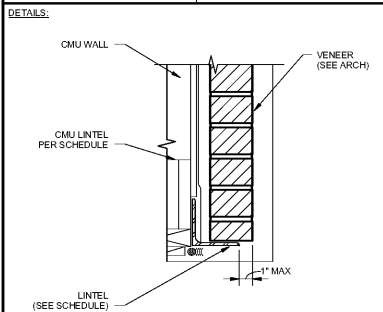


**BRICK/STONE VENEER LINTEL SCHEDULE (FLUSH-TO-CMU)**

SPAN (OPENING)	LINTEL SIZE
0'-0" - 5'-0"	L7 x 4 x 3/8 (LLH)
5'-0" - 5'-0"	BENT PL 7 X 6 X 3/8 (LLH)
5'-0" - 10'-0"	BENT PL 7 X 7 X 3/8
10'-0" - 12'-4"	BENT PL 8 X 7 X 3/8 (LLV)



- NOTES:**
1. PROVIDE 4" BEARING (MIN) AT EACH END OF LINTEL ANGLES.

**CONCRETE MIXTURES**

APPLICATION	EXPOSURE	F'c	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
EXTERIOR SLAB-ON-GRADE	F1	4500 PSI	0.45	4.5% ± 1.5%	1"	150 PCF
SLAB-ON-GRADE	F0	3000 PSI	SEE NOTE 2	SEE NOTE 3	1"	150 PCF
FOUNDATION WALLS	F0	3000 PSI	SEE NOTE 2	SEE NOTE 3	3/4"	150 PCF
SITE WALLS	F0	4000 PSI	0.45	4.5% ± 1.5%	3/4"	150 PCF
INT NVT ELEVATED SLAB ON STEEL DECK	F0	4000 PSI	SEE NOTE 2	SEE NOTE 3	3/4"	150 PCF
INT LWT ELEVATED SLAB ON STEEL DECK	F0	4000 PSI	SEE NOTE 2	5.5% ± 1.5%	3/4"	120 PCF
EXT ELEVATED SLAB & CIP STAIR & VAULT LID	F1	4000 PSI	SEE NOTE 2	SEE NOTE 3	3/4"	150 PCF
PIERS	F0	4000 PSI	SEE NOTE 2	SEE NOTE 3	3/4"	150 PCF

- NOTES:**
1. EXPOSURE CATEGORIES AND CLASSES FOR SULFATES, PERMEABILITY, AND CORROSION PROTECTION OF REINFORCEMENT IS CLASS ZERO UNLESS NOTED OTHERWISE.
  2. 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.
  3. 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 NORMALWEIGHT CONCRETE TO RECEIVE A HARD TROWEL FINISH AND ENTRAINMENT AIR SHALL NOT EXCEED 3%. SLABS SHALL BE PROPERLY FINISHED TO AVOID SURFACE IMPERFECTIONS, SUCH AS BLISTERING OR DELAMINATION.
  4. COURSE 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.

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

BAR SIZE	F'c = 3000 PSI				F'c = 4000 PSI			
	TOP BARS		OTHER BARS		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	24	36	18	28
#4	37	56	28	43	34	48	25	37
#5	46	69	36	53	45	60	31	46
#6	56	83	43	64	54	72	37	55
#7	81	131	62	93	70	105	54	81
#8	93	139	71	107	80	120	62	92
#9	104	157	80	120	90	136	70	104
#10	118	176	90	136	102	153	78	117
#11	131	196	100	151	113	170	87	130

- NOTES:**
1. TABULATED VALUES ARE BASED ON MINIMUM YIELD STRENGTH OF 60 KSI. LENGTHS ARE IN INCHES.
  2. 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	CASE 2
	CLEAR SPACING ≥ 2.0 BAR DIA	CLEAR SPACING < 2.0 BAR DIA
  3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW THE DEVELOPMENT OR SPLICE.
  4. REBAR IS ASSUMED TO BE UNCOATED AND EPOXY COATING. INCREASE DEVELOPMENT LENGTHS SHOWN BY 1.3 FOR TOP, AND 1.5 FOR OTHER EPOXY COATED BARS.
  5. FOR LIGHTWEIGHT CONCRETE, MULTIPLY TABULATED VALUES BY 1.3.
  6. LAP SPLICE LENGTHS SHALL BE AS SHOWN IN THE TABLE UNLESS NOTED OTHERWISE.
  7. WHERE BARS OF DIFFERENT SIZES ARE LAP SPLICED, THE DEVELOPMENT LENGTH SHALL BE THE DEVELOPMENT LENGTH OF THE LARGER BAR AND THE TENSION LAP SPLICE LENGTH OF THE SMALLER BAR.

