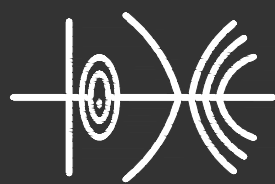


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KITCHEN / CAFETERIA RENOVATIONS TO:
SOUTH GWINNETT HIGH SCHOOL
2288 EAST MAIN STREET SNELLVILLE, GEORGIA 30078-3333
FOR
GWINNETT COUNTY BOARD OF EDUCATION
GWINNETT COUNTY, GEORGIA

DATE
JAN 1, 2020

cunningham forehand moore
cunningham, forehand, matthews & moore, architects, inc. - 2011 manchester street, n.e. - atlanta, georgia 30324 - phone (404) 873-2152

S0.3

CONCRETE MIXTURES

| APPLICATION | EXPOSURE | F'c (AT 28-DAYS UNO) | MAXIMUM W/C | AIR CONTENT | NOMINAL MAXIMUM AGGREGATE SIZE (NOTE 4) | MAXIMUM CONCRETE WEIGHT |
|-------------------|----------|-------------------------|-------------|-------------|---|----------------------------|
| FOOTINGS | F0 | 3000 PSI | SEE NOTE 2 | SEE NOTE 3 | 1" | 150 PCF |
| INT SLAB-ON-GRADE | F0 | 3000 PSI | SEE NOTE 2 | SEE NOTE 3 | 1" | 150 PCF |

NOTES:

- EXPOSURE CATEGORIES AND CLASSES FOR SULFATES, PERMEABILITY, AND CORROSION PROTECTION OF REINFORCEMENT IS CLASS ZERO UNLESS NOTED OTHERWISE.
- WHERE NO MAXIMUM WATER CEMENT RATIO IS NOTED FOR DURABILITY, PROPORTIONING OF WATER/CEMENT RATIO SHALL BE AS REQUIRED FOR SPECIFIED CONCRETE MIX DESIGN. WATER/CEMENT RATIO IS NOT APPLICABLE FOR DURABILITY REQUIREMENTS IN LIGHTWEIGHT CONCRETE.
- WHERE AIR ENTRAINMENT IS NOT REQUIRED BY DESIGN, THE CONTRACTOR, INSTALLER, AND SUPPLIER MAY CHOOSE TO INCLUDE AIR ENTRAINMENT TO IMPROVE PLACEMENT AND FINISHING CHARACTERISTICS. AIR ENTRAINMENT IS NOT PERMITTED IN NORMAL WEIGHT CONCRETE TO RECEIVE A HARD TROWEL FINISH AND ENTRAPPED AIR SHALL NOT EXCEED 3%. AIR ENTRAINMENT IN LIGHTWEIGHT CONCRETE SLABS IS REQUIRED TO MEET FIRE RATING REQUIREMENTS. SLABS SHALL BE PROPERLY FINISHED TO AVOID SURFACE IMPERFECTIONS, SUCH AS BULGING OR DELAMINATION.
- COARSE AGGREGATE SHALL BE ASTM C 33, GRADED. SELECT GRADING CLASS PER TYPE OF CONSTRUCTION OR LOCATION USED, AND IN RELATION TO SPECIFIC WEATHERING REGION. AGGREGATE SHALL BE FROM A SINGLE SOURCE. #67 GRADING SHALL BE USED FOR CONCRETE WITH 3/4 INCH MAXIMUM; # 57 GRADING SHALL BE USED FOR CONCRETE WITH 1 INCH MAXIMUM; A WELL BLENDED MIX OF #4, #57 AND #89 (1 1/2" TO 3/8" NOMINAL SIZE) SHALL BE USED FOR CONCRETE WITH 1 1/2 INCH MAXIMUM.
- FINE AGGREGATE FOR INTERIOR SLAB-ON-GRADE SHALL CONSIST OF A MINIMUM 70% NATURAL SAND.
- MIX DESIGN SUBMITTAL FOR CONCRETE WITH BLENDED AGGREGATES SHALL INCLUDE AGGREGATE GRADING AND VOID CONTENT OF THE COMBINED AGGREGATE. IT IS ACCEPTABLE TO USE A DIFFERENT BLEND OF AGGREGATES WITH 1 1/2 INCH MAXIMUM BY DOING ONE OF THE FOLLOWING:
 - SUBMIT A MIX ANALYSIS WITH A COARSENESS FACTOR CHART SHOWING THE BLEND FALLS WITHIN THE "OPTIMAL" AREA OF THE CHART. REFER TO ACI 302.1R-15, CHAPTER 8.
 - SUBMIT DOCUMENTATION FOR THE SHRINKAGE POTENTIAL OF THE CONCRETE MIXTURE. LENGTH CHANGE OF CONCRETE, DETERMINED BY ASTM C157, WITH 7 DAYS OF MOIST CURING FOLLOWED BY 21 DAYS OF DRYING SHALL NOT EXCEED 0.05%.
 - PLACE A TRIAL SLAB

