

G E N E R A L S T R U C T U R A L N O T E S (GSN)

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED BY AN APPROVED AND LICENSED FABRICATOR IN ACCORDANCE WITH THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS (LATEST EDITION), EXCLUDING SECTION A7.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO THE ASTM DESIGNATION AS INDICATED BELOW (UNO):

ALL WF SHAPES WHO AND SMALLER, BASE PLATES, CONNECTION PLATES, AND MISC.	A-36
PIPE COLUMNS	A-53, GRADE B
BOLTS	A-325 N
BOLTS IN CONCRETE/MASONRY	A-307
ANGLES, CHANNELS, WT SHAPES	A-36
3. THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER OF ALL STEEL FOR STRUCTURAL ENGINEER'S APPROVAL BEFORE FABRICATION.
4. HOLES IN STEEL SHALL BE 1/16" LARGER DIAMETER THAN NOMINAL SIZE OF BOLT USED, EXCEPT AS NOTED.
5. ALL STRUCTURAL STEEL SURFACES THAT ARE ENCASED IN CONCRETE, OR MASONRY, SPRAY ON FIREPROOFING, OR ARE ENCASED BY BUILDING FINISH, SHALL BE LEFT UNPAINTED.
6. ALL WELDING IS TO BE DONE BY CERTIFIED WELDERS USING E70XX ELECTRODES (UNO). ALL WELDS SHALL BE IN CONFORMITY WITH THE PROJECT SPECIFICATIONS AND THE CODE FOR WELDING IN BUILDING CONSTRUCTION (AWS D1.1 LATEST REVISION) OF THE AMERICAN WELDING SOCIETY. SEE SPECIAL INSPECTION SECTION AND STEEL DETAIL DRAWINGS FOR WELDING INSPECTION REQUIREMENTS.
7. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED, WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE. USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
8. ALL EXPOSED STRUCTURAL STEEL AND MISCELLANEOUS METAL SHALL BE HOT DIP GALVANIZED OR PAINTED AFTER FABRICATION.
9. TIGHTER A325-N BOLTS TO "SNUG-TIGHT" CONDITION PER AISC SPECIFICATION FOR STRUCTURAL JOINTS. TEST A325-SC BOLTS WITH A CALIBRATED WRENCH UNLESS LOAD INDICATOR BOLTS ARE USED.

POST-TENSIONED CONCRETE

1. P.T. STEEL QUALITY: ONE SAMPLE OF PT THREADED REINFORCING SYSTEM SHALL BE TESTED BY AN APPROVED LABORATORY. TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER BEFORE STRESSING OF THREADED REINFORCING.
2. THREADED REINFORCING ULTIMATE STRENGTH: 150 KSI
3. SPECIFICATIONS FOR PT THREADED BAR: THE MANUFACTURER, HANDLING AND PLACING OF ALL SHALL CONFORM WITH THE POST-TENSIONING INSTITUTE.
4. CONTRACTOR SUBMISSIONS: CONTRACTOR SHALL SUBMIT FRICTION CALCULATIONS, STRESSING-SEQUENCE AND SHOP DRAWINGS OF THREADED BAR LAYOUT, DEAD-END AND ANCHORAGE DETAILS FOR THE ENGINEER'S APPROVAL. A RECORD OF ALL JACKING FORCES AND FIELD MEASURED ELONGATIONS SHALL BE SUBMITTED TO THE ENGINEER.
5. ELONGATIONS: FIELD READINGS OF ELONGATIONS AND/OR STRESSING SHALL NOT VARY BY MORE THAN PLUS OR MINUS 5% FROM CALCULATED REQUIRED VALUES.
6. TENDON ADJUSTMENTS: SLIGHT DEVIATIONS, IN THE SPACING OF THE SLAB TENDONS MAY BE PERMITTED WHEN REQUIRED TO AVOID OPENINGS, INSERTS, AND DOWNERS WHICH ARE SPECIFICALLY LOCATED, WHERE LOCATIONS OF TENDONS SEEM TO INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THE INTERFERENCE.
7. CHLORIDES: GROUT OR CONCRETE CONTAINING CHLORIDES SHALL NOT BE USED.
8. PUMPED CONCRETE: IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE, THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE PT THREADED BARS. THIS REQUIREMENT IS MANDATORY.
9. CONCRETE CONSOLIDATION: CONTRACTOR SHALL TAKE PRECAUTIONS TO ASSURE COMPLETE CONSOLIDATION AND DENSIFICATION OF CONCRETE BEHIND ALL POST-TENSIONING ANCHORAGES.
10. BLOCKOUTS: ALL POCKETS OR BLOCKOUTS REQUIRED FOR ANCHORAGE SHALL BE ADEQUATELY REINFORCED SO AS NOT TO DECREASE THE STRENGTH OF THE STRUCTURE. ALL POCKETS SHALL BE WATERPROOFED SO AS TO ELIMINATE WATER LEAKAGE THROUGH OR INTO THE POCKET.
11. DE-SHORING: SLAB OR BEAMS MAY BE DE-SHORED WHEN ALL PT THREADED BARS HAVE BEEN STRESSED, UNLESS SHORING IS REQUIRED TO CARRY FLOORS ABOVE.
12. HARDWARE QUALITY: ALL ANCHORAGES, COUPLERS AND MISCELLANEOUS HARDWARE SHALL BE STANDARD AND APPROVED BY GOVERNING AGENCIES AND THE ENGINEER.
13. ANCHOR BARS: PLACE (2) #4 BARS BEHIND ALL ANCHORAGES. #4 TO BE CONTINUOUS UNLESS NOTED OTHERWISE. SPLICES SHALL BE 24 INCHES MINIMUM AND STAGGERED.
14. MINIMUM CHAIRING: PT THREADED BARS SHALL BE SECURED TO A SUFFICIENT NUMBER OF POSITIONING DEVICES TO ENSURE CORRECT LOCATION DURING AND AFTER THE PLACING OF CONCRETE, AND SHALL BE SUPPORTED AT A MAXIMUM OF 3 FEET 6 INCHES ON CENTER, CHAIRS GREATER THAN ONE INCH IN SIZE SHALL BE STAPLED TO FORM.
15. SUPPORT BARS: SUPPORT BARS LOCATED AT FACES OF DROP PANELS SHALL BE #6 OR GREATER. DROP PANELS GREATER THAN 4 FEET IN SIZE SHALL HAVE AN ADDITIONAL #8 OR GREATER SUPPORT BAR AT THE CENTER.
16. INSERTS: ALL INSERTS AND SLEEVES SHALL BE CAST-IN-PLACE WHENEVER POSSIBLE. DRILLED AND POWER-DRIVEN FASTENERS WILL BE PERMITTED ONLY WHEN IT CAN BE SHOWN THAT THE INSERTS WILL NOT SPALL THE CONCRETE AND ARE LOCATED SO AS TO AVOID THE TENDONS AND ANCHORAGES.
17. ANCHOR PAINTING: THE STRESSING END ANCHORS AND WEDGES SHALL BE SPRAY PAINTED WITH RUST-OLEUM OR SIMILAR BEFORE THE RECESS IS GROUTED.

