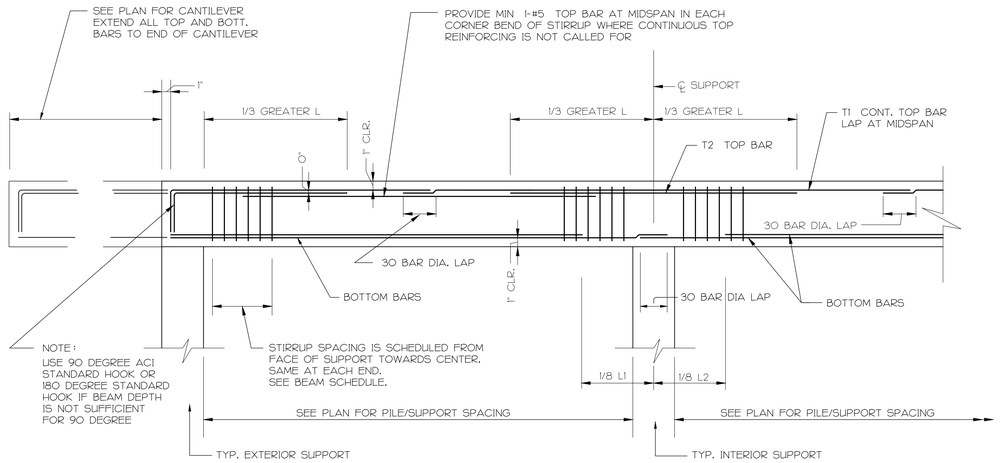
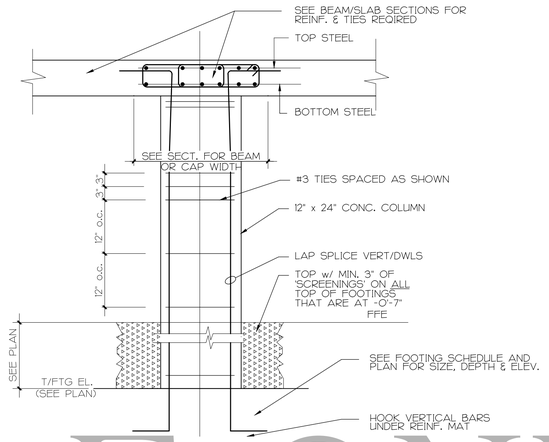


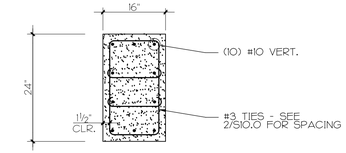
DETAILING NOTES

1. EXTEND A MINIMUM OF 3 BOTTOM BARS INTO SUPPORT OR NOT LESS THAN 25% OF TOTAL AREA OF BOTTOM REINFORCING STEEL. CUT OFF REMAINING BOTTOM REINFORCING STEEL AT 1/8 CLEAR SPAN FROM FACE OF COLUMN OR SUPPORT.
2. EXTEND ALL TOP AND BOTTOM REINFORCING STEEL FROM ADJACENT SPAN THROUGH CANTILEVER UNLESS NOTED OTHERWISE.

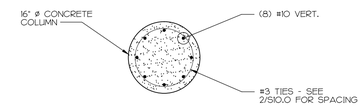
1 / S10.0 TYPICAL BEAM REINFORCEMENT BENDING DIAGRAM
3/4" = 1'-0"



2 / S10.0 SECTION AT CONCRETE COLUMN
3/4" = 1'-0"



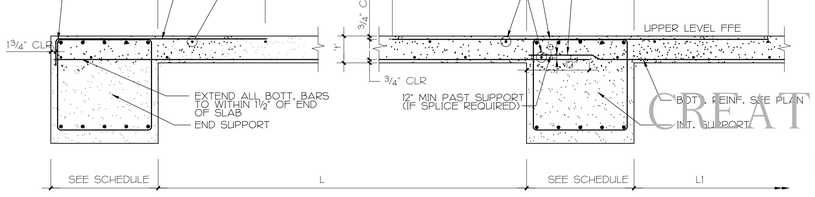
COLUMN C1



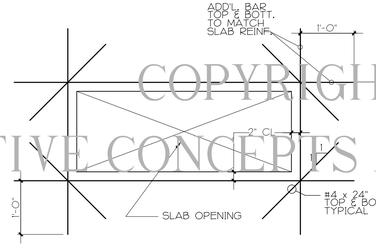
COLUMN C2

TYPICAL COLUMNS

PRELIMINARY COORDINATION ONLY NOT FOR CONSTRUCTION



3 / S10.0 TYPICAL REINFORCING AT SUPPORTED SLAB
3/4" = 1'-0"