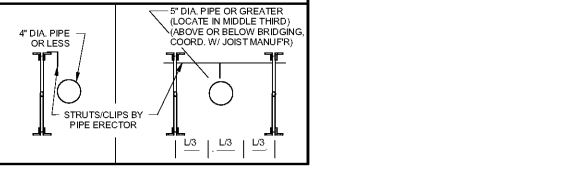
**TENSION DEVELOPMENT LENGTHS (ACI 318, SECTION 12.2.2)**

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

**WATER PIPING SUPPORT SCHEDULE**

PIPE DIA. (IN.)	PIPE WEIGHT (LB./FT.)	PIPE SUPPORT SPACING (MAX.) (FT.)
2 1/2	8.5	12
3	11.5	12
4	17.0	12
5	24.5	12
6	32.5	6
8	52.0	6

- NOTES:**
1. PIPES IN TABLE ARE SCHEDULE 40 OR STANDARD (S) PIPE.
  2. PIPE WEIGHT INCLUDES: PIPE + INSULATION + WATER.
  3. EXACT PIPE LOCATIONS TO BE COORDINATED W/ MECHANICAL DRAWINGS.
  4. PIPES RUNNING PARALLEL TO JOISTS W/ DIA. GREATER THAN 4" OR RUNNING IN COMBINATION W/ OTHER PIPES SHALL BE DISTRIBUTED TO A MINIMUM OF 2 JOISTS.
  5. MEMBER SIZES ON PLANS HAVE BEEN ADJUSTED TO SUPPORT WATER PIPING LOADS IN THIS TABLE.
  6. ANY PIPE OR COMBINATION OF PIPES WITH TOTAL DIAMETERS GREATER THAN 8" SHALL BE HUNG PER THE DIRECTION OF THE ARCH. - NOTIFY ARCH. PRIOR TO PROCEEDING W/ WORK.
  7. NO PIPING SHALL RUN BELOW THE BOTTOM CHORD OF THE BAR JOIST.



