

# DOWNTOWN TRANSPORTATION CENTER STRUCTURAL DRAWINGS

**GUNNY, BRIZENDINE & POGEMEYER**  
 ENGINEERS  
 PLANNERS  
 ARCHITECTS  
 145 WEST WASHINGTON STREET  
 SUITE 200  
 LAS VEGAS, NEVADA 89101  
 (702) 733-4433

**DOBUSKY KITTRELL GARLOCK**  
 Architects  
 3500 CAROLINE ST., LAS VEGAS, NEVADA 89109  
 (702) 733-4433

City of Las Vegas  
 Downtown Transportation Center  
 Las Vegas, Nevada

SHEET  
**S-1**  
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## GENERAL NOTES

### GENERAL REQUIREMENTS

- THE CONTRACTOR SHALL EXAMINE THE STRUCTURAL DRAWINGS AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES HE MAY FIND BEFORE PROCEEDING WITH THE WORK.
- ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL SITE CONDITIONS AND DIMENSIONS. HE SHALL NOTIFY THE ARCHITECT AND THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK.
- WHERE DRAWINGS SHOW EXISTING STRUCTURE TO BE USED FOR SUPPORT OF NEW CONSTRUCTION, THE CONTRACTOR SHALL VERIFY TRUE CONDITIONS AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES PRIOR TO FABRICATION. INFORMATION SHOWN ON THE DRAWINGS WHICH RELATE TO EXISTING STRUCTURES SHALL BE USED FOR ESTIMATING PURPOSES ONLY. THIS INFORMATION WAS DETERMINED FROM ON SITE INSPECTIONS AND EXTRAPOLATION. ACTUAL CONDITIONS MAY VARY CONSIDERABLY FROM DRAWINGS.
- THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT AND THE STRUCTURAL ENGINEER OF ANY CONDITION WHICH IN HIS OPINION MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS TO THE STRUCTURE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT HIS WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. AS A PART OF HIS RESPONSIBILITY, THE GENERAL CONTRACTOR SHALL PROVIDE THE SERVICES OF A LICENSED STRUCTURAL ENGINEER TO DESIGN AND SUPERVISE ANY SCAFFOLDING FOR HIS WORKMEN AND SHORING OF FORMS AND ELEMENTS OF THE CONSTRUCTION AFFECTED BY HIS WORK.
- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE, 1998 AND ALL OTHER REGULATING AGENCIES EXERCISING AUTHORITY OVER ANY PORTION OF THE WORK.
- SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE THE NOTES, DRAWINGS, AND/OR SPECIFICATIONS DIFFER, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE STRUCTURAL DRAWINGS.

### FOUNDATIONS & EXCAVATIONS

- FOOTING ELEVATIONS SHOWN ON PLANS ARE FOR ESTIMATING PURPOSES ONLY AND SHALL BE VERIFIED IN THE FIELD.
- EXISTING FOOTINGS SHALL BE VERIFIED BY THE CONTRACTOR WHERE USED FOR SUPPORT OF NEW CONSTRUCTION.
- ALL FOOTINGS SHALL REST ON MATERIAL CAPABLE OF SUPPORTING 3000 P.S.F. MINIMUM WITHOUT SIGNIFICANT SETTLEMENT.
- A SOILS ENGINEER SHALL INSPECT ALL FOOTING EXCAVATION AND FILLS TO VERIFY DEPTHS AND SOIL BEARING CAPACITY PRIOR TO PLACEMENT OF FORMS AND/OR REINFORCING STEEL.
- FOR SOIL INFORMATION REFER TO FOUNDATION INVESTIGATION BY J. H. KLEINFELDER ASSOCIATES, PROJECT NO. 1-1288-5, DATED MAY 14, 1985.
- ALL BACKFILL SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY (ASTM D1557) UNDER THE SUPERVISION OF A SOILS ENGINEER.

### SAND

- ALL SAND UNDER CONCRETE SLABS ON GRADE SHALL BE CLEAN, COARSE SAND, AND SHALL HAVE 16% TO 20% MOISTURE CONTENT BY VOLUME AT TIME OF PLACING CONCRETE.