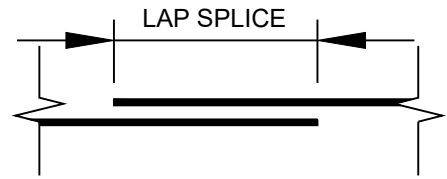
POST-INSTALLED ANCHORS SPECIFIED PRODUCTS BY APPLICATION

| ANCHOR TYPE | CONCRETE | CONCRETE MASONRY |
|--|---|--|
| EXPANSION ANCHORS/ EXPANSION BOLTS | HILTI KWIK BOLT TZ SIMPSON STRONG-BOLT 2 DEWALT/POWER POWER-STUD+ SD2 | HILTI KWIK BOLT 3 SIMPSON STRONG-BOLT 2 DEWALT/POWER POWER-STUD+ SD1 |
| SCREW ANCHORS | HILTI HUS-EZ SIMPSON TITEN HD DEWALT/POWER SCREW-BOLT+ | HILTI HUS-EZ SIMPSON TITEN HD DEWALT/POWER SCREW-BOLT+ |
| ADHESIVE ANCHORS (EPOXY ANCHORS) W/ A36 ALL-THREAD ROD | HILTI HIT-HY200 SIMPSON SET-XP DEWALT/POWER PURE110+ | HILTI HIT-HY70 SIMPSON SET-XP DEWALT/POWER AC100+ GOLD |
| ADHESIVE ANCHORS (EPOXY ANCHORS) W/ REBAR | HILTI HIT-HY200 SIMPSON SET-XP DEWALT/POWER PURE110+ | |

NOTES:

- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USING POST INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE GIVEN TO AVOID CONFLICTS WITH EXISTING REINFORCING. HOLES SHALL BE DRILLED AND CLEANED PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
- SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED, SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD WITH CALCULATIONS THAT ARE PREPARED AND SEALED BY A REGISTERED DESIGN PROFESSIONAL IN THE STATE IN WHICH THE PROJECT IS LOCATED SHOWING THAT THE SUBSTITUTED PRODUCT WILL ACHIEVE AN EQUIVALENT CAPACITY USING THE APPROPRIATE DESIGN PROCEDURE REQUIRED BY THE REFERENCED BUILDING CODE.
- ALTERNATE PRODUCTS SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL SHALL HAVE A VALID RESEARCH REPORT, ALSO KNOWN AS EVALUATION REPORT, INDICATING COMPLIANCE WITH APPROPRIATE ACCEPTANCE CRITERIA REQUIRED BY THE BUILDING CODE FOR THE INTENDED LOAD TYPE AND USE (E.G. WIND, SEISMIC, SUSTAINED TENSION, ETC). RESEARCH REPORTS SHALL BE ISSUED BY A SOURCE APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- ADHESIVE ANCHOR DESIGN TEMPERATURE RANGE IS 110°F (LONG TERM) AND 130°F (SHORT TERM).
- IN ADDITION TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, THE FOLLOWING GUIDELINES SHALL BE FOLLOWED FOR INSTALLATION OF ADHESIVE ANCHORS:
 - ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION.
 - ADHESIVE ANCHORS SHALL BE INSTALLED IN DRY CONCRETE, AND DURING DRY CONDITIONS.
 - ADHESIVE ANCHORS SHALL BE INSTALLED IN HOLES PREDRILLED WITH A CARBIDE TIPPED DRILL BIT.
 - ADHESIVE ANCHORS SHALL BE INSTALLED WITHIN THE TEMPERATURE RANGE SPECIFIED IN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, BUT NOT OUTSIDE OF THE DESIGN TEMPERATURE RANGE. LOADS SHALL NOT BE APPLIED TO ADHESIVE ANCHORS UNTIL THE FULL CURING TIME ASSOCIATED WITH THE INSTALLATION TEMPERATURE HAS ELAPSED.
 - INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED BY CERTIFIED PERSONNEL. CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM, OR EQUIVALENT.
 - SPECIAL INSPECTIONS SHALL BE PROVIDED FOR POST-INSTALLED ANCHORS IN ACCORDANCE WITH THE ANCHOR MPI AND/OR EVALUATION REPORT, UNLESS MORE SPECIFIC REQUIREMENTS ARE SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
 - WHEN ANCHORING TO CONCRETE MASONRY WITH VOIDS, THE APPROPRIATE SCREEN TUBE SHALL BE USED AS RECOMMENDED BY THE ADHESIVE MANUFACTURER.

