## STRUCTURAL SYMBOLS

- INDICATES WORK, DATUM OR CONTROL POINT
- MATCH LINE – SHADED SIDE IS SIDE CONSIDERED
- EXTERIOR ELEVATION OR SECTION
- SECTION
- ENLARGED PLAN OR DETAIL REFERENCE

REVISIONS

- ONLY LATEST REVISION IS "CLOUDED" LETTERS INDICATES ADDENDA NUMBERS INDICATES BULLETINS
- HIGH DENSITY CONCRETE (245 PCF)
- UNLESS NOTED OTHERWISE ALL CONCRETE IS REGULAR WEIGHT (145 PCF)

## STRUCTURAL ABBREVIATIONS

| | |
|---|---|
| & | AND |
| @ | AT |
| ADDL | ADDITIONAL |
| ADJ | ADJACENT |
| ALT | ALTERNATE |
| ALUM | ALUMINUM |
| ANCH | ANCHOR |
| APPROX | APPROXIMATE, APPROXIMATELY |
| ARCH | ARCHITECT |
| BAL | BALANCE |
| B, BOT, BOTT | BOTTOM |
| B / | BOTTOM OF |
| BLDG | BUILDING |
| BM | BEAMV |
| BTWN | BETWEEN |
| C / C | CENTER TO CENTER |
| CL | CENTER LINE |
| CHAM | CHAMFER |
| CIP | CAST-IN-PLACE |
| CLR | CLEAR |
| CMU | CONCRETE MASONRY UNITS |
| COL | COLUMN |
| CONC | CONCRETE |
| CONST JT | CONSTRUCTION JOINT |
| CJ | CONTROL JOINT |
| CONT | CONTINUOUS, CONTINUE |
| COORD | COORDINATE |
| CTR | CENTER |
| D | DEPTH |
| DET | DETAIL |
| DIA | DIAMETER |
| DIAG | DIAGONAL |
| DIM | DIMENSION |
| DO | DITTO (SAME AS ADJACENT) |
| DWG | DRAWING |
| EA | EACH |
| EF | EACH FACE |
| EL | ELEVATION |
| EOS | EDGE OF SLAB |
| EQ | EQUAL |
| ES | EACH SIDE |
| EXIST, (E) | EXISTING |
| EXP JOINT, EJ | EXPANSION JOINT |
| EXT | EXTERIOR |
| EW | EACH WAY |
| FDN | FOUNDATION |
| FD | FLOOR DRAIN |
| FIN | FINISHED |
| FF | FAR FACE |
| FS | FAR SIDE |
| FT | FOOT/FEET |
| FTG | FOOTING |
| GA | GAGE |
| GALV | GALVANIZED |
| GEN | GENERAL |
| GFE | GOVERNMENT FURNISHED EQUIPMENT |
| HGT, H | HEIGHT |
| HORIZ | HORIZONTAL |
| HP | HIGH POINT |
| HUR | HYDROGEN UTILITY ROOM |
| IN | INCH, INCHES |
| ID | INSIDE DIAMETER |
| IF | INSIDE FACE |
| IJ | ISOLATION JOINT |
| INFO | INFORMATION |
| INT | INTERIOR |
| JT | JOINT |
| K | KIPS (1000 POUNDS) |
| KSF | KIPS PER SQUARE FEET |
| KSI | KIPS PER SQUARE INCH |
| L | LENGTH |
| LB | POUND |
| LF | LINEAR FEET |
| LG | LONG |
| LONGIT | LONGITUDINAL |
| LP | LOW POINT |
| LT | LEFT |
| LTWT | LIGHT WEIGHT |
| MAX | MAXIMUM |
| MEP | MECHANICAL, ELECTRICAL, PLUMBING |
| MFR | MANUFACTURER |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| NF | NEAR FACE |
| NIC | NOT IN CONTRACT |
| NO, # | NUMBER |
| NOM | NOMINAL |
| NS | NEAR SIDE |
| NTS | NOT TO SCALE |
| NLWT | NORMAL WEIGHT |
| OC | ON CENTER / CENTERS |
| OD | OUTSIDE DIAMETER |
| OF | OUTSIDE FACE |
| OPNG | OPENING |
| OPP | OPPOSITE |
| PC | PRECAST (CONCRETE) |
| PCF | POUNDS PER CUBIC FOOT |
| PCO | PILE CUT OFF |
| PL | PLATE |
| PLF | POUNDS PER LINEAR FOOT |
| PROJ | PROJECTION |
| PSI | POUNDS PER SQUARE INCH |
| PSF | POUNDS PER SQUARE FOOT |
| QTY | QUANTITY |
| R | RADIUS |
| RD | ROAD |
| REF | REFERENCE |
| REINF | REINFORCE, (.ED), (.MENT) |
| REQD | REQUIRED |
| REQMT | REQUIREMENT |
| REM | REMAINDER |
| RT | RIGHT |
| SCHED | SCHEDULE |
| SECT | SECTION |
| SHT | SHEET |
| SIM | SIMILAR |
| SOG | SLAB ON GRADE |
| SPA | SPACE, SPACES |
| SPEC | SPECIFICATION |
| SQ | SQUARE |
| SS | STAINLESS STEEL |
| STD | STANDARD |
| STL | STEEL |
| STRUCT | STRUCTURE, STRUCTURAL |
| SYM | SYMMETRY / SYMMETRICAL |
| T | TOP |
| T / | TOP OF |
| T / CONC, TOC | TOP OF CONCRETE |
| T / FTG | TOP OF FOOTING |
| TRANS | TRANSVERSE |
| T / SLAB | TOP OF SLAB |
| T / SOG | TOP OF SLAB ON GRADE |
| T / STL, TOS | TOP OF STEEL |
| T / WALL | TOP OF WALL |
| T & B | TOP AND BOTTOM |
| THRU | THROUGH |
| TYP | TYPICAL |
| UON | UNLESS OTHERWISE NOTED |
| VAR | VARIES |
| VERT | VERTICAL |
| VIF | VERIFY IN FIELD |
| W | WIDTH |
| W / | WITH |
| W / O | WITHOUT |
| WP | WORK POINT |
| WS | WATER STOP |
| WT | WEIGHT |
| WWF | WELDED WIRE FABRIC |