**ABBREVIATIONS**

ACI	AMERICAN CONCRETE INSTITUTE	K	KIPS (KILOPOUNDS)
ADDL	ADDITIONAL	KLF	KIPS PER LINEAL FOOT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL	KSI	KIPS PER SQUARE INCH
AFF	ABOVE FINISHED FLOOR	KSF	KIPS PER SQUARE FOOT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	L	LENGTH
ASIS	AMERICAN IRON AND STEEL INSTITUTE	LH	LONG FACE HORIZONTAL
ALTN	ALTERNATE	LV	LONG FACE VERTICAL
AR	ANCHOR ROD	LG	LONG
ARCH	ARCHITECT	LL	LIVE LOAD
ASD	ALLOWABLE STRESS DESIGN	LLH	LONG LEG HORIZONTAL
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	LVV	LONG LEG VERTICAL
AWS	AMERICAN WELDING SOCIETY	LO	LOW
BD	BOTTOM OF	LOCS	LOCATIONS
BTW	BETWEEN	LRFD	LOAD RESISTANCE FACTORED DESIGN
BLDG	BUILDING	LSH	LONG SIDE HORIZONTAL
BM	BEAM	LSV	LONG SIDE VERTICAL
BOT	BOTTOM	LW	LONG
BP	BASE PLATE	LWC	LOAD WEIGHT CONCERN
BRDG	BRIDGING	MAX	MAXIMUM
BRG	BEARING	MEP	MECHANICAL ELECTRICAL & PLUMBING
CC	CENTER-CENT	MIN	MINIMUM
CCF	COLD FORMED STEEL FRAMING	MIS	MISCELLANEOUS
CJ	CONTROL JOINT	MP	MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS
CL	CENTERLINE	MTL	METAL
CLR	CLEAR	NIC	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	NS	NEAR SIDE
COLLN	COLUMN	NTS	NOT TO SCALE
CONC	CONCRETE	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CON	CONCRETE	OH	OPPOSITE HAND
CTR	CENTER	OPNG	OPENING
D&E	DRILL & EPOXY	P&F	POWDER ACTUATED FASTENERS
D	DEEP	PEMB	PRE-ENGINEERED METAL BUILDING
DA	DEFORMED BAR ANCHOR	P/J	PREFORMED JOINT FILLER
DBL	DOUBLE	PLT	PLATE
DEP	DEPRESSED	PLF	POUNDS PER LINEAL FOOT
DIA	DIAMETER	PPHC	PRESTRESSED PRECAST HOLLOW CORE CONCRETE
DIAG	DIAGONAL	PREFAB	PRE-FABRICATED
DL	DEAD LOAD	PSI	POUNDS PER SQUARE INCH
DOWL	DOWEL	PSF	POUNDS PER SQUARE FOOT
DN	DOWN	PT	POST TENSIONED
EA	EACH	P.T.	PRESSURE TREATED
EF	EACH FACE	QTY	QUANTITY
EJ	EXPANSION JOINT	R&D	RADIUS
ELEV	ELEVATION	RD	ROOF DRAIN
ENG	ENGINEER OR ENGINEERING	REF	REFERENCE
EOS	EDGE OF SLAB	REINF	REINFORCING
EQ	EQUAL	REOD	REQUIRED
EW	EACH WAY	REV	REVISION
EXP	EXISTING	RFTU	ROOF TOP UNIT
EXT	EXTERIOR	SCHED	SCHEDULE
F	FACE OF	SER	STRUCTURAL ENGINEER OF RECORD
FD	FLOOR DRAIN	SF	SQUARE FOOT
FF	FOUNDATION	SHTHG	SHEDDING
FLR	FLOOR	SM	SIMILAR
FR	FIRE RETARDANT TIMBER	SLH	SHORT LEG HORIZONTAL
FS	FAR SIDE	SLV	SHORT LEG VERTICAL
FTG	FOOTING	SPLA	SPACES
FV	FIELD VERIFY	SPEC	SPECIFICATION
GA	GAUGE GAUGE	SS	STAINLESS STEEL
GALV	GALVANIZED	STD	STANDARD
GCR	GENERAL CONTRACTOR	STIFF	STIFFENER
GRDR	GRINDER	STL	STEEL
GENL	GENERAL	SW	SHORT WAY
GIPSM	GIPSUM	SYM	SYMMETRICAL
H&A	HEADER CONCRETE ANCHORS	T	TOP OF
HDR	HEADER	T&B	TOP & BOTTOM
HG	HIP GORDER	T&G	TONGUE & GROOVE
HGR	HANGER	TEMP	TEMPORARY
H	HIGH	TR	TRUSS MEMBER
HD	HOOKED	THK	THICKENED OR THICK
HORIZ	HORIZONTAL	THRU	THROUGH
HSS	HOLLOW STRUCTURAL SECTION	TYP	TYPICAL
H.T.	HEAVY TIMBER	UNO	UNLESS NOTED OTHERWISE
ID	INSIDE DIAMETER	VERT	VERTICAL
IE	INVERT ELEVATION	W	WITH
INSUL	INSULATION OR INSULATING	WO	WITHOUT
INT	INTERIOR	WD	WOOD
JST	JOIST	WP	WORK POINT
JT	JOINT	WWR	WELDED WIRE REINFORCEMENT

**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 PURE10+	HILTI HIT-HY70 SIMPSON SET-XP DEWALT POWER ACT100+ GOLD
ADHESIVE ANCHORS (EPOXY ANCHORS) W/ REBAR	HILTI HIT-HY200 SIMPSON SET-XP DEWALT POWER PURE10+	

- NOTES:**
1. 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 CONFLICT 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.
  2. 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.
  3. 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.
  4. ADHESIVE ANCHOR DESIGN TEMPERATURE RANGE IS 110°F (LONG TERM) AND 130°F (SHORT TERM).
  5. IN ADDITION TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, THE FOLLOWING GUIDELINES SHALL BE FOLLOWED FOR INSTALLATION OF ADHESIVE ANCHORS:  
    1. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION.
    2. ADHESIVE ANCHORS SHALL BE INSTALLED IN DRY CONCRETE, AND DURING DRY CONDITIONS.
    3. ADHESIVE ANCHORS SHALL BE INSTALLED IN HOLES PREDRILLED WITH A CARBIDE TIPPED DRILL BIT.
    4. 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.
    5. 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.
    6. SPECIAL INSPECTIONS SHALL BE PROVIDED FOR POST-INSTALLED ANCHORS IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S AND/OR EVALUATION REPORT, UNLESS MORE SPECIFIC REQUIREMENTS ARE SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
    7. WHEN ANCHORING TO CONCRETE MASONRY WITH VOIDS, THE APPROPRIATE SCHEDULE SHALL BE USED AS COMMENTED BY THE ADHESIVE MANUFACTURER.

