ASTM A53, TYPE E OR S, GRADE B, Fy=35 KSI SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO COMMENCING

1. CERTIFIED MILL TEST REPORTS OF STRUCTURAL STEEL (INCLUDING NAMES AND LOCATIONS OF MILLS

- 2. CERTIFIED MILL TEST REPORTS OF BOLTS, NUTS AND WASHERS (INCLUDING NAMES AND LOCATIONS OF MILLS
- 3. STRUCTURAL STEEL FABRICATION AND ERECTION DRAWINGS WHICH INCLUDE BOLTED CONNECTIONS (SHOP AND
- FIELD) AND WELDED CONNECTIONS (SHOP AND FIELD) DEPICTING AWS WELDING SYMBOLS.

- 2. ULTRASONIC TESTING, IN ACCORDANCE WITH ASTM E-164, ON 100% OF ALL FIELD FULL PENETRATION WELDS. 3. PROVIDE RANDOM VERIFICATION VIA ULTRASONIC TESTING OF SHOP FULL PENETRATION WELDS.
- 5. SHEAR STUD QUANTITY. PROPER INSTALLATION. SIZE, AND SPACING. SHEAR STUDS SHALL CONFORM
- TO AWS D1.1.

## BOLTED CONNECTIONS:

- 1. FIELD CONNECTIONS SHALL UTILIZE MINIMUM 3/4" DIAMETER A325 HIGH STRENGTH BOLTS, U.N.O.. BOLTED CONNECTION SHALL BE SLIP CRITICAL (SC) AT ALL MOMENT FRAMES, BRACED FRAMES, AND AT ADDITIONAL LOCATIONS INDICATED IN THE DRAWINGS. SLIP CRITICAL CONNECTIONS SHALL UTILIZE LOAD INDICATOR WASHERS OR TENSION CONTROL BOLTS. BOLT HOLES SHALL BE STANDARD SIZE, U.N.O., 2. HIGH STRENGTH BOLTS SHALL BE INSTALLED AND TIGHTENED PER AISC SPECIFICATION FOR STRUCTURAL
- JOINTS USING ASTM A325 BOLTS. 3. ANCHOR BOLTS SHALL CONFORM TO ASTM A307, GRADE A, STANDARD HEX HEAD FURNISHED WITH HEAVY
- HEX NUTS AND LOCK WASHERS. 4. CONTRACTOR SHALL DESIGN CONNECTIONS NOT ALREADY DETAILED ON STRUCTURAL DRAWINGS. DESIGN SHALL BE STAMPED BY A LICENSED STRUCTURAL ENGINEER AND SUBMITTED PRIOR TO COMMENCING
- WELDED CONNECTIONS:
- 1. WELDING SHALL CONFORM TO AWS D1.1. USE LOW-HYDROGEN SMAW ELECTRODES WITH MINIMUM TENSILE

### STRENGTH OF 70 KSI.

- STRUCTURAL STEEL SHALL RECEIVE THE FOLLOWING PROTECTIVE COATINGS: 1. DO NOT PAINT SURFACES TO RECEIVE METAL DECK AND/OR SHEAR CONNECTORS FASTENED BY WELDING, CONTACT SURFACES OF HIGH STRENGTH BOLTED CONNECTIONS, FINISHED BEARING SURFACES. AND SURFACES TO BE WELDED IN THE FIELD. IF REQUIRED, PROTECT THESE SURFACES BY RUST-INHIBITING
- 2. UNEXPOSED STRUCTURAL STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP3 AND PAINTED WITH PRIMER PAINT, TNEMEC 10-99, OR EQUIVALENT, U.N.O..

COATING THAT CAN BE REMOVED EASILY PRIOR TO ERECTION.

- 3. EXPOSED STRUCTURAL STEEL TO RECEIVE ZINC-RICH EPOXY PAINT SHALL BE FIRST CLEANED IN
- ACCORDANCE WITH SSPC-SP6 ,COMMERCIAL BLAST CLEANING. USE TNEMEC ZIN-RICH EPOXY PAINT, OR EQUIVALENT. APPLY FINISH COAT PER ARCHITECT. 4. EXPOSED STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED SHALL BE IN ACCORDANCE WITH ASTM A123.

