

STRUCTURAL ABBREVIATIONS:

- AB ANCHOR BOLT
- ADD'L ADDITIONAL
- ACI AMERICAN CONCRETE INSTITUTE
- AFF ABOVE FINISH FLOOR
- AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- AL ALUMINUM
- ANSI AMERICAN NATIONAL STANDARD INSTITUTE
- ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS
- AWS AMERICAN WELDING SOCIETY
- APPROX APPROXIMATE
- ARCH B ARCHITECTURAL BOTTOM
- B BOTTOM
- B/ELEV BOTTOM ELEVATION
- BFF BELOW FINISH FLOOR
- BLDG BUILDING
- BOTT BOTTOM
- BRG BEARING
- CJ COMPRESSION
- CONTROL CONTROL JOINT
- CSJ CONSTRUCTION JOINT
- CLR CENTER LINE
- CLZAR CLEAR
- CMU CONCRETE MASONRY UNIT
- COL COLUMN
- CONC CONCRETE
- CONT CONTINUOUS
- DET DETAIL
- DIA DIAMETER
- DIM DIMENSION
- DL DEAD LOAD
- DWG DRAWING
- DWL DOWEL
- EACH EACH
- EJ EACH FACE
- EXPANSION EXPANSION JOINT
- ELEC ELECTRIC
- ELEV ELEVATION
- EMBED EMBEDMENT
- EDGE EDGE OF SLAB
- EQUIP EQUIPMENT
- EW EXT
- EXT EXTERIOR
- FD FLOOR DRAIN
- FEE FINISH FLOOR ELEVATION
- FLR FLOOR
- FO FACE OF
- FS FAR SIDE
- FT FEET
- GALV GALVANIZED
- GS GALVANIZED STEEL
- HP HIGH POINT
- HOLLOW HOLLOW STRUCTURAL SECTION
- IBC INTERNATIONAL BUILDING CODE
- IN INCHES
- KIP KIPS (1 KIP = 1,000 LB)
- K/FT KIPS PER FOOT
- K/SF KIPS PER SQUARE FOOT
- L LENGTH
- LBS POUNDS
- LBW LOAD BEARING WALL
- LL LIVE LOAD
- LVV LONG LEG VERTICAL
- LP LOW POINT
- MAT'L MATERIAL
- MAX MAXIMUM
- MECH MECHANICAL
- MANUFACTURER MANUFACTURER
- MIN MINIMUM
- MISC MISCELLANEOUS
- MPH MILES PER HOUR
- MTL METAL
- MWFRS MAIN WIND FORCE RESISTING SYSTEM
- N NORTH
- NOT IN CONTRACT NOT IN CONTRACT
- NO NUMBER
- # NUMBER SYMBOL FOR REBAR SIZE
- NS NEAR SIDE
- NTS NOT TO SCALE
- OC ON CENTER
- POF POUNDS PER CUBIC FOOT
- PL PLATE
- PLF POUNDS PER LINEAR FOOT
- PSF POUNDS PER SQUARE FOOT
- REF REFERENCE
- REINIF REINFORCED
- REQ'D REQUIRED
- REV REVISION
- STN STL STAINLESS STEEL
- SCHED SCHEDULE
- SECT SECTION
- SF SQUARE FEET
- SIM SIMILAR
- SLV SHORT LEG VERTICAL
- SP SPACES
- STD STL STANDARD STEEL
- STRUCT STRUCTURAL
- T TENSION
- TOP TOP
- TOP TOP
- TOP ELEVATION TOP ELEVATION
- T&B TOP AND BOTTOM
- TYP TYPICAL
- UNLESS OTHERWISE NOTED UNLESS OTHERWISE NOTED
- VERT VERTICAL
- W# WIDTH (# INDICATES SIZE)
- W/ WITH
- W/O WITHOUT
- WP WORK POINT

