

GENERAL STRUCTURAL NOTES:

DESIGN LOADS AND CRITERIA:

2012 NORTH CAROLINA BUILDING CODE
MINIMUM DESIGN LOADS PER ASCE 7-10
RISK CATEGORY II (NORMAL)

LOCATION	DEAD LOAD	LIVE LOAD
FLOOR	100	100 TO 200 PSF
ROOF	28 PSF	20 PSF (REDUCIBLE)

NOTE: ROOF DEAD LOAD INCLUDES 6 PSF ALLOWANCE FOR SOLAR ARRAY

SNOW DESIGN
Pg = 16 psf, Ce = 1.0, Cl = 1.0, Is = 1.00, Pf = 7 psf, Cs = 1.0, Ps = 7 psf, Pm = 10 psf
DRIFT LOADS PER ASCE 7
FROST DEPTH = 3'-4"

WIND DESIGN
V = 90 MPH, EXPOSURE B, GCpi = 0.18
ASD NET UPLIFT ON ROOF JOISTS = 6 PSF
COMPONENT AND CLADDING (C&C) PRESSURES ARE TABULATED BELOW. ALL PRESSURES ARE PSF.
OH = OVERHANGS, Aeff = MIN. EFFECTIVE WIND AREA (SQ.FT.)
EDGE/CORNER WIDTH, a = 6 FT.

WALL C&C PRESSURES (LRFD/ULT LEVEL. MULTIPLY BY 0.6 FOR ASD/SERVICE LEVEL)

Aeff	4.5+	4-	5-	WIND ZONES
0-10	13.3	-14.4	-17.8	1 ROOF INTERIOR
50	12.0	-13.1	-15.0	2 ROOF EDGE
100	11.4	-12.5	-13.9	3 ROOF CORNER
500	10.0	-11.1	-11.1	4 WALL INTERIOR
				5 WALL CORNER

ROOF C&C PRESSURES (LRFD/ULT LEVEL. MULTIPLY BY 0.6 FOR ASD/SERVICE LEVEL)

Aeff	1.23+	1-	2-	3-	OH 1,2-	OH 3-
0-10	10.00	-14.6	-24.4	-24.4	-21.0	-21.0
25	10.00	-14.1	-21.0	-21.0	-20.5	-20.5
50	10.00	-13.7	-18.4	-18.4	-20.1	-20.1
100	10.00	-13.3	-15.8	-15.8	-19.8	-19.8
500	10.00	-13.3	-15.8	-15.8	-13.6	-13.6

SEISMIC DESIGN
ANALYSIS PER THE EQUIVALENT LATERAL FORCE PROCEDURE
SITE CLASS D, Ie = 1.00, Ss = 0.317, S1 = 0.106, Sds = 0.254, Sd1 = 0.120, SEISMIC DESIGN CATEGORY B
STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
R = 3.00, Ω = 2.50, Cd = 3.00, V = 0.085 W

GEOTECHNICAL
REPORT BY NOVA ENGINEERING AND ENVIRONMENTAL, INC.
REPORT NUMBER 10705-2017014, DATED 10/16/17
ALLOWABLE BEARING PRESSURE FOR FOUNDATION DESIGN = 3000 PSF

GENERAL:

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL SHOP DRAWINGS AND SPECIFICATIONS.
- GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS.
- FABRICATOR SHALL HIGHLIGHT CHANGES MADE IN SHOP DRAWINGS WHICH DO NOT COMPLY WITH THE DESIGN DRAWINGS.
- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF WORK.
- A RECORD SET OF SHOP DRAWINGS SHALL BE KEPT IN THE FIELD BY THE GENERAL CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTS PLANS BEFORE STARTING WORK.
- VERIFY ALL MECHANICAL EQUIPMENT WEIGHTS, LOCATIONS AND ASSOCIATED OPENINGS WITH MECHANICAL CONTRACTOR. NOTIFY ENGINEER IF ACTUAL WEIGHT EXCEEDS THE DESIGN WEIGHT SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY BRACING, SHORING, GUYING, ETC. AND OTHER METHODS TO PREVENT EXCESSIVE STRESSES DURING CONSTRUCTION. THESE PROVISIONS ARE TO REMAIN IN PLACE UNTIL SUFFICIENT PERMANENT MEMBERS ARE CONSTRUCTED TO INSURE THE SAFETY OF THE STRUCTURE.
- SECTIONS AND DETAILS ON DRAWINGS ARE TYPICAL FOR ALL SIMILAR CONDITIONS.
- UNLESS EXPLICITLY NOTED OTHERWISE, ELEVATIONS ARE REFERENCED FROM +0'-0" DATUM AT THE FINISHED FLOOR ELEVATION 750.00'

FOUNDATIONS AND SOILS:

- ALL SITE WORK SHALL BE UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER OR SOILS TECHNICIAN.
- PREPARATION OF THE SITE, INCLUDING INITIAL UNDERCUTTING, FILL AND BACKFILL MATERIAL AND PLACEMENT, SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT REFERENCED IN THE DESIGN LOADS AND CRITERIA SECTION OF THESE NOTES. COMPACTION OF STRUCTURAL FILL MATERIALS SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, BUT NOT LESS THAN 95 PERCENT MODIFIED PROCTOR METHOD.
- ALL FOUNDATIONS SHALL BE LOCATED AT ELEVATIONS SHOWN ON PLANS AND DETAILS. FOUNDATIONS AND SLABS-ON-GRADE SHALL BEAR ON SUB-BASE MATERIAL APPROVED BY THE GEOTECHNICAL CONSULTANT.
- FOOTINGS, OR PORTIONS THEREOF, MAY BE EARTH FORMED BY NEAT EXCAVATIONS IF SOIL CONDITIONS ALLOW.
- FOOTINGS SHALL BE CENTERED ON COLUMNS UNLESS NOTED OTHERWISE.
- FOOTINGS ARE DESIGNED FOR THE ALLOWABLE SOIL PRESSURE SPECIFIED IN THE DESIGN LOADS AND CRITERIA SECTION OF THESE NOTES.
- PROXIMITY OF UTILITY TRENCHES TO THE BUILDING FOUNDATION SYSTEM SHALL BE AS APPROVED BY THE ARCHITECT AND/OR SOILS ENGINEER TO INSURE THE INTEGRITY OF THE BEARING SOILS. THE RESULTING TOTAL LOAD SOIL PRESSURES FOR IN-SITU SOILS MAY NOT EXCEED THE ALLOWABLE BEARING PRESSURE. (SEE DESIGN LOADS AND CRITERIA, GEOTECHNICAL SECTION OF THESE NOTES.)

CONCRETE:

- CONCRETE SHALL CONFORM TO THE FOLLOWING: WHERE MIN. FC IS THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, AND MAX. W/C IS THE MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO.
- | CONCRETE LOCATION/USE | MIN. FC | MAX. W/C | MAX. SLUMP | AIR CONTENT |
|--------------------------|----------|----------|------------|-------------------------------|
| FOOTINGS | 3000 PSI | 0.55 | 5" ± 1" | - |
| FOUNDATION WALLS & PIERS | 4000 PSI | 0.50 | 5" ± 1" | 6% ± 1.5% |
| INTERIOR SLABS-ON-GRADE | 3000 PSI | 0.50 | 5" ± 1" | 3% OR LESS AT TROWELED FINISH |
| EXTERIOR CONCRETE | 4000 PSI | 0.45 | 5" ± 1" | 6% ± 1.5% |

- SEE SPECIFICATION FOR ADDITIONAL CONCRETE REQUIREMENTS.
- ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE CURRENT ACI MANUAL OF CONCRETE PLACEMENT.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE I OR II.
- ALL AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.
- ALL REINFORCING SHALL MEET ASTM A615, GRADE 60. ALL WELDED WIRE FABRIC (WWF) SHALL MEET ASTM A185 AND BE PROVIDED IN FLAT SHEETS ONLY.
- CLEAR COVER TO REINFORCING SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE.

