UNIVERSITY OF LOUISVILLE

STUDENT RECREATION CENTER

2030 SOUTH 4th STREET
LOUISVILLE, KENTUCKY 40208

DRAWING INCLUDE ALL BP #4 ADDENDUM ITEMS JULY 27, 2012

The Contractor is reminded that the inclusion of the addendum items in the drawings is for convenience purposes and the Contractor will still be responsible for all addendum items even if they were not included in the revised drawings.

BID PACKAGE, PHASE #3
JANUARY, 2012

THE SCOPE OF BID PACKAGES, PHASES 1, 2, AND 3 (INCLUDING ADDENDA) ARE RELATED TO AND INCLUDE ASSIGNED SCOPE OF WORK THAT IS A COMPONENT OF BID PACKAGE #4. THESE DOCUMENTS HAVE BEEN ISSUED IN ADVANCE OF BID PACKAGE #4.

BID PACKAGE, PHASE (1) SITE PREPERATION (FLYNN BROS.)
BID PACKAGE, PHASE (2) SPECIAL INSTRUCTIONS (TBA)
BID PACKAGE, PHASE (3) STEEL FABRICATION AND ERECTION (TBA)
BID PACKAGE, PHASE (4) GENERAL CONTRACTOR BEST VALUE

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

CANNON DESIGN — LEAD DESIGNERS
1100 Clark Avenue, St. Louis, MO 63102 p314.241.6250

Rangaswamy & Associates, Inc. — STRUCTURAL ENGINEERS
304 W Liberty St, #420, Louisville, KY 40202 p502.589.2212

Carman — LANDSCAPE ARCHITECTS/ CIVIL ENGINEERS
639 East Jefferson Street, Louisville, KY 40202 p502.742.6581

Swope Design Group — WAYFINDING DESIGNER
2297 Lexington Road, Louisville, KY 40206 p502.583.933

CMTA Consulting Engineers — MEP ENGINEERS
10411 Meeting Street, Prospect, KY 40059 p502.326.3085

Paladin, Inc. — COMMISSIONING AGENT
143 Walton Avenue, Lexington, KY 40508 p 859.252.3047

DBA Accoustics, Inc. — ACCOUSTICAL CONSULTANTS
3044 Bardstown Rd., Louisville, KY 40205 p502.212.9184

Robert Pass + Associates — COST CONSULTANTS
309 East Market Street, Suite 302, Louisville, KY 40202 p502.589.7632

Schedule of Drawings

STRUCTURAL

S0000 - GENERAL PROVISIONS
S0001 - GENERAL PROVISIONS CONT'D
S0002 - ERECTION SEQUENCE
S0003 - ERECTION SEQUENCE
S0004 - ERECTION SEQUENCE
S0005 - 3D - VIEW
S0120 - OVERALL MEZZANINE FLOOR FRAMING PLAN
S0121 - MEZZANINE FLOOR FRAMING PLAN - AREA A
S0122 - MEZZANINE FLOOR FRAMING PLAN - AREA B
S0123 - MEZZANINE FLOOR FRAMING PLAN - AREA C
S0124 - MEZZANINE FLOOR FRAMING PLAN - AREA D
S0130 - OVERALL LEVEL 02 FLOOR FRAMING PLAN
S0131 - LEVEL 02 FLOOR FRAMING PLAN- AREA A
S0132 - LEVEL 02 FLOOR FRAMING PLAN- AREA B
S0133 - LEVEL 02 FLOOR FRAMING PLAN- AREA C
S0134 - LEVEL 02 FLOOR FRAMING PLAN- AREA D
S0140 - OVERALL ROOF FRAMING PLAN
S0141 - HIGH ROOF FRAMING PLAN
S0142 - LOW ROOF FRAMING PLAN - AREA B
S0143 - LOW ROOF FRAMING PLAN - AREA C
S0144 - LOW ROOF FRAMING PLAN - AREA D
S0145 - RACQUETBALL COURT ROOF FRAMING PLAN
S0150 - STRUCTURAL EXTERIOR LINTEL ELEVATIONS
S0151 - STRUCTURAL EXTERIOR LINTEL ELEVATIONS
S0152 - STRUCTURAL EXTERIOR LINTEL ELEVATIONS
S0153 - STRUCTURAL EXTERIOR LINTEL ELEVATIONS
S0154 - HSS SPACER TUBE ELEVATIONS
S0155 - HSS SPACER TUBE ELEVATIONS
S0160 - SECTIONS AND DETAILS
S0161 - SECTIONS AND DETAILS
S0162 - SECTIONS AND DETAILS
S0164 - SECTIONS AND DETAILS
S0165 - SECTIONS AND DETAILS
S0166 - SECTIONS AND DETAILS
S0167 - SECTIONS AND DETAILS
S0168 - SECTIONS AND DETAILS
S0169 - SECTIONS AND DETAILS
S0170 - SECTIONS AND DETAILS
S0171 - COLUMN SCHEDULE
S0172 - SECTIONS AND DETAILS
S0173 - SECTIONS AND DETAILS
S0174 - SECTIONS AND DETAILS
S0175 - SECTIONS AND DETAILS
S0176 - SECTIONS AND DETAILS
S0177 - SECTIONS AND DETAILS
S0178 - SECTIONS AND DETAILS
S0179 - SECTIONS AND DETAILS
S0200 - TYPICAL DETAILS
S0201 - TYPICAL DETAILS
S0202 - TYPICAL DETAILS
S0203 - TYPICAL DETAILS
S0209 - TYPICAL DETAILS