4 / S10.0 TYPICAL SLAB REINFORCING
3/4" = 1'-0"

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DESIGN

DESIGN OF THIS P/T SLAB IS BASED UPON:
1) DESIGN AND CONSTRUCTION OF POST-TENSIONED SLABS, POST-TENSIONING INSTITUTE, 1996.
2) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACT 318-89R, AMERICAN CONCRETE INSTITUTE.
3) SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS ACI 301-99, AMERICAN CONCRETE INSTITUTE.
4) CONTROL OF CRACKING IN CONCRETE STRUCTURES, ACI 224.2-80, AMERICAN CONCRETE INSTITUTE.

MATERIALS

1) ALL POST-TENSIONING TENDONS AND ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF THE GUIDE SPECIFICATIONS FOR POST-TENSIONING MATERIALS, POST-TENSIONING INSTITUTE, 1980.

2) TENDONS SHALL BE FABRICATED FROM 1/2" DIAMETER, 270 K STRAND IN ACCORDANCE WITH ASTM A416. TENDONS SHALL BE "UNBONDED", AND ANCHORED AT 28.9 KIPS. ANCHORAGES MUST CONFORM TO PTI DESIGN SPECIFICATIONS. STRAND LENGTHS ARE THE RESPONSIBILITY OF THE SUPPLIER.

3) CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS AND MINIMUM OF 3000 PSI AT THE TIME OF TENSIONING. SLAB SHOULD BE STRESSED WITHIN 7 TO 10 DAYS. TO MINIMIZE CRACKING DUE TO SHRINKAGE, PARTIAL STRESSING IS RECOMMENDED. PARTIAL STRESS TO 30% OF TOTAL REQUIRED STRESS, 24 TO 36 HOURS AFTER THE CONCRETE POUR. WATER CONTENT SHOULD BE CONTROLLED, MINIMIZED, AND IN ACCORDANCE WITH ACI BUILDING CODE REQUIREMENTS (REFERENCED ABOVE) TO INSURE GOOD QUALITY.

4) ALL CONVENTIONAL REINFORCING BARS SHALL BE GRADE 60 UNLESS SPECIFIED OTHERWISE, AND CONFORM TO ASTM A615.

CONSTRUCTION

1) CONSTRUCTION JOINTS ARE NOT PERMITTED UNLESS SHOWN ON PLAN.

2) TENDONS AND BARS SHALL BE SUPPORTED ON CHAIRS SPACED AT 4 FOOT INTERVALS, MINIMUM, AND TIED AT ALL INTERSECTIONS TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT. S-HOOKS MAY NOT BE USED AS TENDON TIES.

3) CONCRETE SHALL BE WELL CONSOLIDATED AROUND TENDON ANCHORAGES, VIBRATING IS RECOMMENDED.

4) CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.

5) WHERE THERE ARE DISCREPANCIES BETWEEN SLAB DIMENSIONS AND THE ARCHITECTURAL PLANS, THE ARCHITECTURAL PLANS SHALL CONTROL.

6) COORDINATE STRUCTURAL DRAWINGS WITH ARCHITECTURAL AND PLUMBING DRAWINGS FOR ALL OPENINGS, DROPS, INSERTS, AND RELATED ITEMS.

7) IT IS ADVISABLE TO HAVE THE OWNER OR A REPRESENTATIVE OF THE BUILDER PRESENT DURING THE FLOOR POUR AND WHEN THE TENDONS ARE STRESSED.