### GRAVEL

- ALL GRAVEL SHALL CONFORM TO CLARK COUNTY TYPE II SPECIFICATIONS UNLESS NATURAL MATERIAL IS APPROVED IN WRITING BY THE SOILS ENGINEER. SEE FOUNDATION NOTES FOR COMPACTION.

### CONCRETE

- CONCRETE USED IN THE WORK SHALL HAVE 3000 P.S.I. MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT AGE 28 DAYS.
- ALL CONCRETE SHALL BE STONE CONCRETE UTILIZING AGGREGATE CONFORMING TO ASTM C33. CEMENT SHALL BE TYPE V CONFORMING TO ASTM C150.
- ALL CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED INDEPENDENT TESTING LABORATORY WHO SHALL SUBMIT COPIES OF THE DESIGN FOR APPROVAL, AND SHALL IN ADDITION SUBMIT COPIES OF 7 AND 28 DAY CYLINDER TEST RESULTS TO THE ARCHITECT AND THE BUILDING DEPARTMENT, AND OBTAIN APPROVAL PRIOR TO USE.

### CONCRETE CONTINUED

- BEFORE CONCRETE IS PLACED THE CONTRACTOR SHALL COORDINATE AND CHECK WITH ALL TRADES TO INSURE THE PROPER PLACEMENT OF ALL OPENINGS, CURBS, SLEEVES, INSERTS, DEPRESSIONS, ETC., RELATING TO THE WORK.
- MINIMUM CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS:
 

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| A. CONCRETE AGAINST EARTH (UNFORMED) | 3" |
| B. CONCRETE AGAINST EARTH (FORMED)   | 2" |
| C. CONCRETE SLAB                     | 1" |
- CONSTRUCTION OR COLD JOINTS OTHER THAN THOSE SHOWN IN THE PLANS SHALL NOT BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.
- FLOOR SLAB POURS SHALL BE LIMITED TO 500 SQUARE FEET (SECTIONS TO BE APPROXIMATELY SQUARE) OR AS SHOWN ON PLANS. A COLD JOINT OR SAW CUT MAY BE USED. WHEN USED, SAW CUT MUST BE PERFORMED WITHIN 7 HOURS AFTER INITIAL SET HAS OCCURRED.
- ALL CONCRETE SHALL BE POURED WITH A SLUMP NOT TO EXCEED 3".
- AN INITIAL CURING OF CONCRETE SHALL IMMEDIATELY FOLLOW THE FINISHING OPERATION. THE CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST OVERNIGHT BY USE OF ANY OF THE FOLLOWING:
 

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| A. PONDING OR CONTINUOUS SPRINKLING  |
| B. ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.   |
| C. CURING COMPOUNDS APPLIED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CURING COMPOUND MANUFACTURER |

### CONCRETE BLOCK MASONRY

- CONCRETE BLOCK UNITS SHALL BE LIGHT WEIGHT GRADE "M" UNITS CONFORMING TO ASTM C90. REFER TO ARCHITECTURAL DRAWINGS AND/OR SPECIFICATIONS FOR BLOCK SIZE, FACE, COLOR, JOINTING, ETC.
- BLOCK UNITS SHALL BE SUFFICIENTLY MOIST AT TIME OF LAYING TO PREVENT DEHYDRATION OF MORTAR AND GROUT.
- BLOCK UNITS SHALL BE FREE OF ALL SUBSTANCES WHICH MIGHT IMPAIR THE BOND OF THE BLOCK TO THE MORTAR AND GROUT.
- MORTAR SHALL BE TYPE "M" MIX CONSISTING OF ONE PART CEMENT AND THREE PARTS SAND WITH 1/4 TO 1/2 PART LIME.
- GROUT SHALL CONSIST OF ONE PART CEMENT, THREE PARTS SAND WITH 1/10 TO 1/15 PART LIME. GROUT SPACE MORE THAN TWO INCHES IN WIDTH MAY HAVE IN ADDITION TO THE SAND NOT MORE THAN TWO PARTS PEA GRAVEL.
- CEMENT FOR MORTAR AND GROUT SHALL BE A LOW ALKALI TYPE CONFORMING TO ASTM C150.
- CEMENT USED IN CONCRETE MASONRY MATERIALS BELOW GRADE SHALL BE TYPE V.
- MORTAR AND GROUT SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH AT AGE 28 DAYS OF 2000 P.S.I.