Set No. _____

University of Louisville - Student Recreation Center (Bid Package, Phase #3) Louisville, Ky

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

#	Revision Date
ADD. 2	March 2, 2012

Drawing Name: SITE/ STRUCTURAL COVER SHEET
U of L Project Number:
Project Number: Omni - 1105.00 Cannon - 03667.00
Date: JANUARY 2012
Drawn By: KTV Checked By: DLA

ADD. BP #4
STRUCTURAL

7/27/2012 4:01:13 PM

1.1 GENERAL

A. DESIGN DOCUMENT HIERARCHY:

1. THE GENERAL PROVISIONS OUTLINED HEREIN SHALL BE TREATED AS PART OF THE PROJECT SPECIFICATIONS & TAKE PRECEDENCE OVER OTHER DOCUMENTS RELATED TO THIS PROJECT, UNLESS SPECIFICALLY NOTED ELSEWHERE, AND SHALL BE STRICTLY OBSERVED DURING CONSTRUCTION AS WELL AS SHOP DRAWING PREPARATIONS.

2. CONTRACT DOCUMENTS TAKE PRECEDENCE OVER THE SHOP DRAWINGS UNDER ANY OF THE FOLLOWING CONDITIONS:

   a.) THE SHOP DRAWINGS ARE SUBMITTED IN "PIECE MEAL" BASIS, IN SEVERAL INSTALLMENTS, TO EXPEDITE CONSTRUCTION ON A "FAST TRACK" DELIVERY METHOD.

   b.) IF SHOP DRAWINGS ARE RELEASED WITH "NO EXCEPTIONS TAKEN" NOT CHECKED.

   c.) WHEN SHOP DRAWINGS HAVE MARKINGS AND DIRECTIONS TO COMPLY WITH CONTRACT DOCUMENTS.

B. CONSTRUCTION DEFICIENCIES:

1. REMEDIAL DESIGNS WILL BE NECESSARY TO CORRECT ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS DUE TO FIELD, FABRICATION AND/OR SUPPLY ERRORS, ALTERNATE DESIGNS, OR FIELD PROBLEMS AND SHALL BE PERFORMED BY A STRUCTURAL ENGINEER LICENSED IN KENTUCKY AND HAVING HIS/HER PRACTICE LOCATED IN KENTUCKY. THE STRUCTURAL ENGINEER SHALL HAVE PROFESSIONAL LIABILITY INSURANCE COVERAGE FOR ERRORS AND OMISSIONS TO A LIMIT OF $1,000,000.00. SUBMIT CERTIFICATE OF INSURANCE WITH ARCHITECT AS CERTIFICATE HOLDER ALONG WITH THE CALCULATIONS AND DETAILS FOR ARCHITECT'S RECORD. THE REQUIREMENTS OF GENERAL PROVISION SECTION 1.4, SUBMITTALS, APPLY AND THE SUBMITTAL SHALL INCLUDE SKETCHES THAT ILLUSTRATE THE LOCATIONS, EXTENTS AND DETAILS OF THE DEFICIENCY. RAI IS NOT REQUIRED TO OFFER REMEDIES BUT RESERVES THE RIGHT TO REVIEW, ACCEPT AND/OR REJECT THE PROPOSALS BEFORE THE WORK IS PUT IN HAND.

C. FIELD DIRECTIVES & RESPONSES TO "REQUESTS FOR INFORMATION":

THE STRUCTURAL ENGINEER RESERVES THE RIGHT TO ISSUE, AT VARIOUS STAGES OF CONSTRUCTION, DIRECTIVES AND SKETCHES TO FURTHER CLARIFY THE INTENT OF THE CONTRACT DOCUMENTS. IN ADDITION, THE STRUCTURAL ENGINEER MAY PROVIDE RESPONSES TO "REQUESTS FOR INFORMATION" INITIATED BY THE CONTRACTOR. IF THE CONTRACTOR FINDS THAT SUCH DIRECTIVES AND RESPONSES ARE CARDINAL CHANGES TO THE CONTRACT DOCUMENTS, HE/SHE MUST OBTAIN A CHANGE ORDER FROM THE ARCHITECT/ENGINEER, WITHIN FIFTEEN DAYS OF THE RECEIPT OF THE DIRECTIVE OR RESPONSE AND BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL NOT PROCEED WITH ANY PORTION OF THE CONSTRUCTION AFFECTED BY THE DIRECTIVE OR RESPONSE WITHOUT A CHANGE ORDER AND SUCH ACT SHALL BE DEEMED TO BE WITHIN THE SCOPE OF THE CONTRACT DOCUMENTS. NO CHANGE IN THE CONTRACT SUM WILL BE MADE WITHOUT AN APPROVED CHANGE ORDER AND NO CHANGE ORDER WILL BE ISSUED AFTER THE WORK IS IN PLACE.

