30, Sand 2.63 Water 1.0.

Trial mixes must be carried on to establish air and slump at the pump for required strength and weight in place.

SUGGESTED PUMPING MIX FOR NORLITE STRUCTURAL LIGHTWEIGHT CONCRETE

115 p.c.f. Maximum

Air Dry Unit Weight:

Aggregates: Norlite 3/4" - No. 4, Natural Sand

Probable 28 Day Compressive Strength

| | <u>3000</u> | <u>3500</u> | <u>4000</u> |
|--------------------------------------|---|-------------|-------------|
| Cement, lb. (sk.) | 611 (6.5) | 658 (7.0) | 705 (7.5) |
| Norlite, 3/4" to No. 4 (oven dry) | 675 | 675 | 675 |
| Natural Sand, (SSD) lb. | 1520 | 1480 | 1440 |
| Active water, gal. (lb.) | 36 ± 1(300) | 36 ± 1(300) | 36 ± 1(300) |
| Slump, in. (in place) | 3-4 | 3-4 | 3-4 |
| Air Content, % (in place) | 4-6 | 4-6 | 4-6 |
| Norlite, % Absorption | Plastic Unit Weight (p.c.f. ± 1) | | |
| 15% | 117.8 | 117.8 | 117.8 |
| 20% | 119.0 | 119.0 | 119.0 |
| 25% | 120.4 | 120.4 | 120.4 |
| Norlite, % Absorption | Air Dry Unit Weight (p.c.f. ± 2) | | |
| 0% | 113 | 113 | 113 |

115 p.c.f. Maximum

Air Dry Unit Weight:

Aggregates: Norlite 3/8" - No. 8 Natural Sand

Probable 28 Day Compressive Strength

| | <u>3000</u> | <u>3500</u> | <u>4000</u> |
|--------------------------------------|---|-------------|-------------|
| Cement, lb. (sk.) | 611 (6.5) | 658 (7.0) | 705 (7.5) |
| Norlite, 3/8" to No. 8 (oven dry) | 700 | 700 | 700 |
| Natural Sand, (SSD) lb. | 1510 | 1470 | 1430 |
| Active water, gal. (lb.) | 37 ± 1(308) | 37 ± 1(308) | 37 ± 1(308) |
| Slump, in. (in place) | 3-4 | 3-4 | 3-4 |
| Air Content, % (in place) | 4-6 | 4-6 | 4-6 |
| Norlite, % Absorption | Plastic Unit Weight (p.c.f. ± 1) | | |
| 15% | 118.6 | 118.6 | 118.6 |
| 20% | 119.9 | 119.9 | 119.9 |
| 25% | 121.2 | 121.2 | 121.2 |
| Norlite, % Absorption | Air Dry Unit Weight (p.c.f. ± 2) | | |
| 0% | 113 | 113 | 113 |

NOTE: These concrete mix proportions are based on the use of an air-entraining admixture conforming with the requirements of Standard Specification for Air-Entraining Admixtures for Concrete, ASTM Designation: C 260, and a water reducing admixture conforming with the requirements of Standard Specifications for Chemical Admixtures for Concrete, ASTM Designation: C 494. The following specific gravities were used to compile mix proportions. Cement 3.15, 3/4" Norlite 1.25, 3/8" Norlite 1.30, Sand 2.63 Water 1.0.

Trial mixes must be carried on to establish air and slump at the pump for required strength and weight in place.

