

GENERAL CONCRETE NOTES:

- CONCRETE PROTECTION FOR KEINFURGOUS CONTRETE PROTECTION THE DRAWINGS:

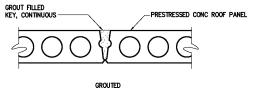
 A CONCRETE DEPOSITED DIRECTLY AGAINST SOIL

 B CONCRETE EXPOSED TO WEATHER (#5 OR SMALLER) —

 (#6 OR LARGER) 1 CONCRETE PROTECTION FOR REINFORCING SHALL BE AS FOLLOWS UNLESS
- C SLABS
 AT SURFACES CONTACTING WATER OR SEWAGE
 D BEAMS AND COLUMNS (TO MAIN REINFORCEMENT)
 2*
 (TO COLUMN TES OR STIRRUPS)
 1 1/2*
 - E WALLS 12" OR MORE

 WALLS LESS THAN 12" (#5 OR SMALLER) (#6 OR LARGER) -
 - F FOR SURFACES EXPOSED TO WATER OR SEWAGE OR AREAS EXPOSED TO HIGH HUMOITTY IN BEAMS, COLUMNS, WALLS AND SLABS ADD 1/2° TO ABOVE.
- 2 SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE.
- 3 ALL EMBEDDED ITEMS SHALL BE INSTALLED AND SECURED IN PLACE BEFORE CONCRETE PLACEMENT. CONSULT ELECTRICAL, MECHANICAL AND HVAC DRAWINGS FOR PIPING, EMBEDDED ITEMS AND OPENINGS.
- 4 ALL JOINTS IN WATER BEARING STRUCTURES SHALL HAVE A WATERSTOP.
 ALL JOINTS BELOW GRADE IN WALLS OR SLABS WHICH ENCLOSE AN
- ACCESSIBLE AREA SHALL HAVE WATERSTOPS.

 5 CONSTRUCTION JOINTS NOT SHOWN SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER PRIOR TO SUBMITTING REBAR SHOP DRAWINGS.
- 6 PROVIDE VERTICAL CONSTRUCTION JOINTS IN WALLS AND HORIZONTAL JOINTS IN SLABS NOT GREATER THAN 45'-0" ON CENTER.
- 7 NO BACKFILL SHALL BE PLACED AGAINST ANY SUBSTRUCTURE WALLS
 UNLESS ADJACENT FLOOR SLABS HAVE TAKEN THEIR FINAL SET, OR
 WALLS HAVE BEEN PROPERLY BRACED, AND IN ANY CASE NOT SOONER THAN 28 DAYS AFTER THE PLACING OF CONCRETE UNLESS APPROVED



- P 1/4"X3"X6"

P 1/4x4x0'-6"

PRESTRESSED CONC ROOF PANEL

NOTE: WELDED CONNECTION IS REQUIRED ONLY WHERE SHOWN ON PLANS, EITHER WELDED CONNECTION DETAIL MAY BE USED.

PRECAST PANEL CONNECTION

0341203

P 1/4x3x0'-6" WITH ANCHORS, TYP

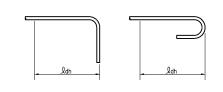
DEVELOPMENT LENGTH OF STANDARD HOOKS

fc' = 4000 psi OR GREATER

fy = 60,000 psi

•		•	
BAR	DEVELOPMENT LENGTH, I dh		
SIZE	BASIC	W/ CONC COVER *	
#3	8"	6"	
#4	10"	7"	
#5	1'-0"	9"	
#6	1'-3'	11*	
#7	1'-5"	1'-0"	
#8	1'-7"	1'-2"	
#9	1'-10"	1'-4"	
#10	2'-1"	1'-6"	
#11	2'-3"	1'-7"	

* SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2 1/2"; AND FOR 90" HOOK END COVER BEYOND OUTSIDE END OF



BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH							
FOR BARS IN COMPRESSION							
fy = 60,000 psi fc' = 4000 psi OR GREATER							
BASIC DEVEL	BASIC DEVELOPMENT LENGTH		SPLICE LENGTH				
BASIC	CONFINEMENT *	SIZE	BASIC	CONFINEMENT *			
8"	8"	# 3	12"	12"			
10"	8"	# 4	1'-3"	12"			
1'-0"	9"	# 5	1'-7"	1'-3"			
1'-3"	1'-0"	# 6	1'-11"	1'-6"			
1'-5"	1'-1"	# 7	2'-3"	1'-9"			
1'-7"	1'-3"	# 8	2'-6"	1'-11"			
1'-10"	1'-4"	# 9	2'-10"	2'-2"			
2'-1"	1'-7"	# 10	3'-3"	2'-6"			
2'-3"	1'-8"	# 11	3'-7"	2'-9"			

BAR ENCLOSED WITHIN SPIRALS OF NOT LESS THAN 1/4 INCH DIAMETER AND NOT MORE THAN 4 INCH PITCH OR WITHIN #4 TIES IN CONFORMANCE WITH ACI 318. SECTION 7.10.5 AT NOT MORE THAN 4 INCHES ON CENTER, FACTOR 0.75 USED.

BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH FOR BARS IN TENSION

fv = 60.000 psifc' = 4000 psi OR GREATER, NORMAL WEIGHT CONCRETE BASIC DEVELOPMENT LENGTH ** CLASS B SPLICE LENGTH ** 1.3 xl d CLEAR SPACING≥3" | CLEAR SPACING<3" | SIZE | CLEAR SPACING≥3" | CLEAR SPACING<3" BASIC TOP * BASIC TOP * BASIC TOP * BASIC TOP * 1'-0" 1'-0" 1'-4" # 3 1'-0" 1'-3" 1'-4" 1'-8" 1'-3" 1'-7" 2'-1" # 4 1'-3" 1'-8" 2'-1" 2'-8" 1'-7" 2'-4" 3'-0" # 5 1'-7" 2'-0" 3'-0" 3'-11" 1'-3" 1'-5" 1'-11" 3'-1" 4'-0" #6 1'-11" 2'-5" 4'-0" 5'-2" 2'-5" 3'-1" 4'-11" 6'-4" # 7 3'-1" 4'-0" 6'-4" 8'-3" 3'-11" 6'-0" 7'-9" #8 3'-11" 5'-1" 10'-1" 3'-8" 4'-9" 6'-8" 8'-8" # 9 4'-9" 6'-2" 8'-8" 11'-4" 4'-5" 5'-8" 7'-5" 9'-8" # 10 5'-8" 7'-5" 9'-8" 12'-7" 5'-2" 6'-8" 8'-2" 10'-8" # 11 6'-8" 8'-8" 10'-8" 13'-10"

- * TOP REINFORCEMENT IS HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
- LENGTHS SHOWN IN CHART SHALL BE MODIFIED WHERE REQUIRED TO CONFORM TO THE PROVISIONS OF ACI 318, SECTION 12.2.

				DESIGNED H & S
				DRAWN H&cS
				CHECKED
3	AS BUILT	OCT 2007	RLT	PROJ. ENGR. H&S
2	CONSTRUCTION	MAR 2004	RLT	
1	REGULATORY APPROVAL	NOV 2003	RLT	
NO.	ISSUED FOR	DATE	BY	APPROVED

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RECORD DRAWING

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CITY OF ROANOKE VIRGINIA

REGIONAL WATER POLLUTION CONTROL PLANT PROCESS TRAIN IMPROVEMENTS

MISCELLANEOUS STANDARD DETAILS

DATE MARCH 2004 THE SCALE BAR SHOWN BELOW H № S JOB 30788B MEASURES ON INCH LONG ON CONTRACT DRAWING NUMBER THE ORIGINAL DRAWING. D8