

## CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE AND THE CONCRETE REINFORCING STEEL INSTITUTE. SEE ALSO SPECIFICATIONS

CONCRETE STRENGTHS AT 28 DAYS: 4500 PSI UNO, 4000 PSI FOR FOUNDATIONS.

CONCRETE SHALL BE NORMAL WEIGHT.

SLUMP SHALL BE 4" MAX. FOR FOOTINGS & SLABS, 5" MAX. FOR WALLS. DO NOT ADD WATER AT THE JOB SITE.

WATER/CEMENT RATIO SHALL BE 0.45 MAX FOR FOOTINGS, WALLS & SLABS, UNO.

CEMENT SHALL BE ASTM C150 PORTLAND CEMENT, TYPE I OR II.

USE BLANKETS AS REQUIRED FOR COLD WEATHER CONCRETING; DO NOT USE ACCELERATING ADMIXTURES.

AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS, PROVIDE BENT BARS OF EQUAL SIZE AND AT SAME SPACING AS TYPICAL REINFORCING AROUND CORNER AND/OR INTO ABUTTING WALL. BARS SHALL HAVE EMBEDMENT OF 18 DIAMETERS (12" MINIMUM) PAST INSIDE EDGE OF CORNER.

WHERE CONCRETE IS PLACED DIRECTLY ON GROUND, REINFORCING STEEL SHALL HAVE 3" OF CONCRETE COVER. AT ALL OTHER PLACES, CONCRETE COVER TO BE A MIN. OF 2" UNLESS NOTED OTHERWISE.

ALL FLOOR SLABS SHALL BE STEEL TROWEL FINISHED.

ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED, 6% ± 1%

CURE CONCRETE FOR 7 DAYS

REINFORCING STEEL : ASTM A615 OR A616, GRADE 60. MINIMUM LAP LENGTH - SEE SCHEDULES ON THIS SHEET.

WHERE CUTTING HOLES IN EXISTING CONCRETE, DO NOT OVERCUT. DRILL AND/OR GRIND CONCRETE AT THE CORNERS OF THE HOLES, IN ORDER TO AVOID OVERCUTTING AT NEW OPENINGS IN HARDENED CONCRETE.

WHERE CUTTING HARDENED CONCRETE SURFACES WHICH WILL REMAIN EXPOSED, GRIND ALL EXPOSED REBAR DOWN MIN 1.5" BELOW THE CONCRETE SURFACE. DO NOT TORCH CUT. CLEAN, ROUGHEN, APPLY EPOXY BONDING AGENT, AND DRY-PACK PATCHING MORTAR SUITABLE FOR EXTERIOR/WET SERVICE. FOLLOW MANUFACTURERS' RECOMMENDATIONS.

CONCRETE ENCASEMENT FOR UNDERSLAB CONDUITS SHALL BE 12" MINIMUM CLEAR BELOW BOTTOM OF SLAB.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED MASONRY DOWEL LAYOUT PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

REINFORCED CONCRETE FOOTINGS AND WALLS ARE 12" THICK, UNO. REINFORCED CONCRETE SLABS AND WALLS ARE REINFORCED WITH #5 @ 12" O.C. EW EF, UNO.

BAR SIZE	4000 or 4500 psi		PER ACI 318-14		s = 4" MIN
	LAP	ANCHORAGE	LAP	ANCHORAGE	
#3	15	12	12	12	
#4	20	15	15	12	
#5	25	19	19	15	
#6	29	23	23	18	
#7	47	36	36	28	
#8	61	47	47	36	

## STEEL

ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES. SEE ALSO SPECIFICATIONS.

STRUCTURAL STEEL - W - ASTM A992; PLATES - ASTM A36; TUBE - ASTM A500, GRADE B Fy = 48 KSI; PIPE - ASTM A53, GRADE B Fy= 35 KSI.

ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325-N UNLESS NOTED OTHERWISE.

SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.

ENDS OF ALL COLUMNS SHALL HAVE THE BEARING SURFACE PREPARED TO COMMON PLANE BY MILLING.

WELDING ELECTRODES AWS. ASTM E-70XX.

ALL WELDING SHALL BE DONE BY A QUALIFIED WELDER IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.

STRUCTURAL STEEL FOR THE SIGN SUPPORT SHALL BE GALVANIZED AFTER FABRICATION.