STRUCTURAL GENERAL NOTES

- THE FOLLOWING NOTES APPLY, UNLESS OTHERWISE NOTED OR SHOWN ON PLANS.
- SECTIONS AND DETAILS SHOWN ON DRAWINGS ARE TYPICAL. USE SIMILAR CONSTRUCTION AT LOCATIONS NOT SPECIFICALLY DETAILED.
 - EXAMINE AND COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
 - PROTECTION OF EXISTING STRUCTURES DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
 - ADEQUATE TEMPORARY BRACING OF CONSTRUCTION ELEMENTS SHALL BE PROVIDED FOR FOUNDATIONS, ABOVE GRADE WALLS, STRUCTURAL STEEL AND OTHER STRUCTURAL SYSTEMS, FOR WIND AND/OR CONSTRUCTION LOADS. BRACING SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING THEIR SPECIFIED DESIGN STRENGTH AND/OR REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - INFORMATION ON EXISTING BUILDING SHOWN IN THESE DRAWINGS IS FROM ORIGINAL BUILDING DESIGN DRAWINGS BY SIX ASSOCIATES, INC AND REYNOLDS SMITH AND HILLS DATED MARCH 1964. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS & DIMENSIONS PRIOR TO THE START OF WORK.
 - INSTALL MATERIALS PER MANUFACTURERS' RECOMMENDATIONS AND SPECIFICATIONS.

GENERAL STRUCTURAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE 2009 VA STRUCTURAL DESIGN MANUAL & INTERNATIONAL BUILDING CODE (IBC) 2006 EDITION.
- DESIGN CRITERIA
 - A. BUILDING OCCUPANCY CATEGORY: IV (PER ASCE 7-05 TABLE 1-1)
 - B. FLOOR LIVE LOADS; (ASCE 7-05 TABLE 4-1)
 - GRATED PLATFORM 100 PSF
 - C. ROOF LIVE LOADS; (ASCE 7-05 TABLE 4-1)
 - TYPICAL UNLESS NOTED OTHERWISE 20 PSF
 - D. SNOW LOADS; (ASCE 7-05, CHAPTER 7)
 - GROUND SNOW LOAD: $P_g = 15$ PSF
 - FLAT ROOF SNOW LOAD: $P_f = 18$ PSF
 - SNOW EXPOSURE FACTOR: $C_e = 0.9$
 - SNOW LOAD IMPORTANCE FACTOR $I = 1.2$
 - THERMAL FACTOR: $C_t = 1.0$
 - E. WIND LOADS; (ASCE 7-05, CHAPTER 6)
 - MEAN ROOF HEIGHT = 75 FEET
 - MWFRS: BASIC WIND SPEED (3 SECOND GUST): 90 MPH
 - COMPONENTS AND CLADDING: (ASCE 7-05 FIG 6-14A)
 - EXPOSURE CATEGORY: C
 - ENCLOSURE CATEGORY: PARTIALLY ENCLOSED
 - IMPORTANCE FACTOR (I_s): 1.15
 - BASE SHEAR: $W n/s: 2.62K$
 - $W c/w: 10.44K$
- SEISMIC LOADS; (ASCE 7-05 CHAPTER 11 & 13)
 - ANALYSIS PROCEDURE: EQUIVALENT LATERAL-FORCE
 - MAPPED ACCELERATIONS: $S_s = 0.302g$ $S_1 = 0.107g$
 - SITE CLASS: D (ASSUMED)
 - SITE COEFFICIENTS: $F_a = 1.6$ $F_v = 2.4$
 - MAXIMUM ACCELERATIONS: $S_{max} = 0.471$ $S_{max} = 0.254$
 - DESIGN SPECTRAL RESPONSE ACCELERATIONS AT 5% DAMPENING: $S_{DS} = 0.314$ $S_{D1} = 0.169$
 - IMPORTANCE FACTOR (I_s): 1.5
 - SEISMIC DESIGN CATEGORY D
 - COMPONENT AMPLIFICATION FACTOR: $A_p = 2.5$
 - COMPONENT OPERATING WEIGHT: $W_p = 19.6K$
 - COMPONENT RESPONSE MODIFICATION FACTOR: $R_p = 6.0$
 - SEISMIC DESIGN FORCE: $F_p = 4.616K$