## STRUCTURAL NOTES

A. GENERAL

1. THE CONTRACTOR SHALL VISIT THE SITE AND BE FAMILIAR WITH THE SITE AND LOCAL CONDITIONS.
2. ALL DIMENSIONS AND REFERENCES INDICATED TO EXISTING CONDITIONS SHALL BE ASSUMED TO BE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DATA PERTAINING TO EXISTING CONDITIONS AS RELATED TO NEW WORK. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
3. THE CONTRACTOR SHALL COORDINATE WORK AND REFER TO THE CIVIL, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR THE LOCATION AND SIZE OF OPENINGS, BLOCKOUTS, CURBS, INSERTS, ANCHOR BOLTS, AND OTHER MISCELLANEOUS ITEMS BEFORE PROCEEDING WITH STEEL FABRICATION OR CONCRETE PLACEMENT.
4. REFER TO ARCHITECTURE DRAWINGS FOR DIMENSIONS AND ELEVATIONS NOT INDICATED ON STRUCTURAL DRAWINGS.
5. DETAILS, SECTIONS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS UNLESS OTHERWISE NOTED.

B. DESIGN CRITERIA

1. ELEVATIONS ARE BASED ON NGVD 1929 AND WERE TIED TO MONUMENT 95-Y-139 LOCATED AT X-10 GRID COORDINATE (N-28865.845, E-41023.264) EL. 889.70.
2. BUILDING ELEVATION 100' – 0" EQUALS NGVD DATUM 1076' – 0".
3. WIND LOADS (PER ASCE 7-95)
   IMPORTANCE FACTOR 1.07
   EXPOSURE CATEGORY C
   BASIC WIND SPEED OF 90 MPH
4. SEISMIC LOADS
   SEISMIC DEMANDS WILL BE DEVELOPED USING PERFORMANCE CATEGORY 3 CRITERIA PER DOE STANDARD 1020.94. ANALYSIS METHODS WILL BE CONSISTENT WITH THE GUIDANCE PROVIDED IN ASCE 4-98. THE SEISMIC LOAD COMBINATION FOR BOTH CONCRETE AND STEEL IS DEFINED IN DOE-STD-1020 AS $D = D_{NS} + D_{SI}$
   WHERE $D_{NS}$ = DEMAND FROM NON-SEISMIC FORCES
   $= D_D + D_L + D_{SP}$
   $D_{SI}$ = DEMAND FROM SEISMIC FORCES
   $= D_S / F_U$
   WHERE $F_U$ IS PER TABLE 2-4
5. SOIL PRESSURE
   (I) ALL WALLS SUBJECTED TO SOIL PRESSURE ARE TO BE DESIGNED PER RECOMMENDED DESIGN LATERAL PRESSURES @ TABLE 14 B OF "REPORT OF PHASE III GEOTECHNICAL EXPLORATION".
   THE SPALLATION NEUTRON SOURCE
   OAK RIDGE, TENNESSE
   VOLUME I. TEXT TABLES & FIGURES
   PREPARED BY
   LAW (LAWGIBB GROUP MEMBER)
   KNOXVILLE, TENNESSE
   JUNE 30, 2000
   (II) FOR ADDITIONAL RECOMMENDATIONS SEE VOLUME II, III & IV OF THE ABOVE REPORT.

C. CONCRETE