LOCATION	REINFORCING SIZE	MIN. COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	ALL	3"
EXPOSED TO EARTH OR WEATHER	#6 THROUGH #18	2"
EXPOSED TO EARTH OR WEATHER	#5 AND SMALLER	1 1/2"

- ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED PER CRSI AND ACI STANDARDS, INCLUDING CONCRETE COVER AND BAR SUPPORTS (DESIRED METHOD OF SUPPORTING TOP BARS IN THICK MATS SHALL BE VERIFIED WITH ENGINEER.) PROVIDE CORNER BARS AT ALL FOOTINGS AND WALL INTERSECTIONS TO MATCH HORIZONTAL REINFORCING IN SIZE AND SPACING. AT INTERSECTIONS OF CONTINUOUS SPREAD FOOTINGS, EXTEND ALL BARS TO FAR SIDE OF INTERSECTING FOOTING. LAP BARS AT ALL SPICES, INCLUDING CORNER BARS AND DOWELS, IN ACCORDANCE WITH SPICE SCHEDULE OR IN LIEU THEREOF 40 BAR DIAMETERS. LAP WWF 6" OR ONE FULL MESH, WHICHEVER IS GREATER.
- PROVIDE 2-#5, 4"-0" LONGER THAN OPENING DIMENSION ON ALL SIDES OF OPENING IN SLAB.
- ALUMINUM SHALL NOT BE EMBEDDED IN ANY CONCRETE.
- NO HOLES OR OPENINGS THROUGH FOUNDATION WALL AND/OR FOOTINGS WITHOUT ENGINEERS APPROVAL.

MASONRY:

- HOLLOW CONCRETE BLOCK (MASONRY) UNITS SHALL CONFORM TO ASTM C90, NORMALWEIGHT, TYPE N-1 WITH A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA (Fm = 1500 PSI).
- ALL MORTAR FOR USE IN MASONRY SHALL CONFORM TO ASTM C270, TYPE S. ALL GROUT FOR USE IN MASONRY SHALL CONFORM TO ASTM C476, MIN. 2000 PSI AND NOT LESS THAN A 6-1/2 SACK MIX.
- REINFORCING BARS SHALL MEET ASTM A615, GRADE 60.
- PROVIDE AT LEAST 2 VERTICAL BARS AT EACH END, CORNERS, AND INTERSECTIONS OF ALL WALLS. SEE WALL SECTIONS FOR TYPICAL VERTICAL REINFORCING.
- VERTICAL AND HORIZONTAL REINFORCING SHALL BE CONTINUOUS AND LAPPED PER ACI 330.
- HOLD VERTICAL BARS STRAIGHT, TRUE, AND ACCURATE IN ALL WALLS AS DETAILED. INSTALL REBAR POSITIONERS @ 4'-0" O.C. MAXIMUM THAT ARE DESIGNED TO HOLD REBAR IN PROPER LOCATION WITHIN THE CELL PRIOR TO GROUTING.
- PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
- PROVIDE STANDARD GAGE TRUSS TYPE (OR LADDER-TYPE) JOINT REINFORCEMENT AS INDICATED FOR TYPICAL HORIZONTAL REINFORCING, UNLESS NOTED OTHERWISE.
- ALL REINFORCED MASONRY COLUMN AND WALL SECTIONS REQUIRE DOWELS FROM FOOTING, SIZE AND QUANTITY AS VERTICAL REINFORCEMENT IN COLUMN OR WALL UNLESS NOTED OTHERWISE.
- GROUT FILL ALL CELLS. ALL WALLS BELOW GRADE, SLUSH JOINT BETWEEN WYTHES BELOW GRADE.
- ALL CMU SHALL BE LAID IN RUNNING BOND PATTERN.
- GROUT PLACEMENT SHALL CONFORM TO ACI 530.1/ASCE 6/TMS 602-1/2016. THE MAXIMUM GROUT POUR HEIGHT SHALL NOT EXCEED 8 FEET AND THE MAXIMUM HEIGHT WHICH GROUT IS PLACED IN ONE CONTINUOUS OPERATION (GROUT LIFT) SHALL NOT EXCEED 4 FEET. THERE SHALL BE A MINIMUM OF 1 HOUR SETTING TIME BETWEEN EACH GROUT LIFT.
- THE TOP OF EACH GROUT POUR SHALL BE 1" BELOW THE BED JOINT.
- REINFORCEMENT, REBAR POSITIONERS, AND TIES SHALL BE PLACED PRIOR TO GROUTING.
- CLEANOUTS SHALL BE CONSTRUCTED ADJACENT TO EACH VERTICAL BAR IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR HEIGHT THAT EXCEEDS 5 FEET. CONSTRUCT CLEANOUTS WITH AN OPENING OF SUFFICIENT SIZE TO PERMIT REMOVAL OF DEBRIS, BUT NO LESS THAN 3" DIMENSION. AFTER CLEANING, CLOSE CLEANOUTS WITH CLOSURES BRACED TO RESIST GROUT PRESSURE. ALL CLEANOUTS SHALL BE LOCATED ON WALL FACE NOT EXPOSED TO VIEW.