CLASS B TENSION LAP SPLICE LENGTHS (ACI 318, SECTION 12.2.2 AND 12.15)



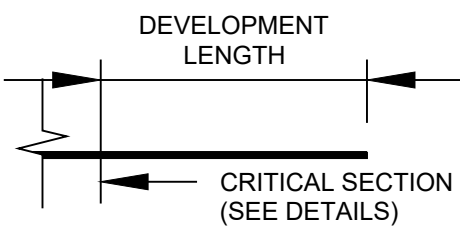
| F'c = 3000 PSI | | | | | F'c = 4000 PSI | | | | |
|----------------|----------|--------|------------|--------|----------------|----------|--------|------------|--------|
| BAR SIZE | TOP BARS | | OTHER BARS | | BAR SIZE | TOP BARS | | OTHER BARS | |
| | CASE 1 | CASE 2 | CASE 1 | CASE 2 | | CASE 1 | CASE 2 | CASE 1 | CASE 2 |
| #3 | 28 | 42 | 21 | 32 | #3 | 24 | 36 | 18 | 28 |
| #4 | 37 | 56 | 28 | 43 | #4 | 32 | 48 | 25 | 37 |
| #5 | 46 | 69 | 36 | 53 | #5 | 40 | 60 | 31 | 46 |
| #6 | 56 | 83 | 43 | 64 | #6 | 48 | 72 | 37 | 55 |
| #7 | 81 | 131 | 62 | 93 | #7 | 70 | 105 | 54 | 81 |
| #8 | 93 | 139 | 71 | 107 | #8 | 80 | 120 | 62 | 92 |
| #9 | 104 | 157 | 80 | 120 | #9 | 90 | 136 | 70 | 104 |
| #10 | 118 | 176 | 90 | 136 | #10 | 102 | 153 | 78 | 117 |
| #11 | 131 | 196 | 100 | 151 | #11 | 113 | 170 | 87 | 130 |

NOTES:

- TABULATED VALUES ARE BASED ON MINIMUM YIELD STRENGTH OF 60 KSI. LENGTHS ARE IN INCHES.
- CASE 1 AND CASE 2 DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND BAR SPACING AND ARE DEFINED AS FOLLOWS:

| | | |
|-----------------|--------|--|
| BEAMS & COLUMNS | CASE 1 | CLEAR SPACING ≥ 2.0 BAR DIA |
| | CASE 2 | CLEAR SPACING < 2.0 BAR DIA |
| ALL OTHERS | CASE 1 | CONCRETE COVER ≥ 1.0 BAR DIA AND CLEAR SPACING ≥ 2.0 BAR DIA |
| | CASE 2 | CONCRETE COVER < 1.0 BAR DIA OR CLEAR SPACING < 2.0 BAR DIA |
- TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE PLACED BELOW THE DEVELOPMENT OR SPLICE.
- REBAR IS ASSUMED TO BE UNCOATED (NO EPOXY COATING). INCREASE DEVELOPMENT LENGTHS SHOWN BY 1.3 FOR TOP, AND 1.5 FOR OTHER EPOXY COATED BARS.
- FOR LIGHTWEIGHT CONCRETE, MULTIPLY TABULATED VALUES BY 1.3.
- LAP SPLICE LENGTHS SHALL BE AS SHOWN IN THE TABLE ABOVE, UNLESS NOTED OTHERWISE.
- WHERE BARS OF DIFFERENT SIZES ARE LAP SPICED, THE LAP SPLICE LENGTH SHALL BE THE LARGER OF THE TENSION DEVELOPMENT LENGTH OF THE LARGER BAR AND THE TENSION LAP SPLICE LENGTH OF THE SMALLER BAR.

TENSION DEVELOPMENT LENGTHS (ACI 318, SECTION 12.2.2)