1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318-95) AND "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301R-96) CONCRETE WORK FOR PC-3 STRUCTURES SHALL COMPLY WITH "CODE REQUIREMENTS FOR NUCLEAR SAFETY RELATED CONCRETE STRUCTURES AND COMMENTARY" (ACI 349R-97). SEE NOTE "4" ABOVE FOR SEISMIC LOAD COMBINATION.
2. CONCRETE DETAILING SHALL BE IN ACCORDANCE WITH ACI 349 AND WHERE APPLICABLE ACI DETAILING MANUAL, SP 66 AND CRSI MANUAL OF STANDARD PRACTICE SHALL BE USED.
3. REINFORCING STEEL SHALL COMPLY WITH ASTM A 615, GRADE 60.
   WELDED WIRE MESH SHALL COMPLY WITH ASTM A185.
   EPOXY COATED REINFORCING STEEL SHALL COMPLY WITH ASTM A 775.
4. UNLESS OTHERWISE SHOWN, THE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
   CONCRETE CAST AGAINST EARTH — 3 INCHES
   CONCRETE EXPOSED TO EARTH OR WEATHER — 2 INCHES
   INTERIOR CONCRETE NOT EXPOSED TO EARTH OR WEATHER — 1 1/2 INCHES
5. CONCRETE, UNLESS OTHERWISE NOTED, SHALL BE SAND AND NORMAL WEIGHT,TYPE I OR TYPE II CEMENT, COURSE AGGREGATE CONFORMING TO ASTM C 33, 145 PCF MINIMUM DENSITY, AIR ENTRAINED, WITH THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI. UNLESS NOTED OTHERWISE.
   CONCRETE FOR PERIMETER BASEMENT WALLS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI.
   CONCRETE FOR HOT CELL AREA AND TARGET VESSEL SHALL BE HEAVY WEIGHT CONCRETE, 245 PCF.
   LEAN CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 1000 PSI.
6. PROVIDE CRSI, CLASS B LAP SPLICES OF THE APPROPRIATE CATEGORY WHERE REQUIRED FOR ALL HORIZONTAL WALL REINFORCEMENT, DOWELS AND SPLICES. LAP WELDED WIRE FABRIC 2 FULL PANELS MINIMUM.
7. EXPOSED FORMED CORNERS OF CONCRETE SHALL BE CHAMFERED 3/4 INCH UNLESS OTHERWISE NOTED.
8. REINFORCING BARS SHALL EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12 INCH BEYOND BEND, UNLESS OTHERWISE NOTED.
9. CONSTRUCTION JOINTS AND/OR CONTROL JOINTS FOR WALLS SHALL NOT EXCEED 30 FEET ON CENTER SPACING.
10. PROVIDE LAP SPLICES AND DEVELOPMENT LENGTHS AS FOLLOWS:

TENSION LAP SPLICE LENGTH

| BAR SIZE | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
|---|---|---|---|---|---|---|---|---|---|
| TOP BARS | 2'-0" | 2'-8" | 3'-4" | 4'-0" | 5'-10" | 6'-8" | 7'-7" | 8'-6" | 9'-5" |
| OTHER BARS | 1'-7" | 2'-1" | 2'-7" | 3'-1" | 4'-6" | 5'-2" | 5'-10" | 6'-7" | 7'-3" |