D. APPLICABILITY:

THE GENERAL PROVISIONS CONTAINS HERE IN APPLICABLE TO ALL DRAWINGS STARTING WITH SHEETS "SXXXX TO SYYYY"

1.2 ADMINISTRATIVE

1. THE STRUCTURAL ENGINEER NEITHER SUPERVISES NOR CONTROLS THE CONSTRUCTION AND HAS NOT RETAINED THE RIGHTS TO SUPERVISE OR CONTROL THE WORK DESCRIBED IN THESE DOCUMENTS.

2. THE STRUCTURAL ENGINEER HAS NOT BEEN RETAINED TO & WILL NOT PARTICIPATE IN THE ON-GOING DAY TO DAY ACTIVITIES AT THE CONSTRUCTION SITE.

3. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ON-SITE SAFETY AND WILL NOT BE RESPONSIBLE FOR SUPERVISING GENERAL OR SUB-CONTRACTORS.

4. THE STRUCTURAL ENGINEER HAS NEITHER ANY AUTHORITY TO ISSUE ORDERS NOR THE RIGHT TO STOP WORK AT ANY TIME.

5. THE SPECIAL INSPECTION REQUIREMENTS, AND THE EXECUTION OF THE REQUIREMENTS BY THE SPECIAL INSPECTION TEAM, DOES NOT IN ANY WAY, OR AT ANY TIME, RELIEVE THE GENERAL OR PRIME CONTRACTOR OF THE ULTIMATE RESPONSIBILITY FOR COMPLETION OF ALL STRUCTURAL ASPECTS OF WORK TO THE SATISFACTION OF THE SPECIAL-INSPECTOR-OF-RECORD.

1.3 DESIGN NOTES

1. CONCRETE: MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (f'_c) –

   CAST IN PLACE CONCRETE (C.I.P.) = 4000 PSI (U.N.O.)
   SLAB ON GRADE CONCRETE (S.O.G):
   SEE NOTES 3.2.1 & 3.2.2.
   ACI 302 CLASSES 1 AND 2 = 3500 PSI
   ACI 302 CLASSES 4 AND 5 = 4000 PSI
   ACI 302 CLASS 6 = 4500 PSI
   SLAB ON METAL DECK = 4000 PSI
   PRECAST CONCRETE = 5000 PSI
   CONCRETE TO RECEIVE BUSH-HAMMERED FINISH = 5000 PSI
   LEAN CONCRETE FILL = 3000 PSI
   ALL ELEVATED FLOOR CONCRETE PLACED OVER METAL DECK SHALL BE LIGHT WEIGHT WEIGHING NO MORE THAN 110 PCF AT EQUILIBRIUM.

2. MASONRY NET AREA COMPRESSIVE STRENGTH OF UNREINFORCED MASONRY, f'm = 1500 PSI-SEE SECTION 4.1 FOR GROUT AND MORTAR REQUIREMENTS.

3. CONCRETE REINFORCING STEEL: ASTM A615, GRADE 60.

4. STRUCTURAL STEEL:
   ROLLED SHAPES AND PLATES:
   W – SHAPES: ASTM A-992
   ALL OTHER SHAPES: ASTM A-36
   ROLLED PIPES – ASTM-A500, GRADE B
   RECTANGULAR AND SQUARE TUBING – ASTM A-500, GRADE B

5. BOLTS: 3/4 INCH DIAMETER ASTM F1852 (A325TC), TYPE 1, TENSION CONTROL BOLTING SYSTEM, TWIST-OFF SPLINE TYPE, UNLESS NOTED OTHERWISE.

6. ANCHOR BOLTS:
   ASTM A307 OR ASTM A36, MINIMUM. SIZE AND LOCATION PER THE VENDOR'S CERTIFIED DRAWINGS. ADHESIVE SET ANCHOR BOLTS, WHEN DEEMED ACCEPTABLE BY THE ENGINEER, SHALL BE THE HILTI "HIT" SYSTEM USING THE RE 500 SD CARTRIDGE IN CONJUNCTION WITH THE HILTI "HAS-E" ANCHOR RODS OF THE SPECIFIED DIAMETER, LENGTH AND EMBEDMENT. MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS SHALL BE STRICTLY ADHERED TO.

7. CLOSED CELL NEOPRENE PADS: ASTM D1056 (S.A.E. SPEC SCE-42), DUROMETER OF 52 (+/-7), TENSILE STRENGTH 100 PSI, ELONGATION 150% MINIMUM, AS DISTRIBUTED BY LAMATEK, INC. OR APPROVED EQUIVALENT.

8. DESIGN LOADS (PSF):

	DEAD	SUPER-IMPOSED DEAD	LIVE
ROOFS (U.N.O.): MECHANICAL ROOF AREAS	26.0	60.0	20.0
: GYMNASIUM/MAC GYM/ FITNESS ROOF AREAS	46.0	–	20.0
: ALL OTHER ROOF AREAS	29.0	–	20.0
GYMNASIUM FLOORS	74.0	19.0	100.0
AEROBICS FLOORS	56.0	86.0	100.0
JOGGING TRACK FLOORS	56.0	20.0	100.0
MECHANICAL/STORAGE FLOORS	56.0	40.0	125.0
STORAGE DEPRESSED FLOORS	56.0	88.0	125.0
CORRIDOR FLOORS	56.0	40.0	100.0
RACQUETBALL COURT FLOORS	56.0	42.0	100.0

NOTE:
THE ABOVE TABULATED LOADS ARE THE BASIS FOR DESIGN AND INCLUDE ALLOWANCES FOR SUPERIMPOSED LOADS, WHERE NOT SPECIFICALLY LISTED. THE MAGNITUDE, LOCATION AND DESIGN REQUIREMENTS FOR SPECIFIC CONCENTRATED AND LOCALIZED SUPERIMPOSED LOADS, IN ADDITION TO THE BASIC ALLOWANCES, ARE REFERENCED IN THE PLANS.