18. CONCRETE STRENGTH AT STRESSING: AT TRANSFER OF PRESTRESS, CONCRETE STRENGTH SHALL BE 5500 PSI MINIMUM.
19. CALIBRATION: THE RAW AND ATTENDANT GAUGE TO BE USED SHALL HAVE BEEN CALIBRATED WITHIN (30) DAYS OF THEIR USE.

20. PIPES: SEE CONCRETE NOTES SECTION ON THIS DRAWING FOR RESTRICTIONS ON PIPE PLACEMENT.

21. PRESTRESS COVER: ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS TO LACK, ARE TO CENTER OF STEEL. MINIMUM REBAR AND TENDON COVER IN POST-TENSIONED BEAMS AND SLABS SHALL BE AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	MINIMUM COVER	TOLERANCES + OR -
3"	3"	1/16"
EXPOSED TO EARTH OR WEATHER: SLABS BEAM PRIMARY REINFORCEMENT BEAM TIES	1" 1 1/2" 1 1/2"	1/16" 3/16" 3/8"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND: SLABS BEAM PRIMARY REINFORCEMENT BEAM TIES	3/4" 1 1/2" 1"	1/16" 3/8" 1/4"

22. FIELD FOREMAN: THE FIELD FOREMAN RESPONSIBLE FOR THE PLACEMENT OF ALL POST-TENSIONING SHALL HAVE A MINIMUM OF (3) YEARS EXPERIENCE IN THIS CAPACITY FOR THIS TYPE OF CONSTRUCTION.

23. INSPECTION:

- A. DURING ALL STRESSING AND GROUTING OF PRESTRESSED AND POST-TENSIONED CONCRETE THE SPECIAL INSPECTION SHALL INCLUDE RECORDING OF FIELD MEASURED ELONGATION FOR EACH TENDON AND A JACKING FORCE FOR EVERY 10TH TENDON.
- B. DURING THE PLACING OF REINFORCING STEEL, TENDONS, AND PRESTRESSING STEEL FOR ALL STRUCTURAL CONCRETE, TENDON PLACEMENT AND INTEGRITY OF THE PRECASTE WARE, FOR POST-TENSION TENDONS SHALL BE INSPECTED FROM TO PLACEMENT OF CONCRETE.
- C. DURING PLACING OF ALL INSERTS.

	NO.	DATE	REVISIONS

POWELL LAB/CAMP ELLIOTT FIELD STATION

ISOLATED BLAST SLAB

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