### REINFORCING STEEL

- REINFORCING STEEL SHALL BE NEW STOCK DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE. (GRADE 40 MAY BE USED FOR #3 BARS OR LESS) WELDED WIRE FABRIC SHALL BE MADE OF COLD DRAWN WIRE AND SHALL CONFORM TO ASTM A185.
- ALL BARS SHALL BE FREE OF RUST, GREASE, MILL SCALE, OR ANY MATERIAL WHICH MIGHT AFFECT ITS BOND TO CONCRETE.
- ALL BAR BENDS MUST BE MADE COLD. REBENDING OF BARS WILL NOT BE PERMITTED.
- BENDING, PLACING, SPACING, CONCRETE PROTECTIVE COVER, SPLICING, AND ALL OTHER DETAILS OF REINFORCEMENT SHALL CONFORM TO THE "BUILDING CODE REQUIREMENT FOR REINFORCED CONCRETE" A.C.I. 318-LATEST EDITION, CHAPTER 7 AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" A.C.I. 315-LATEST EDITION.
- ALL TESTING OF REINFORCING STEEL SHALL BE AS REQUIRED BY LOCAL BUILDING CODE.
- REINFORCING STEEL PLACING DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION OR PLACING. APPROVED DRAWINGS ARE REQUIRED AT THE JOB SITE ONE DAY PRIOR TO PLACING REINFORCING.

### STRUCTURAL STEEL

- STRUCTURAL STEEL, ROLLED SECTIONS, AND PLATE USED IN THE WORK SHALL CONFORM TO ASTM A36.
- PIPE SHALL BE WELDED SEAMLESS CONFORMING TO ASTM A53, GRADE "B" AND TUBE STEEL SHALL BE COLD FORMED CONFORMING TO ASTM A500, GRADE "C".
- ALL STRUCTURAL STEEL WHICH WILL BE EXPOSED TO VIEW IN THE COMPLETED STRUCTURE, EXCEPT THAT PORTION TO BE FIELD WELDED, SHALL RECEIVE ONE SHOP COAT OF PAINT. SHOP PAINT SHALL BE 70% CHROMATE OR APPROVED EQUAL. UNPAINTED EXPOSED AREAS SHALL BE FIELD PRIMED UTILIZING SAME PAINT AS SHOP PRIMER.
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. ANY FABRICATION PERFORMED PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS SHALL BE PERFORMED AT THE CONTRACTOR'S OWN RISK. FINAL DIMENSIONS USED FOR FABRICATION OF ALL STEEL SHALL BE THE TRUE FIELD DIMENSIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY THESE DIMENSIONS TO THE STEEL FABRICATORS.
- ALL STEEL CONNECTIONS SHALL BE AS DETAILED ON THE DRAWINGS OR DESIGNED PER REACTIONS SHOWN ON PLANS. CONNECTIONS SHALL BE STANDARD A.I.S.C. CONNECTIONS (EITHER WELDED OR BOLTED OR A COMBINATION OF THE TWO) OR FABRICATORS ENGINEER MAY PROVIDE ALTERNATE DESIGN OF CONNECTIONS. ALTERNATE CONNECTION DESIGNS SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL AND SHALL INCLUDE CALC. BY A LICENSED NEVADA STRUCTURAL ENGINEER.
- ALL STRUCTURAL STEEL SHALL BE FABRICATED IN AN I.C.B.O. CERTIFIED SHOP. ANY FABRICATION ACCOMPLISHED IN OTHER THAN A CERTIFIED SHOP MUST HAVE CONTINUOUS INSPECTION BY AN INDEPENDENT TESTING LABORATORY, BE ACCOMPANIED BY A CERTIFICATE OF COMPLIANCE WITH THE DESIGN REQUIREMENTS, AND STAMPED BY A NEVADA LICENSED PROFESSIONAL ENGINEER. ANY STEEL DELIVERED WHICH WAS NOT FABRICATED BY A CERTIFIED SHOP, OR NOT ACCOMPANIED BY A CERTIFICATION, SHALL BE REJECTED, OR UNDER NON-DESTRUCTIVE TESTING AND CERTIFICATION BY AN INDEPENDENT TESTING LABORATORY WILL BE REQUIRED PRIOR TO ERECTION.