SPECIAL DESIGN LOADS (PSF):
(LOAD CONDITIONS TO BE INCLUDED IN COMPONENT DESIGNS BY SPECIALTY ENGINEERS):

WIND PRESSURE	30
NET UPLIFT:	
ON ALL ROOF JOISTS AND ROOF TRUSSES	25
ON METAL DECK IN THE FIELD AREA	30
ON METAL DECK AT EAVES & CORNERS	INCREASE FIELD REQUIREMENT IN PROPORTION TO KBC PRESCRIBED INCREASES.
SNOW (NON-SIMULTANEOUS w/LL)	20

SOIL BEARING PRESSURES (PSF):

SPREAD FOOTINGS	1500
CONTINUOUS STRIP FOOTINGS	1500

PILE NOTES:

PILE TYPE	= 16"ø AUGER CAST PILE
ALLOWABLE LOAD CAPACITY	= 110 TONS
LENGTH OF PILES	= 45'-0" (MIN.)

PARAMETERS USED IN THE DESIGN OF THE PRINCIPAL FORCE-RESISTING STRUCTURAL SYSTEM

SNOW:	
GROUND SNOW LOAD (Pg) =	15 PSF
FLAT ROOF SNOW LOAD (Pf) =	16.5 PSF
SNOW EXPOSURE FACTOR (Ce) =	0.9
SNOW LOAD IMPORTANCE FACTOR (Is) =	1.1
THERMAL FACTOR (Ct) =	1.0
WIND:	
BASIC WIND SPEED =	90 MPH
WIND IMPORTANCE FACTOR (Iw) =	1.15
WIND EXPOSURE =	B
INTERNAL PRESSURE COEFFICIENT =	(±)0.18
DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING =	25.0 PSF
SEISMIC:	
SEISMIC IMPORTANCE FACTOR (Ie) =	1.25
OCCUPANCY CATEGORY =	III
MAPPED SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (SS) =	0.248 (G)
MAPPED SPECTRAL RESPONSE ACCELERATION AT ONE SEC PERIOD (S1) =	0.103 (G)
SITE CLASSIFICATION BASED ON GEO-TECH REPORT =	D
DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (SDS) =	0.265 (G)
DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SEC PERIOD (SD1) =	0.164 (G)
SEISMIC DESIGN CATEGORY =	C
BASIC SEISMIC FORCE RESISTING SYSTEM =	MOMENT RESISTING FRAME SYSTEMS AND ORDINARY STEEL MOMENT FRAMES.
DESIGN BASE SHEAR =	414.43 KIPS
SEISMIC RESPONSE COEFF. (Cs) =	0.0429
RESPONSE MODIFICATION FACTOR (R) =	3.5
ANALYSIS PROCEDURE =	ELFP
ZIP CODE =	40208
LATITUDE =	38.219 N
LONGITUDE =	-85.761 W

SPECIAL INSPECTIONS ARE REQUIRED AS FOLLOWS (PER KBC):