TENSION DEVELOPMENT LENGTH

| BAR SIZE | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
|---|---|---|---|---|---|---|---|---|---|
| TOP BARS | 1'-7" | 2'-1" | 2'-7" | 3'-1" | 4'-6" | 5'-2" | 5'-10" | 6'-7" | 7'-3" |
| OTHER BARS | 1'-3" | 1'-7" | 2'-0" | 2'-5" | 3'-6" | 4'-0" | 4'-6" | 5'-1" | 5'-7" |

NOTE:
1. ABOVE SPLICES AND DEVELOPMENT LENGTHS SHALL BE USED UNLESS THEY ARE IN CONFLICT WITH ACI 349. IN THAT CASE, USE ACI 349.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
3. SPLICES AND DEVELOPMENT LENGTHS SHOWN ARE FOR UNCOATED DEFORMED REINFORCING STEEL CONFORMING TO ASTM A615, GRADE 60.

11. ALL EXTERIOR BELOW GRADE CONSTRUCTION JOINTS SHALL HAVE CONTINUOUS WATER STOP.
12. FOR CONCRETE WORK TO RECEIVE ARCHITECTURAL & SANDBLAST FINISHES, REFER TO ARCHITECTURAL DRAWINGS.

D. PRE CAST STRUCTURAL CONCRETE

1. PRECAST STRUCTURAL CONCRETE FOR "T" BEAMS AND TRENCH AND HATCH COVERS SHALL COMPLY WITH PCI MNL 116, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST AND PRE STRESSED CONCRETE PRODUCTS".
2. REINFORCEMENT FOR PRECAST MEMBERS SHALL BE AS NOTED IN THE DRAWING.

E. STEEL

1. STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION. ALLOWABLE STRESS DESIGN, 9TH EDITION AND ANSI/AISC N690-1994 "AMERICAN NATIONAL STANDARD SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STEEL SAFETY-RELATED STRUCTURES FOR NUCLEAR FACILITIES". WHEN IN CONFLICT WITH AISC, 9TH EDITION, ANSI/AISC N690-1994 SHALL GOVERN.
2. THE STEEL FRAME FOR THIS BUILDING IS CLASSIFIED AS NON-SELF SUPPORTING AND REQUIRES INTERACTION WITH OTHER COMPONENTS TO PROVIDE LATERAL STABILITY. THE CONTRACTOR SHALL DESIGN AND PROVIDE ADEQUATE TEMPORARY BRACING TO RESIST THE WIND LOADS PER NOTE B.3. THE TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL THE PERMANENT BRACING, STEEL ROOF AND FLOOR DECK DIAPHRAGMS ARE INSTALLED AND ALL FINAL CONNECTIONS HAVE BEEN COMPLETED.
3. PROVIDE STRUCTURAL STEEL CONFORMING TO THE FOLLOWING STANDARDS:

| | | |
|---|---|---|
| W – SHAPES | ASTM | ASTM A572 GRADE 50 WITH SPECIAL REQUIREMENTS PER AISC TECHNICAL BULLETIN #3, DATED MARCH 1997 |
| STRUCTURAL PLATES & BAR | ASTM | A 36 |
| ANGLES, M, S AND C SHAPES | ASTM | A 36 |
| STEEL TUBE | ASTM | A 500, GRADE B |
| STEEL PIPE | ASTM | A 53, GRADE B |
| ROUND HSS | ASTM | A 500 GRADE B |
| SQUARE & RECTANGULAR HSS | ASTM | A 500 GRADE B |
| BOLTS | ASTM | A 325 (3/4 INCH DIA. UNO) |
| BOLTS | ASTM | A 490 (3/4 INCH DIA. UNO) |
| NUTS – HEAVY HEX | ASTM | A 563 |
| WASHER | ASTM | F 436 |
| ANCHOR BOLTS | ASTM | A 36 (UNO) |
| WELDS | ASTM | E70XX |
| STUDS | ASTM | A108 CARBON STEEL (UNO) TYPE 316L STAINLESS STEEL |

4. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS USING THE SPECIFIED ELECTRODES AND SHALL CONFORM TO AWS DI.I, "STRUCTURAL WELDING CODE – STEEL". WELDING OF STAINLESS STEEL ELEMENTS TO CONFORM TO THE PROJECT SPECIFICATIONS SECTION 05121.
5. BOLTED CONNECTIONS SHALL BE DETAILED WITH 3/4 INCH DIAMETER, ASTM A325, TYPE "N" HIGH STRENGTH BOLTS, UNLESS NOTED OTHERWISE. BOLTS SHALL BE LOAD INDICATOR TYPE WITH TWIST-OFF SPLINE. BOLTED CONNECTIONS FOR X-BRACING AND MOMENT FRAMES SHALL BE DETAILED WITH 3/4 INCH DIAMETER , ASTM A325, TYPE SC, HIGH STRENGTH BOLTS AND FULLY PRETENSIONED, UNLESS NOTED OTHERWISE. BOLTS SHALL BE DIRECT TENSION INDICATOR TYPE WITH TWIST-OFF SPLINE.
6. NON-SHRINK GROUT UNDER COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
7. UNLESS NOTED OTHERWISE, FILLETS WELDS SHALL BE CONTINUOUS 1/4 INCH WELDS.
8. UNLESS NOTED AS AN AWS PARTIAL PENETRATION WELD, PENETRATION WELD SYMBOLS SHALL BE EXECUTED AS COMPLETE PENETRATION WELDS WITH BACKUP BARS.
9. CUTS, HOLES, OPENINGS, ETC., REQUIRED IN STRUCTURAL STEEL FOR THE WORK OF OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. BURNING OR CUTTING OF STRUCTURAL STEEL MEMBERS IN THE FIELD SHALL NOT BE ALLOWED, UNLESS ACCEPTABLE IN WRITING TO THE ARCHITECT/ENGINEER.
10. FOR STAINLESS STEEL LINER NOTES SEE DRAWING S4.20.31.

F. STEEL DECK

1. STEEL DECK SHALL COMPLY WITH STEEL DECK INSTITUTE, "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS".
2. STEEL ROOF DECK SHALL BE 1.5 INCHES DEEP, 20 GAGE, TYPE B (WIDE RIB), G-90 GALVANIZED, MINIMUM MOMENT OF INERTIA, I=0.212 IN^4/FT. WELD TO SUPPORT STEEL AND SIDE MEMBERS WITH 5/8 INCH PUDDLE WELD AT 12 INCHES ON CENTER. SIDE LAPS SHALL BE FASTENED AT 18 INCHES ON CENTER WITH #10 SCREWS UNLESS NOTED OTHERWISE.
   THE UNDERSIDE OF THE STEEL DECK SHALL BE SHOP PRIMED PAINTED OVER PHOSPHATIZED GALVANZING.
3. COMPOSITE STEEL DECK SHALL BE 1.5 INCHES DEEP, 20 GAGE, UNLESS NOTED OTHERWISE, G-60 GALVANIZED, MINIMUM MOMENT OF INERTIA, I= 0.195 IN^4/FT. WELD TO SUPPORT STEEL AND SIDE MEMBERS WITH 5/8 INCH DIAMETER PUDDLE WELD AT 12 INCHES ON CENTER. SIDE LAPS SHALL BE FASTENED AT 3 FEET ON CENTER.
   THE UNDERSIDE OF THE STEEL DECK SHALL BE SHOP PRIMED PAINTED OVER PHOSPHATIZED GALVANZING.
4. COMPOSITE STEEL DECK SHALL BE 3 INCHES DEEP, 18 GAGE, UNLESS NOTED OTHERWISE, G-60 GALVANIZED, MINIMUM MOMENT OF INERTIA, I= 1.25 IN^4/FT. WELD TO SUPPORT STEEL AND SIDE MEMBERS WITH 5/8 INCH DIAMETER PUDDLE WELD AT 12 INCHES ON CENTER. SIDE LAPS SHALL BE FASTENED AT 3 FEET ON CENTER.
   THE UNDERSIDE OF THE STEEL DECK SHALL BE SHOP PRIMED PAINTED OVER PHOSPHATIZED GALVANZING.
5. LOADS EXCEEDING 50 LBS. SHALL NOT BE HUNG FROM ANY COMPOSITE DECK SLABS. HANGERS FOR LOADS 50 LBS. OR LESS SHALL BE NO CLOSER THAN 2 FEET 3 INCHES ON CENTER. CONNECTIONS FOR HANGERS TO COMPOSITE DECK SLABS SHALL BE SUBMITTED FOR REVIEW.
6. HANGERS FOR LOADS GREATER THAN 50 LBS FOR DUCTWORK, PIPES, ETC., SHALL BE HUNG DIRECTLY FROM STRUCTURAL STEEL MEMBERS OR SUPPLEMENTARY MEMBERS. SUPPLEMENTARY MEMBERS SHALL BE DESIGNED, DETAILED AND PROVIDED BY THE TRADE REQUIRING THE HANGER. THE HANGER LOAD, LOCATION AND CONNECTION DETAILS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.