### WELDING

- ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING CURRENT CERTIFICATES ACCEPTABLE TO THE ENGINEER AND THE REGULATING BUILDING DEPARTMENT. ALL WELDED STRUCTURAL STEEL SHALL BEAR THE WELDERS STAMP OR FULL RADIOGRAPHIC OR ULTRASONIC INSPECTION WILL BE REQUIRED.
- ALL WELDING SHALL BE PERFORMED USING THE ELECTRIC ARC PROCESS IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF THE "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION" OF THE AMERICAN WELDING SOCIETY.
- ALL FIELD WELDING MUST HAVE CONTINUOUS INSPECTION, NON-DESTRUCTIVE TESTING, AND CERTIFICATION BY AN INDEPENDENT TESTING LABORATORY AND REQUIRES A STAMP BY A LICENSED NEVADA ENGINEER.
- ALL WELDS SHALL UTILIZE LOW HYDROGEN ELECTRODES (E70XX) OR OTHER A.W.S. APPROVED EQUIVALENT METHODS.
- ALL WELDS SHALL BE CLEANED OF SLAG TO PERMIT VISUAL INSPECTION.

### METAL DECKING

- STEEL DECK SHALL BE AS MANUFACTURED BY YERCO MANUFACTURING COMPANY OR EQUAL. TYPES AND GAGES SHALL BE AS SHOWN ON THE DRAWINGS. ALL SHEETS SHALL BE COATED BEFORE FABRICATION BY THE CONTINUOUS STRIP HOT GALVANIZED PROCESS OR PRIMER PAINTED AS NOTED ON DRAWINGS. SHEETS SHALL CONFORM TO ASTM A611, GRADE C AND ZINC COATING SHALL CONFORM TO ASTM A525, CLASS G-60.

- DECK SHALL BE ANCHORED BY WELDING DIRECTLY THROUGH THE BOTTOM OF THE RIB TO ALL STRUCTURAL SUPPORTS AT MAXIMUM SPACING OF 6" O.C. SIDE SEAMS SHALL BE MECHANICALLY FASTENED BETWEEN SUPPORTS AT NOT MORE THAN 2'-0" O.C.
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION. ANY FABRICATION ACCOMPLISHED PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S OWN RISK.
- CUTTING AND FRAMING OF OPENINGS NOT SHOWN ON DRAWINGS AS REQUIRED BY OTHER TRADES SHALL BE THE RESPONSIBILITY OF THE TRADE INVOLVED.