KBC SECTION	REQUIRED YES	REQUIRED NO	DESCRIPTION OF INSPECTION OR TEST TO BE PERFORMED	COMPLY WITH REQUIREMENTS OF
1704.2	X		INSPECTION OF FABRICATORS:	ART. 1704.2.1
1704.2	X		A. STRUCTURAL STEEL FABRICATION SHOP	ART. 1704.2.1
1704.2	X		B. STEEL JOIST FABRICATION SHOP	ART. 1704.2.1
1704.2	X		C. METAL DECK ROLLING MILL	ART. 1704.2.1
1704.2		X	D. LIGHT GAGE STEEL TRUSS FABRICATION SHOP	ART. 1704.2.1
1704.2		X	E. LIGHT GAGE STEEL FRAMING FABRICATION SHOP	ART. 1704.2.1
1704.3	X		STEEL CONSTRUCTION	TABLE 1704.3
1704.4	X		CONCRETE CONSTRUCTION	TABLE 1704.4
1704.5		X	MASONRY CONSTRUCTION (NON ESSENTIAL FACILITIES)	TABLE 1704.5.2 (LEVEL 1)
1704.5	X		MASONRY CONSTRUCTION (ESSENTIAL FACILITIES)	TABLE 1704.5.3 (LEVEL 2)
1704.6		X	HIGH-LOAD DIAPHRAGMS AND SHEAR WALLS	ART. 1704.6.1
1704.7	X		SOILS/SITE PREPARATION	ART. 1704.7
1704.8	X		PILE FOUNDATIONS	ART. 1704.8
1704.9	X		PIER FOUNDATIONS	ART. 1704.9
1704.10	X		SPRAYED FIRE-RESISTANT MATERIALS	ART. 1704.10
1704.11	X		MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	ART. 1704.11
1705	X		SEISMIC RESISTANCE	ART. 1705.3
1705	X		WIND RESISTANCE	ART. 1705.4
1707	X		SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE	ART. 1707
1707	X		A. SPECIAL INSPECTION FOR SEISMIC RESISTANCE	ART. 1707.1
1707	X		B. STRUCTURAL STEEL	ART. 1707.2
1707		X	D. COLD-FORMED STEEL FRAMING	ART. 1707.4
1707	X		E. PIER FOUNDATIONS	ART. 1707.5
1707		X	F. STORAGE RACKS & ACCESS FLOORS	ART. 1707.6
1707		X	G. ARCHITECTURAL COMPONENTS	ART. 1707.7
1707	X		H. MECHANICAL & ELECTRICAL COMPONENTS	ART. 1707.8
1707		X	I. DESIGNATED SEISMIC SYSTEM VERIFICATIONS	ART. 1707.9
1707		X	J. SEISMIC ISOLATION SYSTEM	ART. 1707.10
1708	X		STRUCTURAL TESTING FOR SEISMIC RESISTANCE	ART. 1708
1708	X		A. MASONRY CONSTRUCTION	ART. 1708.1
1708		X	A.1 EMPIRICALLY DESIGNED NON-ESSENTIAL FACILITY	ART. 1708.1.1
1708	X		A.2 EMPIRICALLY DESIGNED ESSENTIAL FACILITY	ART. 1708.1.2
1708		X	A.3 ENGINEERED MASONRY IN NON-ESSENTIAL FACILITY	ART. 1708.1.2
1708		X	A.4 ENGINEERED MASONRY IN ESSENTIAL FACILITY	ART. 1708.1.4
1708	X		B. TESTING FOR SEISMIC RESISTANCE	ART. 1708.2
1708	X		C. REINFORCING & PRESTRESSING STEEL	ART. 1708.3
1708	X		D. STRUCTURAL STEEL	ART. 1708.4
1708	X		E. MECHANICAL & ELECTRICAL EQUIPMENT	ART. 1708.5
1708		X	F. SEISMICALLY ISOLATED STRUCTURES	ART. 1708.6
1709		X	STRUCTURAL OBSERVATIONS	ART. 1709

NOTE:
INSPECTION OF FABRICATION SHOPS SHALL BE WAIVED BASED UPON THE FOLLOWING AFFILIATIONS:

STRUCTURAL STEEL – ACTIVE CERTIFICATION WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (A.I.S.C.)

STEEL JOIST – ACTIVE MEMBER COMPANY WITH THE STEEL JOIST INSTITUTE (S.J.I.)

METAL DECK – ACTIVE MEMBER COMPANY WITH THE STEEL DECK INSTITUTE (S.D.I.)

LIGHT GAGE STEEL FRAMING – FULL VOTING MEMBER WITH THE STEEL STUD MANUFACTURER'S ASSOCIATION (S.S.M.A.)

ALL COSTS ASSOCIATED WITH ANY NECESSARY FAB SHOP INSPECTIONS SHALL BE THE RESPONSIBILITY OF THE FABRICATION SHOP AND PAID DIRECTLY TO THE PROJECT'S SPECIAL INSPECTION FIRM.

10. PROVISION FOR FUTURE EXPANSION: NONE

11. THIS BUILDING WAS DESIGNED IN ACCORDANCE WITH:

"BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY", ACI 318-08, ALTERNATE DESIGN METHOD.

"BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES", ACI 530-08/ASCE 5-08/TMS 402-08.

"SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC, 2005, ALLOWABLE STRESS DESIGN.

"SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", AISC, 2004.

"STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS, K-SERIES", SJI, 2005.

"STANDARD SPECIFICATIONS FOR LONG-SPAN STEEL JOISTS, LH-SERIES AND DEEP LONG-SPAN STEEL JOISTS, DLH-SERIES", SJI, 2005.

"SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK", STEEL DECK INSTITUTE, PUBLICATION No. 31.

"SPECIFICATIONS AND COMMENTARIES FOR NON-COMPOSITE STEEL FORM DECK", STEEL DECK INSTITUTE, PUBLICATION No. 31.

"DIAPHRAGM DESIGN MANUAL", STEEL DECK INSTITUTE (DDM03).

1.4 SUBMITTALS

1. ANY REFERENCE TO SHOP DRAWINGS IN THE CONTRACT DOCUMENTS MEANS SHOP & ERECTION DRAWINGS. SHOP DRAWINGS ARE TO BE PREPARED BY THE CONTRACTOR, FOR THE SOLE PURPOSE OF DEMONSTRATING HIS/HER DEPTH OF UNDERSTANDING OF THE PROJECT REQUIREMENTS, RESOLVING THE COMPLEXITIES TO BE ANTICIPATED DURING THE EXECUTION, PLANNING THE EXECUTION AND WORKING OUT THOSE SPECIFIC AND FINITE DETAILS REQUIRED TO CARRY OUT CONSTRUCTION. HENCE, BOTH SHOP AS WELL AS ERECTION DRAWINGS SHALL BE PREPARED BY THE MATERIAL SUPPLIER IN DETAIL. NEITHER DESIGN DRAWINGS NOR PARTS THEREOF SHALL BE USED AS SHOP DRAWINGS. SUBSTITUTION OF DESIGN DRAWINGS FOR SHOP & ERECTION DRAWINGS IS IN VIOLATION OF ONE OR MORE OF THE STATUTES AND IS FORBIDDEN HEREIN AND THE SUBMITTAL WILL BE REJECTED.