TARGET BUILDING LEVEL
SUPERIMPOSED DEAD/ LIVE LOADS
NOTE: SELF WEIGHT OF STRUCTURE IS PER RESPECTIVE ELEMENT WEIGHTS

| TARGET BUILDING LEVEL | FULL LIVE LOAD FOR DESIGN OF FLOOR ELEMENTS | LIVE LOAD REDUCED FOR COLUMN/ PILASTERS | LIVE LOAD REDUCED FOR MAT/ PILE FOUNDATION |
|---|---|---|---|
| HIGH ROOF | 20 PSF | 20 PSF | 20 PSF |
| 50 TON CRANE | VERTICAL IMPACT – 25% OF WHEEL LOAD HORIZONTAL FORCE – 10% OF TROLLEY WEIGHT AND LIFTED LOAD | | |
| LOW ROOF | 20 PSF | 20 PSF | 20 PSF |
| TRUSS LEVEL | 150 PSF | 150 PSF | 150 PSF |
| 30 TON CRANE | VERTICAL IMPACT – 25% OF WHEEL LOAD HORIZONTAL FORCE – 10% OF TROLLEY WEIGHT AND LIFTED LOAD | | |
| HIGH BAY | | | |
| ROOF OVER HOT CELL, EXCLUDING SHINE SHIELD AREA | 4000 PSF | 2000 PSF | 1000 PSF |
| SHINE SHIELD AREA, ABOVE TARGET CENTER SHIELDING AND CHOPPER BLOCKS | 500 PSF | 500 PSF | 500 PSF |
| MOCK-UP TEST STAND | 500 PSF | 500 PSF | 500 PSF |
| RTBT ROOF | 4000 PSF | 2000 PSF | 2000 PSF |
| MEZZANINE | 150 PSF | 150 PSF | 150 PSF |
| INSTRUMENT LEVEL | | | |
| HOT CELL AREA/ SERVICE GALLERY | 5000 PSF | 2500 PSF | 2500 PSF |
| SHOP AREA/ TRUCK BAY/ REST OF INSTRUMENT FLOOR | 4000 PSF | 2000 PSF | 1000 PSF |
| SLAB ON GRADE WITHIN 48' RADIUS OF TARGET CENTER (INSTRUMENT FLOOR) | FULL DEAD LOAD = 6000 PSF | NOT APPLICABLE | FULL DEAD LOAD = 6000 PSF |
| SLAB ON GRADE 48' – 60' RADIUS OF TARGET CENTER (INSTRUMENT FLOOR) | FULL DEAD LOAD = 3500 PSF | NOT APPLICABLE | FULL DEAD LOAD = 3500 PSF |
| SLAB ON GRADE BEYOND 60' RADIUS OF TARGET CENTER (INSTRUMENT FLOOR) | FULL DEAD LOAD = 1500 PSF | NOT APPLICABLE | FULL DEAD LOAD = 1500 PSF |
| TARGET MONOLITH BULK SHEILDING INCLUDING STEEL LINER WITHIN 16.67 FT. RADIUS OF TARGET CENTER | FULL DEAD LOAD 16,500 PSF | NOT APPLICABLE | FULL DEAD LOAD 16,500 PSF |
| UNDER CHOPPER BLOCKS WITHIN THE ANNULAR AREA OF 21.0 FT. AND 16.67 FT. RADIUS OF TARGET CENTER | FULL DEAD LOAD OF 12,000 PSF | NOT APPLICABLE | FULL DEAD LOAD 12,000 PSF |
| BASEMENT LEVEL | | | |
| FLOOR AREA | 500 PSF | NOT APPLICABLE | 500 PSF |
| LLLW TANKS | 1500 PSF | NOT APPLICABLE | 1500 PSF |