PLAN AND SECTION NOTES

1) NOT ALL SECTIONS SHOWN WILL BE APPLICABLE TO EACH PROJECT.
2) FOR "D" & "W" DIMENSIONS, SEE PLAN SHEET.
3) △ DENOTES STRAND SUPPORTED BY 2" CHAIR (4 FT. MINIMUM O.C.E.W.).
4) ✱ DENOTES DIMENSION TO BE VERIFIED.
5) ◄— DENOTES END OF STRAND TO BE STRESSED.
6) ⊢— DENOTES FACTORY SEATED ANCHOR (DEAD END).
7) STRESSING END AND DEAD END OF CABLE CAN BE REVERSED AT CONTRACTORS DISCRETION.
8) B5-00 INDICATES "BEAM STRAND" TO BE DRAPED IN BOTTOM OF BEAM. (SEE TYPICAL BEAM ELEVATION)
9) S-00 INDICATES "SLAB STRAND" TO BE CENTERED IN SLAB.
10) ◄►— DENOTES 2 STRANDS TO BE STRESSED.

UNBONDED POST-TENSIONED PRE-STRESSED CONCRETE

POST-TENSIONED NOTES

1. ALL PRE STRESSED CONCRETE DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH ACI CODE 318-95.
2. ALL P/T TENDONS, ANCHORS, ETC. SHALL BE AN "UNBONDED" SYSTEM
3. ONE SAMPLE OF WIRE OR STRAND FROM EACH REEL OR HEAT PROPOSED TO BE USED IN POST-TENSIONING TENDONS SHALL BE TESTED BY AN APPROVED LABORATORY AT THE CONTRACTOR'S EXPENSE. THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO PLACING.
4. CONCRETE STRENGTHS AT TRANSFER OF PRE STRESS FORCE TO CONCRETE SHALL BE 3000 PSI MINIMUM.
5. ALL INSERTS SHALL BE HELD SECURELY IN PLACE PRIOR TO CASTING OF CONCRETE UNLESS OTHERWISE APPROVED BY THE ENGINEER
6. DRILLING OR POWER DRIVEN FASTENERS WILL ONLY BE PERMITTED AS SHOWN ON THE TYPICAL DETAIL SHEETS.
7. THIS DESIGN REQUIRED WILL BE BASED ON USING LOW RELAXATION, 270 KSI, 7 WIRE STRAND TENDONS WITH A MAXIMUM FINAL EFFECTIVE FORCE OF 27 KIPS. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A REGISTERED ENGINEER TO CALCULATE THE REQUIRED EFFECTIVE FORCES FOR THE LOADS SPECIFIED ON THE CONTRACT DOCUMENTS. SUBMIT SEALED CALCULATIONS AND PLACEMENT DRAWINGS FOR REVIEW.
8. SHOP DRAWINGS FOR POST-TENSIONING SHALL INCLUDE, BUT ARE NO LIMEITED TO THE FOLLOWING:
   - A. TENDON LAYOUT AND DIMENSIONS LOCATING TENDONS IN HORIZONTAL PLANE AT ALL POINTS, HORIZONTAL CURVATURE OF TENDONS AT BLOCKOUTS, ANCHORAGES SHALL BE DETAILED. ALL OPENINGS IN SLABS AND BEAMS SHALL BE SHOWN ON SHOP DRAWINGS.
   - B. TENDON PROFILE SHOWING CHAIR HEIGHTS AND LOCATIONS BASED ON PARABOLIC PROFILE BETWEEN SUPPORTS TO CONFORM WITH CONTROL PRINTS AS SHOWN ON THE DRAWINGS. DIMENSION SHOULD LOCATE THE CENTER OF GRAVITY OF TENDON OR GROUP TENDONS. SHORT BAR LOCATION SHALL BE SUFFICIENT TO MAINTAIN THE TENDON ALIGNMENT AND PROVIDE ADEQUATE SUPPORT FOR THE TENDONS.
   - C. DETAILS OF REINFORCEMENT AROUND STRESSING POCKETS AND CLOSURES.
   - D. CALCULATIONS OR TEST RESULTS OF ADEQUACY OF ANCHORAGE MAY BE REQUIRED.
   - E. REQUIRED ELONGATION OF EACH TENDON AT EACH JACKING POINT. COMPLETE PRE STRESSING PROCEDURE TO INCLUDE:
     - (1) JACKING FORCE AND JACKING PRESSURE.