2. SHOP DRAWINGS SHALL BE EXPLICIT. SUFFICIENT INFORMATION AND DETAILS SHALL BE SHOWN TO ENSURE THAT FABRICATORS, INSTALLERS AND ERECTORS ARE NOT REQUIRED TO INTERPRET REQUIREMENTS. THE SHOP DRAWINGS SHALL FULLY REPRESENT WHAT IS TO BE INSTALLED IN THE PROJECT. LABOR SAVING WORDS SUCH AS "TYP", "VERIFY IN FIELD", "N-PLACES" SHOULD BE AVOIDED AND SUBMITTALS MAY BE RETURNED FOR EXPLICIT REPRESENTATIONS.

3. WHERE THE CONTRACTOR IS REQUIRED TO PROVIDE ENGINEERING DESIGN, THE SHOP DRAWINGS AND CALCULATIONS SUBMITTED ARE TO BE IN ACCORDANCE WITH THE FOLLOWING STAMPING AND SIGNING PROVISIONS. THE ITEMS SUBMITTED SHALL BE DESIGNED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND THE SHOP DRAWINGS SHALL BE STAMPED BY THE ENGINEER IN CHARGE OF DESIGN. THE STAMPING AND SIGNING SHALL CONFORM TO THE FOLLOWING:

   DRAWINGS:

   A. EACH SHEET OF A SET SHALL BEAR THE STAMP, SIGNATURE AND THE DATE SIGNED. THE SIGNATURE SHALL BE ACROSS THE STAMP.

   B. THE SHEET 1 OR TITLE PAGE SHALL BE WET SIGNED IN A DIFFERENT COLORED INK THAN THE MEDIA AND CONTAIN THE DATES OF SIGNATURE AND EXPIRATION DATE OF REGISTRATION IN ADDITION TO THE REQUIREMENTS STATED IN ITEM A.

   CALCULATIONS:

   A. EACH SHEET OF A SET SHALL BEAR THE STAMP, SIGNATURE AND THE DATE SIGNED. THE SIGNATURE SHALL BE ACROSS THE STAMP.

   B. THE SHEET 1 OR TITLE PAGE SHALL BE WET SIGNED IN A DIFFERENT COLORED INK THAN THE MEDIA AND CONTAIN THE DATES OF SIGNATURE AND EXPIRATION DATE OF REGISTRATION IN ADDITION TO THE REQUIREMENTS STATED IN ITEM A.

   STAMPING WHOLE OR PORTIONS OF DESIGN DRAWINGS, & THEIR USE AS SHOP DRAWINGS, IS IN VIOLATION OF CODE OF PROFESSIONAL PRACTICE AND CONDUCT ADOPTED BY THE KENTUCKY STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS & LAND SURVEYORS &, AS PER KRS 322.180(4), THE REGISTRATION OF THE REGISTRANT MAY BE REVOKED OR SUSPENDED.

4. SUBMITTALS SHALL BE COMBINED TO INCLUDE ALL MATERIALS OR COMPONENTS NECESSARY TO COORDINATE & CONSTRUCT PARTICULAR ELEMENTS OF THE WORK. LARGE PROJECTS, HOWEVER, MAY BE SUBMITTED IN BUILDING AREA PHASES.

5. SHOP DRAWINGS FOR FABRICATION, BENDING & PLACEMENT OF CONCRETE OR MASONRY REINFORCEMENT SHALL COMPLY WITH LATEST EDITION OF ACI-315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES." SHOW BAR SCHEDULES, STIRRUP AND BAR SPACING, BAR LOCATION, INCLUDING ALL CMU DOWELS ON A PLAN SHEET, DIAGRAM OF BENT BARS, ARRANGEMENT OF BARS, CLEARANCES, BOLSTERS & OTHER ACCESSORIES, CONCRETE COVER AND CONTROL AND CONSTRUCTION JOINTS.

6. IF CUT SHEETS OR CATALOGUES ARE SUBMITTED FOR REVIEW, THE SPECIFIC PRODUCT DETAILS THAT WILL BE USED IN THIS PROJECT SHALL BE MARKED.

7. ALL SUBMITTALS SHALL HAVE BEEN FULLY REVIEWED & COORDINATED BY THE GENERAL CONTRACTOR BEFORE SUBMISSION TO THE STRUCTURAL ENGINEER FOR COMPLETE COMPLIANCE WITH THE REQUIREMENTS OF THE DESIGN DRAWINGS, GENERAL PROVISIONS & SPECIFICATIONS. FAILURE OF THE GENERAL CONTRACTOR TO COMPLY SHALL BE REASON FOR REJECTION OF THE SUBMITTAL. THE CONTRACTORS REVIEWS SHALL ALSO DETERMINE THAT THE SUBMITTALS ARE ACCEPTABLE IN TERMS OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE CONTRACTOR'S RESPONSIBILITIES. LABEL ALL SUBMITTALS WITH THE SPECIFICATION REFERENCE NUMBER UNDER WHICH THEY ARE TO BE REVIEWED AND PROVIDE SPACE FOR REVIEW STAMPS.