HSS MEMBERS FOR THE SIGN SUPPORT SHALL HAVE MIN 3/16" CAP PLATES AND END PLATES AT EXPOSED ENDS.

HSS CONNECTIONS FOR THE SIGN SUPPORT SHALL HAVE SHOP-WELDED & FIELD-BOLTED CONNECTIONS. HSS CONNECTIONS SHALL USE 3/4" END PLATES, UNO. BOLTED CONNECTIONS SHALL HAVE GALV HEAVY WASHERS AND DOUBLE GALV NUTS, UNO.

## ALUMINUM NOTES

- ALL STAIR AND GRATING SUPPORTS AND MATERIALS SPECIFIED AS ALUMINUM SHALL BE 6061-T6 ALUMINUM, EXCEPT BOLTS AND CONCRETE ANCHORS WHICH SHALL BE STAINLESS STEEL.
- ALL ALUMINUM CHANNELS AND I-BEAM SHAPES ARE ALUMINUM ASSOCIATION STANDARD SHAPES.
- ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A 1/8" BITUMINOUS COATING.
- SEE PROCESS AND ARCHITECTURAL DRAWINGS FOR HANDRAIL, GRATING AND STAIR LOCATIONS.

## ADHESIVE ANCHORS

- ADHESIVE ANCHOR SYSTEMS SHALL BE HILTI HY-200, SIMPSON SET XP, OR APPROVED EQUAL. ANCHOR RODS FOR ADHESIVE ANCHORS SHALL HAVE 50 KSI MINIMUM SPECIFIED YIELD STRENGTH UNLESS OTHERWISE NOTED. SUBMITTAL OF ALL PROPOSED PRODUCTS, WITH TECHNICAL DATA AND CURRENT ICC-ES REPORTS, IS REQUIRED FOR REVIEW AND APPROVAL BY THE ENGINEER.
- ANCHOR RODS SHALL BE GALVANIZED FOR FASTENING GALVANIZED STEEL TO CONCRETE/MASONRY, AND STAINLESS STEEL FOR FASTENING ALUMINUM OR STAINLESS STEEL TO CONCRETE/MASONRY, UNLESS OTHERWISE NOTED.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS. HOLES SHALL BE DRILLED AND CLEANED IN STRICT ACCORDANCE WITH THE CURRENT MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII) MANUFACTURER'S FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF THE WORK.
- COMPLY WITH OSHA 1926.1153.
- ADHESIVE ANCHORAGE INSTALLATION SHALL HAVE CONTINUOUS SPECIAL INSPECTION.

## LIGHT GAUGE STEEL

FOR MIL THICKNESSES OF 18 MILS TO 43 MILS (INCLUSIVE) THE MINIMUM STEEL YIELD STRESS IS 33 KSI. THICKNESSES OF 54 MILS AND GREATER ARE TO HAVE A MINIMUM YIELD STRESS OF 50 KSI.

ALL WELDING OF LIGHT GAUGE STEEL TO BE PERFORMED BY A WELDER QUALIFIED TO WELD LIGHT GAUGE STEEL.

## PANTOGRAPH CONCRETE FOOTING

UNDER EACH PANTOGRAPH'S PREFABRICATED BASE, PROVIDE AN 8'-0" SQ CAST-IN-PLACE CONCRETE FOOTING W/ #6 @ 15" O.C. EW T&B. BOTTOM OF FOOTING SHALL BE MIN 42" BELOW ADJACENT GRADE. TOP OF FOOTING SHALL BE AT BOTTOM OF PREFABRICATED BASE. BASIS OF DESIGN PANTOGRAPH'S PREFABRICATED BASE IS OVERALL 94.49' X 94.49'. TYP OF 2 PANTOGRAPH SUPPORTS.

## DIMENSIONAL LUMBER

ALL WOOD STRUCTURAL MEMBERS ARE IN ACCORDANCE WITH THE IBC REFERENCED NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS).

PROVIDE 2 INCH BLOCKING BETWEEN WALL STUDS AT HORIZONTAL PANEL EDGES.

SHINGLE NAILS SHALL PENETRATE NOT LESS THAN 3/4" INTO ROOF SHEATHING OR NAILING STRIPS.

SAWN LUMBER TO BE SPRUCE-PINE-FIR (SPF), NO.2 GRADE OR BETTER, OR EQUIVALENT UNLESS NOTED OTHERWISE.