### SHEAR CONNECTOR STUDS:

- 1. SHEAR CONNECTOR STUDS SHALL BE NELSON, OR EQUIVALENT, 3/4" DIAMETER, U.N.O.. WELD STUDS PER STUD MANUFACTURER'S RECOMMENDATIONS THROUGH METAL DECKING. STUD LENGTH SHALL BE 1" BELOW TOP OF CONCRETE SLAB-ON-DECK.
- 2. SHEAR STUDS, WHERE REQUIRED, ARE INDICATED ON THE DRAWINGS AS [XX], WHERE XX IS THE NUMBER OF STUDS EQUALLY SPACED BETWEEN SUPPORTS ON A BEAM OR GIRDER.

ALL LUMBER SHALL BE VISUALLY GRADED AND STAMPED WITH GRADE DESIGNATION, SPECIES, AND ADDITIONAL INSPECTION INFORMATION, U.N.O..

CARE SHALL BE TAKEN TO PROTECT TIMBER FROM WEATHER AND DAMPNESS. DO NOT STACK IN SUCH A WAY AS TO CAUSE WARPING OR PREVENT ADEQUATE AIR CIRCULATION.

WOOD GRADES AND SPECIES: 1. SPRUCE-PINE-FIR, No.1/No.2 OR BETTER FOR TYPICAL LUMBER (JOISTS, WALLS, ETC) U.N.O.

- 2. USE SOUTHERN YELLOW PINE FOR EXTERIOR EXPOSURE APPLICATIONS AND WHERE SHOWN ON DRAWINGS AS PRESERVATIVE PRESSURE TREATED LUMBER (PT OR PPT).
- 3. WHERE NOTED LVL OR PSL ON DRAWINGS, PROVIDE ILEVEL TRUS JOIST MEMBERS BY WEYERHAEUSER, OR EQUIVALENT, WHICH HAVE THE FOLLOWING MINIMUM ALLOWABLE STRESSES:

# A. LVL PROPERTIES:

SCALE: NTS

SCALE: NTS

Fc = 2510 PSI (PARALLEL TO GRAIN)Fb = 2600 PSIFc = 750 PSI (PERPENDICULAR TO GRAIN)Fv = 285 PSI

Ft = 1555 PSIE = 1,900,000 PSIB. PSL PROPERTIES:

Fc = 2900 PSI (PARALLEL TO GRAIN) Fb = 2900 PSIFc = 750 PSI (PERPENDICULAR TO GRAIN)Fv = 290 PSIFt = 2025 PSIE = 2,000,000 PSI

STRUCTURAL LUMBER SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 19%.

BLOCKING FOR EACH 8'-0" OF SPAN FOR ALL JOISTS AND RAFTERS.

PROVIDE PRESSURE TREATED OR WOLVANIZED LUMBER FOR ALL LUMBER IN CONTACT WITH MASONRY OR

NOMINAL SIZES ARE TYPICALLY REFERENCED ON THE DRAWINGS. PROVIDE ACTUAL SIZES AS SET FORTH IN U.S. DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS20-99.

### ALL PLYWOOD SHALL BE APA RATED CDX SHEATHING:

STAGGER PANEL ENDS.

- 1. USE 1/2" PLYWOOD WALL SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO WALL STUDS. STAGGER PANEL ENDS AND BLOCK ALL PANEL EDGES.
- 2. USE %" PLYWOOD ROOF SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO FRAMING. STAGGER PANEL ENDS. USE SHEATHING CLIPS BETWEEN SHEETS WHERE BLOCKING IS NOT REQUIRED. 3. USE ¾" PLYWOOD FLOOR SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO FRAMING.

PROVIDE FULL DEPTH BLOCKING AT ENDS AND INTERIOR SUPPORTS OF ALL JOISTS AND RAFTERS WHERE JOISTS AND RAFTERS FRAME OVER SUPPORTS. PROVIDE 1x3 DIAGONAL BRIDGING OR FULL DEPTH SOLID

FASTENERS SHALL COMPLY WITH RECOMMENDED FASTENING SCHEDULE OF REFERENCED BUILDING CODE, U.N.O. ON DRAWINGS, SPIKE TOGETHER ALL FRAMING MEMBERS WHICH ARE BUILT-UP USING A MINIMUM OF 2-ROWS OF 16d NAILS AT 12" O.C. STAGGERED, UNLESS OTHERWISE NOTED IN BOCA OR ON THE DRAWINGS. NAIL MULTIPLE LVL'S TOGETHER AS RECOMMENDED BY THE MANUFACTURER USING A MINIMUM OF 2-ROWS OF 16d NAILS AT 12" o.c. STAGGERED. ALL FASTENERS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED.