8. THE CONTRACTOR SHALL CALL ATTENTION TO ANY SHOP DRAWING SUBMITTAL, AND ANY SPECIFIC PART THEREOF, THAT VARIES FROM WHAT THE PROJECT DOCUMENTS CALL FOR. THE JUSTIFICATION FOR SUCH VARIANCES SHALL BE CLEARLY STATED, AS SHALL ANY RESULTING COST SAVINGS TO BE PASSED ON TO THE OWNER. THE ENGINEER'S COSTS IN REVIEWING THE ITEMS AT VARIANCE IN ANY SUCH SUBMITTAL WILL BE BILLED TO THE CONTRACTOR, AT THE ENGINEER'S DISCRETION.

9. RESUBMITTALS SHALL CLEARLY INDICATE THOSE SPECIFIC ITEMS THAT HAVE BEEN REVISED OR ADDED SINCE THE INITIAL REVIEW BY THE ENGINEER. FAILURE TO DO SO WILL BE REASON FOR REJECTION. THE ENGINEER'S COSTS IN REVIEWING SUBMITTALS OTHER THAN THE INITIAL SUBMITTAL, AND THE FIRST SUBSEQUENT RESUBMITTAL, WHEN CALLED FOR, WILL BE BILLED TO THE CONTRACTOR. THE GENERAL CONTRACTOR SHALL CLEARLY STATE THAT RESUBMITTALS COMPLY WITH THE DESIGN TEAM'S REVIEW COMMENTS.

10. ONE PAPER SEPIA AND TWO BLUE LINE COPIES OF EACH SHOP DRAWING SHALL BE SUBMITTED, UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.

11. SUBMITTALS FOR CONCRETE & GROUT MIX DESIGNS SHALL INCLUDE REQUEST FOR, AND COMPLETION OF, SUBMITTAL FORM PRESCRIBED BY THE ENGINEER.

12. NON-COMPLIANCE WITH SUBMITTAL REQUIREMENTS WILL RESULT IN A DELAY IN THE RELEASE OF REVIEWED DOCUMENTS, FOR WHICH THE ENGINEER WILL NOT BE RESPONSIBLE.

13. SUBMITTAL PROCEDURES:
   A. GENERAL
   SUBMITTAL DATA IN ELECTRONIC FORMAT IS TO BE UTILIZED IN PLACE OF PAPER COPIES, WHEREVER POSSIBLE.

   B. ELECTRONIC SUBMITTALS
   SUBMIT DATA IN A DIGITAL FORMAT, EITHER AS AN E-MAIL ATTACHMENT OR PHYSICALLY DELIVERED ON FLOPPY OR CD RECORDING MEDIA. WHEREVER POSSIBLE, DRAWING FILES ARE TO BE IN A FORMAT THAT CAN BE OPENED BY AUTOCAD 2004; & TEXT FILES IN A FORMAT THAT CAN BE OPENED BY MICROSOFT EXCEL OR WORD. FILES THAT CAN ONLY BE OPENED BY ACROBAT 5.0 OR IMAGE VIEWERS ARE ACCEPTABLE BUT ARE NOT PREFFERED. RAI'S REVIEW COMMENTS, & STAMP WILL BE ADDED TO .DWG FILES, IN THEIR OWN LAYER AND IN A CLEARLY IDENTIFIABLE FONT SIZE AND COLOR. RAI'S REVIEW COMMENTS, & STAMP, WILL BE ADDED IN A CLEARLY IDENTIFIABLE FONT STYLE & COLOR TO NON- .DWG FILES, WHERE POSSIBLE, OR CREATED IN A SEPARATE MICROSOFT EXCEL OR WORD FILE. ALL REVIEWED SUBMITTALS WILL BE ELECTRONICALLY FORWARDED TO THE ARCHITECT FOR HIS/HER REVIEW AND SUBSEQUENT DISTRIBUTION. THE FORWARDED FILES WILL BE IN .PDF FORMAT AND ADDITIONALLY IN .DWG FORMAT, WHERE APPLICABLE.

   C. PAPER SUBMITTALS
   SUBMIT DATA IN DUPLICATE. ONE COPY WILL BE USED FOR RAI'S REVIEW PROCESS & PROJECT RECORDS. REVIEW COMMENTS WILL BE TRANSCRIBED, OR ATTACHED, TO THE REMAINING COPY BEFORE FORWARDING TO THE ARCHITECT FOR HIS/HER REVIEW AND SUBSEQUENT DISTRIBUTION; AND ONE COURTESY OCE OR XEROX PROCESS BLACK-LINE COPY OF THE FORWARDED DOCUMENTS WILL ALSO BE INCLUDED. RANGASWAMY & ASSOCIATES COMMENTS WILL BE IDENTIFIED.

14. RANGASWAMY AND ASSOCIATES, INC. HAS PREPARED A "SUBMITTAL STANDARDS" GUIDE WHICH CAN BE VIEWED, PRINTED AND/OR DOWNLOADED FROM THE FOLLOWING WEB PAGE: http://www.rangaswamy.com/submittalstandards.htm THE "SUBMITTAL STANDARDS" GUIDE IS NOT INTENDED TO BE EXHAUSTIVE FOR ALL SUBMITTALS AND ALL MATERIALS. THE "SUBMITTAL STANDARDS" GUIDE SHALL BE FOLLOWED FOR ALL APPLICABLE SHOP DRAWINGS AND SUBMITTALS.