STEEL:

- STRUCTURAL STEEL SHALL MEET THE LATEST AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- ALL WIDE FLANGE SHAPES SHALL MEET ASTM A992, Fy = 50 KSI.
- ALL PLATES, CHANNELS, AND ANGLES SHALL MEET ASTM A36, Fy = 36 KSI.
- ALL PIPES SHALL MEET ASTM A33, GRADE B, Fy = 35 KSI.
- ALL TUBES SHALL MEET ASTM A500, GRADE B, Fy = 46 KSI OR ASTM A1085, Fy = 50 KSI.
- ANCHOR RODS SHALL MEET ASTM F1554, GRADE 36.
- ALL BOLTS SHALL MEET ASTM A325 HIGH STRENGTH, WITH WASHERS AS REQUIRED.
- WELDING SHALL CONFORM TO THE STANDARDS SET FORTH IN AWS PUBLICATION "WELDING IN BUILDING CONSTRUCTION".
- THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF CONNECTIONS IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, EXCEPT WHERE SPECIFICALLY NOTED. CONNECTIONS ARE SIMPLE SHEAR CONNECTIONS, U.N.O. BOLTED CONNECTIONS SHALL HAVE 2 OR MORE BOLTS AND THE DISTANCE FROM SUPPORTING MEMBER TO CENTERLINE OF BOLTS SHALL NOT EXCEED 3 INCHES. DEPTH OF BEAM CONNECTIONS SHALL BE AT LEAST HALF OF THE BEAM DEPTH. MINIMUM ASD CONNECTION STRENGTH SHALL BE PER THE FOLLOWING TABLE, U.N.O.

MEMBER	STRENGTH	MEMBER	STRENGTH	MEMBER	STRENGTH
W8, W10	16 KIPS	W16	42 KIPS	W21	63 KIPS
W12, W14	25 KIPS	W18	53 KIPS	W24	74 KIPS

- ALL FIELD AND SHOP CONNECTIONS TO HAVE 1/4" FILLET WELDS MINIMUM UNLESS NOTED AS BOLTED CONNECTIONS.
- ALL FIELD WELDS TO BE WITH E70XX ELECTRODES.
- ALL ERECTION DRAWINGS SHALL SHOW ALL FIELD WELDS REQUIRED.
- ELEVATIONS FOR TOP OF STEEL NOTED ON DRAWINGS. BEAMS FRAME FLUSH AT TOP UNLESS NOTED (+/-).
- STEEL FRAMES ARE NOT "SELF-SUPPORTING." ADEQUATE TEMPORARY SUPPORT SHALL BE PROVIDED BY THE CONTRACTOR UNTIL REQUIRED ELEMENTS OR CONNECTIONS ARE IN PLACE.