## ABBREVIATIONS

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| A.B. ALTERNATE<br>ALUM. ALUMINUM<br>APPROX. APPROXIMATE<br>ARCH. ARCHITECTURAL<br>BOTTM. BOTTOM<br>BRG. BRACING<br>BSM'T. BASEMENT<br>BLK'G. BLOCKING<br>BLDG. BUILDING<br>CHAN. CHANNEL<br>C.I.P. CAST-IN-PLACE<br>CLR. CLEAR<br>CLG. CEILING<br>C.M.U. CONCRETE MASONRY UNIT<br>COL. COLUMN<br>CONC. CONCRETE<br>CONN. CONNECTION<br>CONST. CONSTRUCTION<br>CONT. CONTINUOUS<br>CONTR. CONTRACTOR<br>COUNTER SINK<br>CTR. CENTER<br>DETAIL<br>DIAG. DIAGONAL<br>DIA. DIAMETER<br>DIM. DIMENSION<br>D.L. DEAD LOAD<br>EA. EACH<br>E.P. EACH FACE<br>E.C. EACH SIDE<br>E.W. EACH WAY<br>ELEV. ELEVATION<br>EQUIP. EQUIPMENT<br>EXIST. EXISTING<br>EXP. EXPANSION<br>EXT. EXTERIOR<br>FOUND. FOUNDATION<br>F.F. FINISH FLOOR<br>FIN. FINISH<br>FLOOR FLOOR<br>F.P. FULL PENETRATION<br>FOOTING FOOTING<br>F.S. FAR SIDE<br>GAGE GAGE<br>GALV. GALVANIZED<br>G.L.B. GLUE LAMINATED BEAM<br>GR. GRADE<br>HANGER HANGER<br>HORIZ. HORIZONTAL<br>HT. HEIGHT<br>I.D. INSIDE DIAMETER<br>INT. INTERIOR<br>JOINT JOINT<br>JST. JOIST<br>LT. LIGHT<br>L.L. LIVE LOAD<br>LOC. LOCATION<br>L.L.V. LONG LEG VERTICAL<br>L.L.H. LONG LEG HORIZONTAL<br>L.L.B.D. LONG LEG BACK TO BACK<br>MAT. MATERIAL<br>MISC. MISCELLANEOUS<br>MAX. MAXIMUM<br>M.B. MACHINE BOLT<br>MECH. MECHANICAL<br>METAL METAL<br>MEZZ. MEZZANINE<br>MIN. MINIMUM | ANCHOR BOLT<br>ALTERNATE<br>ALUMINUM<br>APPROXIMATE<br>ARCHITECTURAL<br>BOTTOM<br>BRACING<br>BASEMENT<br>BLOCKING<br>BUILDING<br>CHANNEL<br>CAST-IN-PLACE<br>CLEAR<br>CEILING<br>CONCRETE MASONRY UNIT<br>COLUMN<br>CONCRETE<br>CONNECTION<br>CONSTRUCTION<br>CONTINUOUS<br>CONTRACTOR<br>COUNTER SINK<br>CENTER<br>DETAIL<br>DIAGONAL<br>DIAMETER<br>DIMENSION<br>DEAD LOAD<br>EACH<br>EACH FACE<br>EACH SIDE<br>EACH WAY<br>ELEVATION<br>EQUIPMENT<br>EXISTING<br>EXPANSION<br>EXTERIOR<br>FOUNDATION<br>FINISH FLOOR<br>FINISH<br>FLOOR<br>FULL PENETRATION<br>FOOTING<br>FAR SIDE<br>GAGE<br>GALVANIZED<br>GLUE LAMINATED BEAM<br>GRADE<br>HANGER<br>HORIZONTAL<br>HEIGHT<br>INSIDE DIAMETER<br>INTERIOR<br>JOINT<br>JOIST<br>LIGHT<br>LIVE LOAD<br>LOCATION<br>LONG LEG VERTICAL<br>LONG LEG HORIZONTAL<br>LONG LEG BACK TO BACK<br>MATERIAL<br>MISCELLANEOUS<br>MAXIMUM<br>MACHINE BOLT<br>MECHANICAL<br>METAL<br>MEZZANINE<br>MINIMUM | N.I.C. NOT IN CONTRACT<br>NO. NUMBER<br>N.S. NEAR SIDE<br>O. OVER<br>O.C. ON CENTER<br>O.D. OUTSIDE DIAMETER<br>O.P.P. OPENING<br>O.P.P. OPPOSITE<br>O.W.J. OPEN WEB JOIST<br>P.S.F. POUNDS PER SQUARE FOOT<br>P.S.I. POUNDS PER SQUARE INCH<br>R. RADIUS<br>REF. REFERENCE<br>REINF. REINFORCING<br>REQ'D. REQUIRED<br>REV. REVISION<br>SCHED. SCHEDULE<br>SECT. SECTION<br>SHIT. SHEET<br>S.L.V. SHORT LEG VERTICAL<br>S.L.H. SHORT LEG HORIZONTAL<br>S.L.B.D. SHORT LEG BACK TO BACK<br>SIM. SIMILAR<br>SPEC. SPECIFICATION<br>STIFF. STIFFENER<br>STD. STANDARD<br>STRUCT. STRUCTURAL<br>SQ. SQUARE<br>SYMM. SYMMETRICAL ABOUT<br>THK. THICK<br>T. & G. TORQUE & GROOVE<br>T.O.C. TOP OF CONCRETE<br>T.O.F. TOP OF FOOTING<br>T.O.J. TOP OF JOIST<br>T.O.S. TOP OF STEEL<br>TYP. TYPICAL<br>U.N.O. UNLESS NOTED OTHERWISE<br>VERT. VERTICAL<br>W/O. WITHOUT<br>W.W.P. WELDED WIRE FABRIC<br>WT. WEIGHT |
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