ALL LUMBER SHALL BE FURNISHED ALL SIDES (S4S) AND BE OF THE SAME SIZE AND SHAPE SHOWN.

CONNECT STUD SOLE PLATE TO CONCRETE FOUNDATION WITH C.I.P. 3/4" DIA X 1'-3" LG HEADED ANCHORS OR THREADED ANCHOR ROD WITH NUT AT MAX 4'-0" O.C.

ALL SOLE PLATES SHALL BE WOOD-PRESERVATIVE PRESSURE TREATED LUMBER.

ALL WOOD FOR UNENCLOSED STRUCTURES SHALL BE PRESSURE TREATED IN COMPLIANCE WITH REQUIREMENTS OF AWPA STANDARD.

ALL FIELD CUTS OF PRESSURE TREATED LUMBER SHALL BE PAINTED WITH TWO COATS OF PRESERVATIVE EQUAL TO THE ABOVE.

ROOF AND WALL SHEATHING TO BE A.P.A. RATED SHEATHING, 32/16, EXTERIOR GRADE, CONFORMING TO US PRODUCT STANDARD PD 1-83. THICKNESS AS SPECIFIED ON ARCHITECTURAL DRAWINGS.

STAPLE FASTENING OF SHEATHING IS NOT PERMITTED.

CONNECTION HARDWARE AND FASTENERS SHALL BE GALVANIZED STEEL.

UNDER NUTS, BOLT HEADS, AND LAG SCREWS (BOLTS) IN CONTACT WITH WOOD PROVIDE A "HEAVY" STEEL WASHER CONFORMING TO ANSI B18.22.1 TYPE B WIDE SERIES.

PRE-ENGINEERED WOOD ROOF TRUSS DESIGNS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN SOUTH CAROLINA AND THE DESIGNS SUBMITTED FOR REVIEW.

ROOF JOISTS AND HEADERS ARE BE DESIGNED TO BEAR ON BEARING WALLS AND POSTS ONLY.

ROOF JOIST SPACING SHALL BE MAX 12", UNO. ROOF JOISTS SPANNING LESS THAN 16' BETWEEN BEARING WALLS SHALL BE SPACED AT MAX 16" O.C.

## DIMENSIONAL LUMBER FASTENING SCHEDULE

ALL WOOD MEMBERS SHALL BE FASTENED IN ACCORDANCE WITH THE FOLLOWING NAILING SCHEDULE:

CONNECTION	FASTENING, a_m	LOCATION
TOP PLATE TO STUD	2 - 16d COMMON (3 1/2" X 0.162") 3 - 3" X 0.131" NAILS 3 - 3" 14 GAGE STAPLES	END NAIL
DOUBLE STUDS	16d (3 1/2" X 0.135") AT 24" O.C. 3" X 0.131" NAIL AT 8" O.C. 3" 14 GAGE STAPLE AT 12" O.C.	FACE NAIL
DOUBLE TOP PLATES	16d (3 1/2" X 0.162") 3" X 0.131" NAIL AT 12" O.C. 3" 14 GAGE STAPLE AT 12" O.C.	TYPICAL FACE NAIL
DOUBLE TOP PLATES	8-16d COMMON (3 1/2" X 0.162") 12 - 3" X 0.131" NAILS 12 - 3" 14 GAGE STAPLES	LAP SPLICE
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3 - 8d COMMON (2 1/2" X 0.131") 3 - 3" X 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOE NAIL
TOP PLATES, LAPS AND INTERSECTIONS	2 - 16d COMMON (3 1/2" X 0.162") 3 - 3" X 0.131" NAILS 3 - 3" 14 GAGE STAPLES	FACE NAIL
CONTINUOUS HEADER, TWO PIECES	16d COMMON (3 1/2" X 0.162")	16" O.C. ALONG EDGE
CENILING JOISTS TO PLATE	3 - 8d COMMON (2 1/2" X 0.131") 5 - 3" X 0.131" NAILS 5 - 3" 14 GAGE STAPLES	TOE NAIL
BUILT-UP CORNER STUDS	16d COMMON (3 1/2" X 0.162") 3" X 0.131" NAILS 3" 14 GAGE STAPLES	24" O.C. 16" O.C. 16" O.C.
BUILT-UP GIRDER AND BEAMS	20d COMMON (4" X 0.192") 32" O.C. 3" X 0.131" NAIL AT 24" O.C. 3" 14 GAGE STAPLE AT 24" O.C.	FACE NAIL AT TOP & BOT STAGGERED ON OPP SIDES
	2 - 20d COMMON (4" X 0.192") 3 - 3" X 0.131" NAILS 3 - 3" 14 GAGE STAPLES	FACE NAIL AT ENDS AND AT EACH SPLICE
WOOD STRUCTURAL PANELS, ROOF 1/2" AND LESS AND WALL SHEATHING (TO FRAMING)	19/32" TO 3/4"	6d, c, l 2 3/8" X 0.113" NAIL, n 1 3/4" 16 GAGE, o
	7/8" TO 1"	8d, d OR 6d, e 2 3/8" X 0.131" NAIL, p 2" 16 GAGE STAPLE, p
	1 1/8" TO 1 1/4"	8d, c 10d, d OR 8d, e
FIBERBOARD SHEATHING, g	11/2"	NO. 11 GAGE ROOFING NAIL, h 8d COMMON NAIL (2" X 0.113") NO. 16 GAGE STAPLE, i
	25/32"	NO. 11 GAGE ROOFING NAIL, h 8d COMMON NAIL (2 1/2" X 0.131") NO. 16 GAGE STAPLE, i
INTERIOR PANELING	1/4" 3/8"	4d, j 6d, k

- COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
- NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLE BOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
- COMMON OR DEFORMED SHANK (6d - 2" X 0.113"; 8d - 2 1/2" X 0.131"; 10d - 3" X 0.148")
- COMMON (6d - 2" X 0.113"; 8d - 2 1/2" X 0.131"; 10d - 3" X 0.148")
- DEFORMED SHANK (6d - 2" X 0.113"; 8d - 2 1/2" X 0.131"; 10d - 3" X 0.148")
- CORROSION-RESISTANT SIDING (6d - 1 7/8" X 0.106"; 8d - 2 3/8" X 0.128") OR CASING (6d - 2" X 0.099"; 8d - 2 1/2" X 0.113") NAIL
- FASTENERS SPACED 3" ON CENTER AT EXTERIOR EDGES AND 6" ON CENTER AT INTERMEDIATE SUPPORTS, WHEN USED AS STRUCTURAL SHEATHING. SPACING SHALL BE 6" ON CENTER ON THE EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS.
- CORROSION-RESISTANT ROOFING NAILS WITH 7/16" DIAMETER HEAD AND 1 1/2" LENGTH FOR 1/2" INCH SHEATHING AND 1 3/4" LENGTH FOR 25/32" SHEATHING.
- CORROSION-RESISTANT STAPLES WITH NOMINAL 7/16" CROWN OR 1" CROWN AND 1 1/4" LENGTH FOR 1/2" SHEATHING AND 1" LENGTH FOR 25/32" SHEATHING. PANEL SUPPORTS AT 16" (20" IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
- CASING (1 1/2" X 0.080") OR FINISH (1 1/2" X 0.072") NAILS SPACED 6" ON PANEL EDGES, 12" AT INTERMEDIATE SUPPORTS.
- PANEL SUPPORTS AT 24". CASING OR FINISH NAILS SPACED 6" ON PANEL EDGES, 12" AT INTERMEDIATE SUPPORTS.
- FOR ROOF SHEATHING APPLICATIONS, 8d NAILS (2 1/2" X 0.113") ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
- STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16"
- FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4" ON CENTER AT EDGES, 8" AT INTERMEDIATE SUPPORTS
- FASTENERS SPACED 4" ON CENTER AT EDGES, 8" AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL SHEATHING AND 3" ON CENTER AT EDGES, 6" AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING
- FASTENERS SPACED 4" ON CENTER AT EDGES, 8" AT INTERMEDIATE SUPPORTS.



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	4/10/20			
SCALE:	N/A			
DESIGNED BY:	ROP			
DRAWN BY:	GUS			
CHECKED BY:	ROP			

LAKETRAK WICKLIFFE PARK-N-RIDE LOT  
29610 LAKELAND BLVD., WICKLIFFE, OH 44092

PROJECT NO.	190065
DISCIPLINE	GENERAL
SHEET NAME	S-02
SHEET	OF
27	49

STRUCTURAL NOTES