JOISTS

- STEEL JOISTS AS SHOWN ON THE PLAN ARE TO BE FABRICATED AND ERECTED PER S.J.I. RECOMMENDATIONS, INCLUDING BRIDGING. SEE PLANS AND DETAILS FOR SPECIAL BRIDGING AND BRACING REQUIREMENTS.
- JOISTS AT OR NEAREST TO CENTERLINES OF COLUMNS SHALL HAVE BOLTED CONNECTIONS. SUSPENSION OF ANY MISCELLANEOUS ITEMS FROM JOISTS SHALL BE ONLY AT PANEL POINTS.
- ALL JOISTS SHALL BE CAMBERED IN ACCORDANCE WITH S.J.I. CRITERIA.
- ALL ROOF TOP OPENINGS TO BE FRAMED WITH L3X3X5/16 ON ALL FOUR SIDES TO SUPPORT OPENINGS GREATER THAN 12" SQUARE.
- JOISTS SHALL BE DESIGNED FOR THE NET UPLIFT LOAD AS DETERMINED BY DESIGN LOADS NOTED IN THESE DRAWINGS.

STEEL ROOF DECK:

- ALL STEEL ROOF DECK TO BE 1 1/2" WIDE RIB PAINTED 22 GAGE DECK. ERECT PER MANUFACTURER'S SPECIFICATIONS, U.N.O.
- STEEL DECK SHALL BE ATTACHED TO ALL MEMBERS ON WHICH IT BEARS IN ACCORDANCE WITH TYPICAL ROOF DECK FASTENING SYSTEM."

COLD FORMED METAL FRAMING:

- PROVIDE STUDS AND COMPONENTS IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR DESIGN OF COLD-FORMED STRUCTURAL MEMBERS" AND THE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA) PRODUCT TECHNICAL INFORMATION (ESR 3064P).
- COLD-FORMED MEMBERS SHALL HAVE MIN. 60 COATING TO MEET ASTM A653, SS GRADE 50, CLASS 1 OR 3 (Fy = 50 KSI), EXCEPT MEMBERS OF 18 GA. OR LIGHTER SHALL MEET A653, SS GRADE 33 (Fy = 33 KSI) UNLESS SPECIFIED OTHERWISE.
- FRAMING COMPONENTS MAY BE FABRICATED AND ASSEMBLED BEFORE ERECTION. FABRICATE PANELS PLUMB, SQUARE, TRUE TO LINE, AND BRACED AGAINST SWAYING WITH JOISTS WELDED. PERFORM LIFTING OF UNITS TO PREVENT DAMAGE OR DISTORTION.
- FABRICATE UNITS USING TEMPLATES TO HOLD MEMBERS IN PROPER ALIGNMENT FOR CONSISTENT PLACEMENT.
- FABRICATE UNITS TO A MAXIMUM ALLOWABLE TOLERANCE VARIATION FROM PLUMB, LEVEL, AND TRUE TO LINE OF 1/8 IN. IN 10 FEET.
- CUT EDGES OF MEMBERS TO PREVENT SHEARING. DO NOT TORCH CUT.
- PROVIDE TEMPORARY BRACING UNTIL BEAMS ARE IN PLACE UNTIL FRAMING IS PERMANENTLY STABILIZED.