**MIN. LAP SPLICE LENGTH SCHEDULE "A" FOR CONCRETE MASONRY UNITS (CMU) WITH (1) REINFORCEMENT BAR IN CENTER OF WALL**

CMU TYPE	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
6" CMU	12"	20"	32"	54"	NP	NP	NP		
8" CMU	12"	15"	23"	43"	60"	72"	NP		
10" CMU	12"	12"	18"	34"	46"	71"	82"		
12" CMU	12"	12"	15"	28"	38"	57"	71"		

- NOTES:**
1. F<sub>tm</sub> = 1500 psi
  2. REBAR IS ASSUMED TO BE UNCOATED AND EPOXY COATING.
  3. SCHEDULE APPLIES WHERE (1) BAR PER CELL IS REOD PER CMU WALL REINFORCED W/ (1) BAR @ EA FCMU (TYP) REINFORCED W/ (1) BAR @ EA FCMU (TYP).
  4. "NP" DENOTES NOT POSSIBLE DUE TO CLEARANCE FOR THIS WALL.
  5. ADDITIONAL BARS REOD @ SHEAR WALLS END ZONES PER SCHEDULE 4/5-3.31. REGARDLESS OF THE # OF BARS PER CELL LISTED IN THE SCHEDULE, SHALL BE LOCATED WITHIN THE CELL TO MATCH THE TYPICAL WALL VERTICAL REINFORCING. WHERE TYPICAL WALL VERTICAL REINFORCING IS (1) BAR CENTERED IN CMU CELL AND (2) BARS PER CELL ARE REOD @ THE SHEAR WALL END ZONE PER 4/5-3.31, THE SHEAR WALL END ZONE BARS SHALL BE LOCATED CENTERED IN THE CMU CELL W/ MIN 3/4" CLEARANCE BETWEEN BARS W/ LAP SPLICE LENGTH PER SCHEDULE "A".

**MIN. LAP SPLICE LENGTH SCHEDULE "B" FOR CONCRETE MASONRY UNITS (CMU) WITH (2) REINFORCEMENT BARS OFF-CENTER**

CMU TYPE	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
8", 10" OR 12" CMU	15"	28"	40"	54"	63"	72"	82"		

- NOTES:**
1. F<sub>tm</sub> = 1500 psi
  2. REBAR IS ASSUMED TO BE UNCOATED AND EPOXY COATING.
  3. SCHEDULE APPLIES WHERE (2) BARS PER CELL REOD PER CMU WALL REINFORCED. REBAR SHALL BE LOCATED WITHIN CMU CELL (1) BAR @ EACH FACE OF CMU WITH 2" MASONRY COVER (DISTANCE FROM NEAREST EXT FCMU TO OUTERMOST REBAR).
  4. "M" DENOTES MECHANICAL BAR SPLICE IS REQUIRED. SPLICE SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR IN TENSION OR COMPRESSION.
  5. ADDITIONAL BARS REOD @ SHEAR WALLS END ZONES PER SCHEDULE 4/5-3.31. REGARDLESS OF THE # OF BARS PER CELL LISTED IN THE SCHEDULE, SHALL BE LOCATED WITHIN THE CELL TO MATCH THE TYPICAL WALL VERTICAL REINFORCING. WHERE TYPICAL WALL VERTICAL REINFORCING IS (1) BAR CENTERED IN CMU CELL AND (2) BARS PER CELL ARE REOD @ THE SHEAR WALL END ZONE PER 4/5-3.31, THE SHEAR WALL END ZONE BARS SHALL BE LOCATED CENTERED IN THE CMU CELL W/ MIN 3/4" CLEARANCE BETWEEN BARS W/ LAP SPLICE LENGTHS PER SCHEDULE "A".

**STEEL STUD DESIGNATIONS**

MATERIAL THICKNESS (MILS)	CORRESPONDING GAUGE (FOR REFERENCE ONLY)
18	25
27	22
33	20
43	18
54	16
68	14
97	12

**CHAPMAN GRIFFIN LANIER SUSSEN BACH ARCHITECTS**  
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 RIVERWOOD HIGH SCHOOL - PHASE 3 - AUDITORIUM/GYMNASIUM ADDITION  
 5900 RAIDER DRIVE NW SANDY SPRINGS, GA 30328  
 FULTON COUNTY SCHOOLS RFP NO. XXX-XX  
 PROJECT NO. 0217302.00  
 DATE: 09/17/18  
 DRAWN BY: RAS  
 CHECKED BY: ACB  
 SHEET NO. S-0.02