ALIGN COLUMNS SUCH THAT COLUMNS BEAR CONTINUOUSLY TO FOUNDATION SUPPORT.

PROVIDE HORIZONTAL BLOCKING FOR ALL LOAD BEARING WALLS AT 4'-0" O.C. VERTICAL, MAXIMUM.

SUBMIT SHOP DRAWINGS FOR ALL PREFABRICATED WOOD JOISTS AND WALL PANELS TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

WOOD NOTES **SCALE: NTS** 

CUBIC YARD PSF POUNDS PER SQUARE FOOT PSI POUNDS PER SQUARE INCH DIA DIAMETER DIMENSION REINF REINFORCING STEEL DISCONT DISCONTINUOUS REQ, REQD REQUIRED DWG DRAWING ROOF DRAIN EXISTING SLIP CRITICAL SECT SECTION EACH FACE SHEATH SHEATHING EL, ELEV ELEVATION SIMILAR EQUAL SOG SLAB-ON-GRADE EQUIP EQUIPMENT SPAC SPACING EACH SIDE SPECS **SPECIFICATIONS** EACH WAY STAINLESS STEEL EXPANSION STD STANDARD EXT EXTERIOR STIFF STIFFENER STL STEEL FOOTING DESIGNATION STR STRAIGHT FDN FOUNDATION STRUCT STRUCTURAL FINISH FLOOR FLG FLANGE FLR FLOOR T&B TOP AND BOTTOM F00T TOC, T/CONC TOP OF CONCRETE FOOTING T/FTG, TOF TOP OF FOOTING F۷ FIELD VERIFY TEMPERATURE T/SHELF TOP OF SHELF GALVANIZED GALV T/SLAB TOP OF SLAB TOP OF STEEL HOR, HORE HORIZONTAL T/WALL TOP OF WALL HOLLOW STRUCTURAL SHAPE HSS STRUCTURAL TUBING HEIGHT TYP TYPICAL INSIDE FACE UNO UNLESS NOTED OTHERWISE INFO INFORMATION VER. VERT VERTICAL VERIFY IN FIELD STRUCTURAL STEEL WIDE FLANGE KIP (1 KIP = 1,000 LBS)WITH KSI KIPS PER SQUARE INCH

DOUBLE ANGLE

LINEAR FOOT

MAXIMUM

MINIMUM

NEAR FACE

NUMBER

NEAR SIDE

ON CENTER

OPENING

OPPOSITE

PLATE

WITHOUT WORK POINT WEIGHT

WELDED WIRE FABRIC

OUTSIDE FACE

PIER DESIGNATION

PREFABRICATED

PARTIAL PENETRATION WELD

NOT TO SCALE

MECHANICAL

MANUFACTURER

**MISCELLANEOUS** 

LONG LEG HORIZONTAL

LONG LEG VERTICAL

POUND

LLV

MAX

MECH

MFR

MISC

OPNG

OPP

PREFAB

ANCHOR BOLT

BOTTOM OF FOOTING

STRUCTURAL STEEL CHANNEL

CAST-IN-PLACE CONCRETE

CONCRETE MASONRY UNIT

COMPLETE PENETRATION WELD

CONSTRUCTION JOINT

ADDITIONAL

ARCHITECT

BUILDING

BEAM

BOTTOM

BEARING

BETWEEN

CANTILEVER

CENTERLINE

COLUMN

CONCRETE

CONNECTION

CONTINUOUS

CONTRACTOR

CONTROL JOINT

ADDL

ARCH

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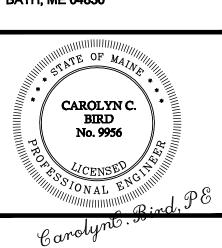
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**ABBREVIATIONS** SCALE: NTS SLOPE DESIGNATION SLOPE \_ UNDISTURBED EARTH ELEVATION MARK LEDGE ROOF PITCH COMPACTED STRUCTURAL FILL SPAN DIRECTION CONCRETE SECTION MARK GROUT SECTION No. —— DWG. WHERE SHOWN-BRICK CMU

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CLIENT:



ST

GAS

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SHEET TITLE:

SCALE: NTS

STRUCTURAL NOTES

**DESIGNED:** TD 06-04-09 CADD FILE: 9034-S1.dwg PROJECT NUMBER: 9034

STRUCTURAL STEEL NOTES

SCALE: NTS