SPECIAL INSPECTIONS:

INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT AGENCY, PAID FOR BY THE OWNER. FIELD INSPECTIONS REQUIRED ARE:

- PERIODIC INSPECTION OF STEEL FABRICATOR'S SHOP FOR QUALITY CONTROL AND FABRICATION PROCESSES THAT COMPLY WITH AISC CODE OF STANDARD PRACTICE.
- VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION PER AISC 360-10 SECTION N.
- VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION PER BUILDING CODE TABLE 1705.3.
- SPECIAL INSPECTION OF MASONRY CONSTRUCTION PER TMS 402-11 TABLE 1.19.2. EXCEPTION: MASONRY VENEER ONLY REQUIRES VERIFICATION OF COMPLIANCE WITH THE APPROVED SUBMITTALS PER TABLE 1.19.1.
- INSPECTION OF SITE SOILS, FILL PLACEMENT, AND BEARING CAPACITIES BY A LICENSED GEOTECHNICAL ENGINEER AS FOLLOWS:
 - OBSERVATION OF PROOF ROLLING FOR THE SITE PRIOR TO FILL PLACEMENT. COMPACTION TESTING OF STRUCTURAL FILL PLACEMENT. LIFTS SHALL NOT BE LESS THAN 8".
 - PROVIDE BEARING TESTS AT EACH FOOTING LOCATION TO CONFIRM BEARING CAPACITY.
 - REQUIRED VERIFICATION AND INSPECTION OF SOILS PER BUILDING CODE TABLE 1705.6

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A Permit Set	12/05/17
B Client Review Set	05/03/18
C Bid Set	05/11/18
D	
Revisions:	Date:
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ms consultants, inc.
engineers, architects, planners
920 Main Campus Drive
Suite 430
Raleigh, NC 27606-5213
phone 919.772.5565
fax 919.779.2308

DRAWN BY: CLS
REVIEWED BY: CEM

Seal



ALDI Inc.
1985 Old Union Church Road
Salisbury, NC 28146
(704) 642-0023
(704) 642-0078 fax

ALDI Inc. Store #: 65
Charlotte, NC
6113 Idlewild Road
Charlotte, NC 28212
Mecklenburg County
Project Name & Location:

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Order Plans

ABBREVIATIONS

ACI AMERICAN CONCRETE INSTITUTE	C COMPRESSION	EA EACH	GALV GALVANIZED	MAX MAXIMUM	PTD PAINTED	TBD TO BE DETERMINED
ADDL ADDITIONAL	CAP CAPACITY	EF EACH FACE	GC GENERAL CONTRACTOR	MECH MECHANICAL	PVC POLYVINYLCHLORIDE	TBR TO BE REMOVED
ADDN ADDITION	CAT CATALOG	EJ EXPANSION JOINT	GR GRADE	MEZZ MEZZANINE	QTY QUANTITY	TCH TOP CHORD EXTENSION
AE ARMOR EDGE SYSTEM (BY PNA CONSTRUCTION TECH)	CF COLD-FORMED STEEL (LIGHT GAUGE)	EL ELEV	GSN GENERAL STRUCTURAL NOTES	MFR MANUFACTURER	R RADIUS	TFE TOP FLANGE
AFF ABOVE FINISHED FLOOR	CHMFR CHAMFER	EMBED EMBEDDED/EMBEDMENT	MIN MINIMUM	MISC MISCELLANEOUS	R BEAM OR COLUMN REACTION	TFE TOP OF FOOTING ELEVATION
AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION	CONJ CONTROL JOINT	ENG ENGINEER	MO MASONRY OPENING	MTL METAL	RD ROOF DRAIN	THD THREAD/THREADED
ASIS AMERICAN IRON AND STEEL INSTITUTE	CLG CLING	EOS EDGE OF SLAB	INS INSULATION	NO NOMINAL	REINF REINFORCE/REINFORCED/REINFORCING	THK THICK/THICKNESS
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE	CLR CLEAR	EPS EXTRUDED POLYSTYRENE	INT INTERIOR	NS NON-SHRINK/NEAR SIDE	REQD REQUIRED	TO TOP OF
APPROX APPROXIMATE/APPROXIMATELY	CMU CONCRETE MASONRY UNIT	EQ EQUAL	INV INVERT	NTS NOT TO SCALE	REQT REQUIREMENT	TOB TOP OF BEAM
AR ANCHOR ROD	CO CORD	EQ SPA EQUAL SPACING/EQUALLY SPACED	IS INSIDE	OD ON CENTER	REV REVISION	TOS TOP OF STEEL
ARCH ARCHITECT/ARCHITECTURAL	CONC CONCRETE	EW EACH WAY	ISF INSIDE FACE	OP OPENS	RM ROOM	TOW TOP OF WALL
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS	CONN CONNECTION	EXIST EXISTING	OP(S) OPENING/OPENINGS	OPP OPPOSITE, OPPOSITE HAND	RO ROUGH OPENING	TRANS TRANSVERSE
ASTM ASTM INTERNATIONAL	CONST CONSTRUCTION	EXP EXPANSION	OR OR	ORIG ORIGINAL	SCHED SCHEDULE/SCHEDULED	TYP TYPICAL
AWS AMERICAN WELDING SOCIETY	CONT CONTINUOUS	EXT EXTERIOR/EXTERNAL	OS OUTSIDE	OSF OUTSIDE FACE	SDI STEEL DECK INSTITUTE	UNO UNLESS NOTED OTHERWISE
BCX BOTTOM CHORD EXTENSION	COORD COORDINATE	FB FLAT BAR	OSF OUTSIDE FACE	OZ OUNCE	SECT SECTION	VER VERTICAL
BD BOARD	CS COUNTERSINK	FD FLOOR DRAIN	OSF OUTSIDE FACE	PAF POWDER ACTUATED FASTENER	SHT SHEET	VERT VERIFY IN FIELD
BF BOTTOM FLANGE	COOR COORD	JT JOINT	OSF OUTSIDE FACE	PL PLATE, PLATE, BAR, STRIP OR SHEET	SIM SIMILAR	W/ WITH
BLDG BUILDING	CTR CENTER	K, KIP KILOPOUNDS (1 KIP = 1000 POUNDS)	OSF OUTSIDE FACE	PLUMB PLUMBING	SJ STEEL JOIST INSTITUTE	W/O WITHOUT
BLK BLOCK	CX CEILING EXTENSION	LB POUNDS	OSF OUTSIDE FACE	PLYWD PLYWOOD	SPEC SPECIFICATION/SPECIFICATIONS/SPECIFIED	W/ WITH
BLKG BLOCKING	DBL DOUBLE	LF LINEAR/LINEAL FOOT	OSF OUTSIDE FACE	PR PAIR	SQ SQUARE	WD WOOD
BM BEAM	DEMO DEMOLISH/DEMOLITION	LLH LONG LEG HORIZONTAL	OSF OUTSIDE FACE	PSF POUNDS PER SQUARE FOOT	SS STAINLESS STEEL	WP WORK POINT
BO BOTTOM OF	DET DETAIL	LLV LONG LEG VERTICAL	OSF OUTSIDE FACE	PSI POUNDS PER SQUARE INCH	SSMA STEEL STUD MANUFACTURER'S ASSOCIATION	WT WEIGHT
BOS BOTTOM OF STEEL	DIA DIAMETER	LONG LONGITUDINAL	OSF OUTSIDE FACE	PT PRESSURE TREATED	STD STANDARD	WWF WELDED WIRE FABRIC
BOT BOTTOM	DIM DIMENSION	LONG POINT LONG POINT	OSF OUTSIDE FACE		STL STEEL	
BP BASE PLATE	DIR DIRECTION	LONG POINT LONG POINT	OSF OUTSIDE FACE		STRUC STRUCTURE	
BRG BEARING	DN DOWN	LONG POINT LONG POINT	OSF OUTSIDE FACE		T TENSION	
BS BOTH SIDES	DO DOWEL	LONG POINT LONG POINT	OSF OUTSIDE FACE		T&B TOP AND BOTTOM	
BWN BETWEEN	DWG DRAWING	LONG POINT LONG POINT	OSF OUTSIDE FACE		T&G TONGUE AND GROOVE	