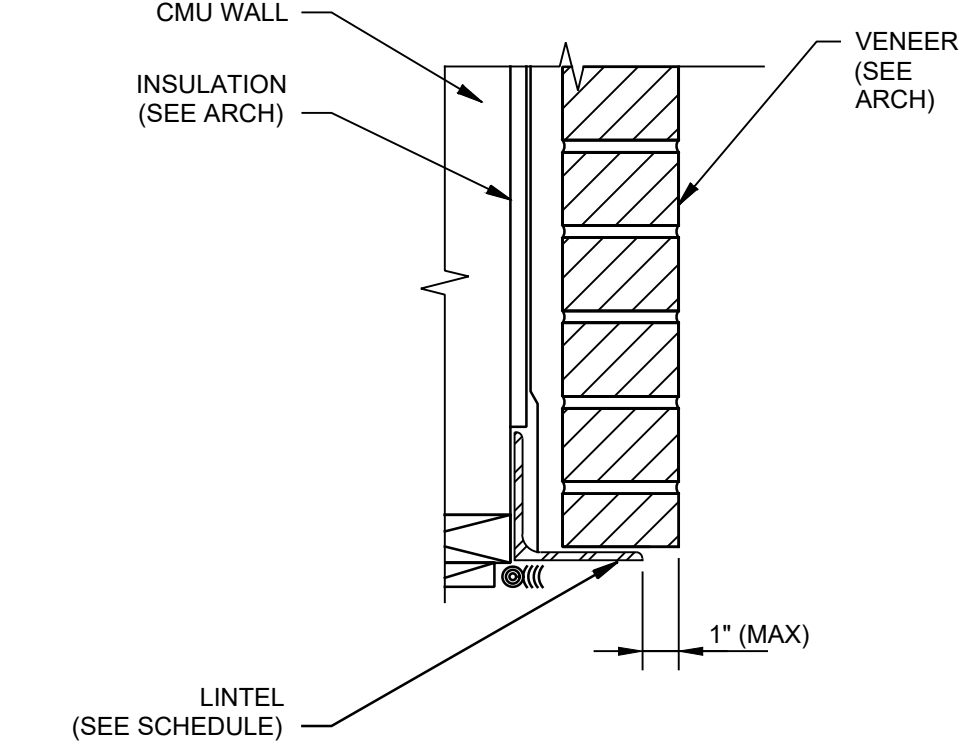


| F'c = 3000 PSI | | | | | F'c = 4000 PSI | | | | |
|----------------|----------|--------|------------|--------|----------------|----------|--------|------------|--------|
| BAR SIZE | TOP BARS | | OTHER BARS | | BAR SIZE | TOP BARS | | OTHER BARS | |
| | CASE 1 | CASE 2 | CASE 1 | CASE 2 | | CASE 1 | CASE 2 | CASE 1 | CASE 2 |
| #3 | 21 | 32 | 16 | 25 | #3 | 18 | 28 | 14 | 21 |
| #4 | 28 | 43 | 22 | 33 | #4 | 25 | 37 | 19 | 28 |
| #5 | 36 | 53 | 27 | 41 | #5 | 31 | 46 | 24 | 36 |
| #6 | 43 | 64 | 33 | 49 | #6 | 37 | 55 | 28 | 43 |
| #7 | 62 | 93 | 48 | 72 | #7 | 54 | 81 | 42 | 62 |
| #8 | 71 | 107 | 55 | 82 | #8 | 62 | 92 | 47 | 71 |
| #9 | 80 | 120 | 62 | 93 | #9 | 70 | 104 | 54 | 80 |
| #10 | 90 | 136 | 70 | 104 | #10 | 78 | 117 | 60 | 90 |
| #11 | 100 | 151 | 77 | 116 | #11 | 87 | 130 | 67 | 100 |

BRICK/STONE VENEER LOOSE LINTEL SCHEDULE FLUSH-TO-CMU)

| SPAN (OPENING) | LINTEL SIZE |
|----------------|--|
| 0'-0" - 4'-0" | BENT PLATE 5 1/2" x 3 1/2" x 5/16" (LLH) |
| 4'-0" - 6'-0" | BENT PLATE 5 1/2" x 5 1/2" x 3/8" |
| 6'-0" - 8'-0" | BENT PLATE 7" x 5 1/2" x 3/8" (LLV) |

DETAILS:



NOTES:

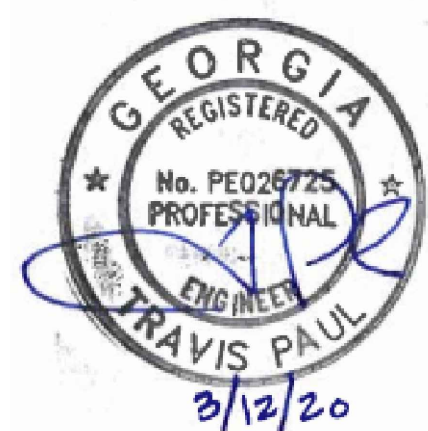
- PROVIDE 4" BEARING (MIN) AT EACH END OF LINTEL ANGLES.

CONCRETE MASONRY UNITS REINFORCING LAP SPLICE LENGTHS

| SIZE | BAR SIZE | | | | | | |
|---------|----------|-----|-----|-----|-----|-----|-----|
| | #3 | #4 | #5 | #6 | #7 | #8 | #9 |
| 8" CMU | 16" | 21" | 26" | 43" | 60" | M | M |
| 12" CMU | 16" | 21" | 26" | 40" | 46" | 61" | 74" |

NOTES:

- F'm = 1500 psi
- REBAR IS ASSUMED TO BE UNCOATED (NO EPOXY COATING)
- REBAR IS LOCATED IN CENTER OF CELL.
- 'M' DENOTES MECHANICAL BAR SPLICE IS REQUIRED. SPLICE SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR IN TENSION OR COMPRESSION.



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