     - (2) MAXIMUM TEMPORARY JACKING FORCE AND JACKING PRESSURE.
     - (3) CERTIFIED JACK CALIBRATIONS AND METHODS OF IDENTIFICATION OF JACKS. EACH JACK AND PUMP COMBINATION TO BE USED ON THE JOB MUST BE CALIBRATED.
     - (4) METHOD OF DETERMINING SLACK, IF ANY.
     - (5) METHOD OF DETERMINING ANCHOR FORCE OR FORCE REMAINING IN TENDONS AFTER ANCHOR.
   - F. NUMBER OF TENDONS AND STRESSING ELONGATIONS SUBSTANTIATED BY CALCULATION OF ALL LOSSES FOR SPECIFIED STRESSING LENGTHS TO PROVIDE THE EFFECTIVE FORCES FOR THE LOADS SHOWN ON THE CONTRACT DOCUMENTS. ALL ELONGATIONS SHALL BE BASED ON THE MODULUS OF ELASTICITY SHOWN ON THE MILL CERTIFICATE FOR THE TENDON BEING FURNISHED TO THE SITE.
   - G. CONSTRUCTION JOINT LOCATIONS.
   - H. METHOD OF BURNING OFF EXCESS TENDON AFTER ANCHORAGE.
   - I. METHOD OF SEALING TENDONS.
9. AN INDEPENDENT TESTING COMPANY SHALL MAKE TENDON STRESSING RECORDS AND PROMPTLY SUBMIT CERTIFIED COPIES TO THE REGISTERED ENGINEER RESPONSIBLE FOR CALCULATED ELONGATIONS. THIS ENGINEER SHALL THEN CONSULT WITH THE ENGINEER OF RECORD ABOUT ALL ELONGATIONS WHICH DEVIATE FROM THOSE SPECIFIED.
10. STRESSING TOLERANCES:
    - A. DURING STRESSING OPERATION, TENDON STRESS, AS INDICATED BY JACK GAGE READING, SHALL NEVER BE ALLOWED TO EXCEED 80 PERCENT OF YIELD STRENGTH.
    - B. WHEN ANCHORED, MEASURED ELONGATIONS OF STRANDS SHALL AGREE WITH CALCULATED ELONGATIONS WITHIN 7 PERCENT.
11. ALL POCKETS REQUIRED FOR ANCHORAGES SHALL BE ADEQUATELY REINFORCED AS NOT TO DECREASE THE STRENGTH OF THE STRUCTURE.
12. ALL POCKETS AND ANCHORAGES SHALL BE WATERPROOFED, AS TO ELIMINATE WATER LEAKAGE THROUGH THE POCKETS. TENDON TERMINALS SHALL BE COATED WITH MATERIAL COMPARABLE WITH THAT SUED OVER LENGTH OF TENDON AND SURFACES OF CONCRETE POCKETS COATED WITH A BONDING AGENT APPROVED BY THE ENGINEER.
13. PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION OF CONCRETE MEMBERS WHERE UNBALANCED LOADING CONDITIONS ARE POSSIBLE. SHORE TO TWO STRESSED LEVELS MINIMUM. INCREASE SHORING LEVELS WHEN SHORED LOADING EQUALS OR EXCEEDS DESIGN LIVE LOAD SHOWN ON DRAWINGS.
14. GROUTS CONTAINING CHLORIDE SHALL NOT BE USED ANYWHERE.
15. THE MINIMUM RADIUS OF CURVATURE OF TENDONS SHALL NOT BE LESS THAN 20 TIMES THE DEPTH OF CONCRETE SECTION.
16. SLAB TENDONS SHALL NOT BE SPACED MORE THAN 2'-8" O.C. UNLESS OTHERWISE AUTHORIZED BY ENGINEER.
17. ALL POST-TENSIONING STRAND FURNISHED SHALL BE FROM THE SAME MANUFACTURER.
18. TENDON ENDS SHALL NOT BE CUT UNTIL ALL TENDONS HAVE BEEN SATISFACTORILY STRESSED.
19. TWISTING OR ENTWINING OF INDIVIDUAL TENDONS WITHIN A BUNDLE SHALL NOT BE PERMITTED.
20. ABRUPT CHANGES OF TENDON PROFILES ARE NOT ALLOWED.

HSPA# 1805

POST-TENSIONED SLAB DETAILS

SEPTEMBER 2, 2014

S10.0

SAMPLE ONLY