STRUCTURAL STEEL NOTES

- FABRICATE AND ERECT STRUCTURAL STEEL SYSTEMS IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STEEL MEMBERS HAVE BEEN PROPORTIONED UTILIZING ALLOWABLE STRESS DESIGN (ASD) METHODS AS PRESCRIBED BY AISC.
- STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION (AISC)" AND WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES.
- STRUCTURAL STEEL SHALL BE NEW AND CONFORM TO:
 - A. UNLESS OTHERWISE NOTED ASTM A992 ($F_y=50$ KSI)
 - B. HOLLOW STRUCTURAL SECTIONS
 - ROUND ASTM A500 GRADE B ($F_y=42$ KSI)
 - SQUARE OR RECTANGULAR ASTM A500 GRADE B ($F_y=46$ KSI)
 - C. MISC. STRUCTURAL SHAPES & CONNECTIONS ASTM A36 ($F_y=36$ KSI)
 - D. ANCHOR BOLTS ASTM A36 OR F1554
 - E. HIGH STRENGTH BOLTS ASTM A325N
- WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1, AND SHALL BE PERFORMED BY APPROVED, CERTIFIED PERSONS.
- WELDED CONNECTIONS SHALL UTILIZE E70XX ELECTRODES.
- WELDS SHALL DEVELOP THE FULL STRENGTH OF THE MATERIALS BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM OF 1/4" UON.
- ANCHOR BOLTS, LEVELING PLATES OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK, PRESET BY TEMPLATES, AND SET IN FULL BEDS OF NON-SHRINK GROUT.
- PRINCIPAL STRUCTURAL BOLTED CONNECTIONS (BEAM-BEAM, BEAM-GIRDER, BEAM OR GIRDER TO COLUMN) SHALL BE MADE USING 3/4" DIAMETER MINIMUM ASTM A325 BOLTS IN BEARING CONNECTIONS.
- WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1, AND SHALL BE PERFORMED BY APPROVED, CERTIFIED PERSONNEL.
- WELDED CONNECTIONS SHALL UTILIZE E70XX ELECTRODES.
- A MINIMUM OF TWO (2) BOLTS SHALL BE UTILIZED AT BOLTED CONNECTIONS.
- FIELD CUTTING OF STRUCTURAL FRAMING AND/OR FIELD MODIFICATIONS OF STRUCTURAL FRAMING SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY CONTRACTING OFFICER FOR EACH SPECIFIC CASE.
- THE CONTRACTOR SHALL FURNISH & INSTALL ALL PLATES, CLIP ANGLES, CONNECTION MATERIALS, ETC AS REQUIRED FOR COMPLETION OF THE STRUCTURE, EVEN IF SUCH ITEMS ARE NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.
- ALL STRUCTURAL STEEL MEMBERS SUPPORTING ROOF TOP AHU SHALL BE HOT DIP GALVANIZED PER ASTM A123. ALL FIELD WELDS OR DAMAGED AREAS OF GALVANIZED STEEL SHALL BE COATED WITH ZINC-RICH PAINT PER ASTM A 780.

CONCRETE NOTES

- FOLLOW ACI 301 AND 318 FOR ALL CONCRETE WORK. FOLLOW ACI 308 FOR LIQUID CONTAINING CONCRETE STRUCTURES AND ACCESSORIES.
- MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH:
 - A. SLABS: 3,000 PSI, W/C RATIO = 0.45
- CONCRETE EXPOSED TO FREEZE THAW SHALL BE AIR ENTRAINED 5% TO 7%.
- REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS COMPLYING WITH ASTM A615. WELDED WIRE FABRIC SHALL BE GRADE 65 PLAIN WIRE CONFORMING TO ASTM A185.
- ALL DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL COMPLY WITH THE REQUIREMENTS OF THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-SP-06).
- ALL REINFORCING BAR LENGTHS, EMBEDMENTS, HOOKS, SPLICE LENGTHS AND LOCATIONS, ETC SHALL BE DONE AS INDICATED ON THE DRAWINGS. NO VARIATION WILL BE ACCEPTED WITHOUT PRIOR APPROVAL OF THE ENGINEER. IF NO DIMENSION IS PROVIDED, THE TENSION DEVELOPMENT & SPLICE LENGTH SHALL BE LAP CLASS B PER ACI 318, SECTIONS 12.2.2 & 12.15 RESPECTIVELY AS TABULATED BELOW:

CONCRETE REINFORCING TENSION DEVELOPMENT LENGTHS (LENGTH NOTED IN INCHES)										
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11	
$\frac{d}{12}$										
$\frac{d}{8}$										
$\frac{d}{6}$										
$\frac{d}{4}$										
$\frac{d}{3}$										
$\frac{d}{2}$										
$\frac{d}{1.5}$										
$\frac{d}{1.2}$										
$\frac{d}{1.1}$										
$\frac{d}{1.0}$										
$\frac{d}{0.9}$										
$\frac{d}{0.8}$										
$\frac{d}{0.7}$										
$\frac{d}{0.6}$										
$\frac{d}{0.5}$										
$\frac{d}{0.4}$										
$\frac{d}{0.3}$										
$\frac{d}{0.2}$										
$\frac{d}{0.1}$										

- NOTES:**
- USE THIS SCHEDULE FOR LAPS AND EMBEDMENTS NOT DIMENSIONED ON DRAWINGS.
 - THE TENSION DEVELOPMENT LENGTHS TABULATED ABOVE ARE VALID FOR CONCRETE COVER EQUAL TO AT LEAST 1 BAR DIAMETER AND CENTER-CENTER SPACING EQUAL TO AT LEAST 2 BAR DIAMETERS FOR BEAMS, COLUMNS, AND ALL OTHER CONCRETE AND CENTER-CENTER SPACING EQUAL TO AT LEAST 3 BAR DIAMETERS FOR CONCRETE OTHER THAN BEAMS OR COLUMNS.
 - TOP BAR ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
 - LAP SPLICE LENGTHS (MINIMUM OF 12 INCHES) ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS; CLASS B = 1.3 l_d WHEN DETERMINING THE LAP SPLICE LENGTH. l_d IS CALCULATED WITHOUT THE 12 INCH MINIMUM OF ACI 12.2.1.

GENERAL ABBREVIATIONS AND NOTES
SCALE: NOT TO SCALE

BID SET - 100% CONSTRUCTION DOCUMENTS

100% SUBMITTAL
BID SET - CONSTRUCTION DOCUMENTS
DATE: DECEMBER, 21 2012

FULLY SPRINKLERED

BY	REVISIONS	DATE



CONFIDENTIAL THESE DRAWINGS MUST BE RETURNED TO FACILITIES MANAGEMENT SERVICE, PROJECT SECTION, UPON COMPLETION, OR FINAL USE BY THE CONTRACTOR FOR BIDDING PURPOSES.

ASBESTOS WARNING: ASBESTOS CONTAINING BUILDING MATERIALS (ACBM) ARE PRESENT THROUGHOUT THE FACILITY. IF CONTRACTORS FIND ACBM, OR SUSPECT FINDING ACBM, THEY SHALL IMMEDIATELY STOP WORK AND CONTACT THE PROJECT COTR.

SCALING NOTES: FULL SIZE V.A. "T" SHEETS (SCALE AS INDICATED) AND HALF SIZE V.A. "O" SHEETS (S OF THE SCALE INDICATED LETTER SIZE DRAWINGS ARE NOT TO SCALE.

GENERAL NOTE: CONTRACTORS AND ARCHITECT/ENGINEERING FIRMS ARE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL EXISTING CONDITIONS.

Project Title
**RENOVATE
WARD 5 EAST**

Drawing Title FIFTH FLOOR - WARD EAST STRUCTURAL ABBREVIATIONS & NOTES	Date 12/21/12
Building Number 47	Checked CTV
Location ASHEVILLE, NC	Drawn MMY
DRAWING NO. S-001	Dwg 42 OF 78