DROP LOAD CRITERIA FOR HIGH BAY LEVEL ( ELEVATION 128'-11" )

| HEIGHT OF DROP | MAXIMUM DROP LOAD |
|---|---|
| 4" | 50 TONS |
| 5" | 40 TONS |
| 10" | 20 TONS |
| 20" | 10 TONS |

NOTE: THESE LOADS ARE BASED ON THE FOLLOWING COMPONENTS AND APPROXIMATE CONTACT AREA

- INNER PLUG, BASE DIMENSIONS, 82 INCHES DIAMETER
- PROTON BEAM WINDOW, BASE DIMENSIONS APPROXIMATELY 50 INCHES x 50 INCHES
- SMALL SHELTER, BASE DIMENSIONS: APPROXIMATELY 40 INCHES x 100 INCHES
- LARGE SHELTER, BASE DIMENSIONS: APPROXIMATELY 60 INCHES x 100 INCHES

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SECTION AND DETAIL KEY
NUMBER OF SECTION OR DETAIL
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN OR TAKEN

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE SNS-ENG-G001

| REV | CHANGE TYPE | CHANGE CONTROL SYSTEM | CHANGE REQUEST NUMBER | DESCRIPTION | DSN | CHK | DEPT | DATE | PE | DATE | PJ | DATE | REQ | DATE | UTB | DATE | RPE | RPE NO | DATE | ST | CV | EC | EE | EM | IE | M | PD | SE | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | CERTIFIED FOR CONSTRUCTION – 10/26/01 | GPR | REW | | | [signature] | 11/15/01 | [signature] | 11/13/01 | | | [signature] | 11/13/01 | JJB | 23236 | 10/26/01 | REW | | WRS | AK | WRS | BWJ | | MP | | ED |
| 1 | | | | SUBSTRUCTURES CERTIFIED FOR CONSTRUCTION – 4/18/01 | GPR | REW | | | CLG | 4/18 | RAD | 4/18 | | | JRL | 4/19 | JJB | 23236 | 4/18/01 | SC | | WRS | RL | WRS | BWS | | MP | | WAS |
| 0 | | | | PILES CERTIFIED FOR CONSTRUCTION – 10/13/00 | GPR | REW | | | CLG | – | – | – | | | JRL | 10/24 | JJB | 23236 | 10/13/01 | | | | | | | | | | |

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

RPE: JOHN BUSCH REGISTERED ENGINEER AGRICULTURE COMMERCE NO. 23236 STATE OF TENNESSEE
REV. 2 DATE 10/26/01

| DRAWING APPROVALS | | |
|---|---|---|
| DSN | G. REDDY | 10/13/00 |
| DRW | G.MARSZALEK | 10/13/00 |
| CHK | R.WALKINGTON | 10/13/00 |
| DEPT | | |
| PE | C.L. GARREN | 10/24/00 |
| PJ | R. DEAN | 10/24/00 |
| REQ | | |
| UTB | J. LAWSON | 10/24/00 |

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U.S. GOVERNMENT contract DE-AC05-00OR22725
UT-BATTELLE, LLC, Oak Ridge, Tennessee

PROJECT NAME:
SPALLATION NEUTRON SOURCE

# TARGET BUILDING STRUCTURAL NOTES ABBREVIATIONS & SYMBOLS

| 1 | 48 | 49 | 50 | PLANT | BLDG | FL | SH. | OF | TYPE | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | S | X | X | 8 | 8700 | | 1 | 1 | P | U |

| 51 | 52 | 53 | WBS | | REV |
|---|---|---|---|---|---|
| NC | NA | | 1.8.3.7 | S0.10.30 | 2 |

Date: 10/24/2001 Time: 12:39:34
Username: DEADYTE
CHI-F_VOL2:PROJECTS\7000\700_CADD\TASK_5A\740_PLOT\S0-10-30.DWG