1.5 TYPICAL DETAILS

1. TYPICAL DETAILS SHOWN IN THESE PLANS ARE PROVIDED TO ILLUSTRATE DESIGN PHILOSOPHIES AND MINIMUM REQUIREMENTS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCOMMODATING SPECIFIC FIELD CONDITIONS WHILE PROVIDING FOR THE INTENT OF THE TYPICAL DETAILS.

3. COORDINATION OF THE EXACT LOCATIONS, AND QUANTITIES, OF THE TYPICAL DETAIL CONDITIONS IN COMPARISON TO THE ACTUAL PROJECT CONDITIONS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR; AND PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER OR THE OWNER'S AGENTS.

1.6 MISCELLANEOUS NOTES

1. LAYOUT DIMENSIONS SHOWN ON THE STRUCTURAL PLANS HAVE BEEN DERIVED FROM THE ARCHITECTS' PLANS AND INCLUDED FOR THE CONTRACTOR'S CONVENIENCE. THE CONTRACTOR IS RESPONSIBLE FOR CORRELATING AND VERIFYING THE LAYOUT DIMENSIONS ON THE STRUCTURAL PLANS WITH THE DETAILS AND DIMENSIONS SHOWN ON THE ARCHITECTURAL PLANS. IF ARCH-ITECTURAL DETAILS, FEATURES OR ROOM LAYOUTS ARE SHOWN IN THE STRUCTURAL PLANS THEY ARE TO BE CONSIDERED AS BEING INDICATED FOR CONCEPTUAL PURPOSES ONLY. DOCUMENT DISCREPANCIES, BETWEEN VARIOUS TRADES, SHALL BE BROUGHT TO THE ARCHITECT'S IMMEDIATE ATTENTION FOR FINAL RESOLUTION.

2. EACH CONTRACTOR SHALL VERIFY THE SIZE & LOCATION OF DUCT OPENINGS, GRILLES, LOUVERS, ETC. WITH THE MECHANICAL TRADES BEFORE PROCEEDING WITH THE WORK.

3. IF DIMENSIONS AND DETAILS ARE NOTED WITH AN ASTERISK (*) THEY ARE TO BE DETERMINED, BY THE CONTRACTOR, FROM THE EQUIPMENT MANUFACTURERS' CERTIFIED DRAWINGS, AND INSTALLATIONS SHALL BE BASED ON SUCH INFORMATION.

4. SEE THE SPECIFICATIONS FOR SHORING AND BRACING REQUIREMENTS. STABILITY OF EXISTING STRUCTURES DURING CONSTRUCTION IS THE CONTRACTOR'S RESPONSIBILITY. ENGAGE THE SERVICES OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF KENTUCKY TO PERFORM DESIGN OF TEMPORARY SUPPORTS AND PROCEDURES. SUCH ENGINEER SHALL CARRY PROFESSIONAL LIABILITY INSURANCE FOR $1,000,000.00 MIN. AND SUBMIT CERTIFICATE OF INSURANCE FOR REVIEW BY THE ARCHITECT. SUBMITTALS, NOT ACCOMPANIED WITH CERTIFICATE OF PROFESSIONAL LIABILITY INSURANCE, WILL BE RETURNED WITHOUT FURTHER REVIEW.

1.7 CABINET DESIGN AND ANCHORING

1. CABINET AND CASEWORK DESIGN AND IT'S ANCHORING TO STRUCTURAL ELEMENTS SUCH AS WALLS, BEAMS, JOISTS, COLUMNS, ETC. SHALL BE IN ACCORDANCE WITH SECTION 1613, "EARTHQUAKE LOADS" OF THE INTERNATIONAL BUILDING CODE, CURRENT EDITION. SEISMIC DESIGN PARAMETERS ARE FURNISHED UNDER GENERAL PROVISION NOTES SECTION 1.3 "DESIGN NOTES" SHOWN ON THE STRUCTURAL DRAWINGS.

2. THE STORAGE VERTICAL LIVE LOADS TO BE APPLIED TO THE HORIZONTAL FLAT SURFACES OF THE CABINETS OR CASEWORK SHALL BE 20 PSF IN ADDITION TO THE VERTICAL DEAD LOADS OF THE CABINETS. FOR SIMPLICITY, ALL VERTICAL LOADS CAN BE ASSUMED TO BE APPLIED AT ONE HALF THE HORIZONTAL DEPTH OF THE CABINET.

3. THE HORIZONTAL EARTHQUAKE LOADS SHALL BE OBTAINED BY MULTIPLYING THE TOTAL VERTICAL LOAD (DEAD + LIVE) BY THE SEISMIC RESPONSE COEFFICIENT (Cs) FURNISHED UNDER GENERAL PROVISION NOTES SECTION 1.3 "DESIGN NOTES" SHOWN ON THE STRUCTURAL DRAWINGS. FOR SIMPLICITY, THE HORIZONTAL EARTHQUAKE LOAD MAY BE APPLIED AT ONE HALF THE VERTICAL HEIGHT OF THE CABINET.

4. ANCHORS SHALL BE DESIGNED TO WITHSTAND THE RESOLVED COMPONENTS OF THE VERTICAL DEAD AND LIVE LOADS AS WELL AS HORIZONTAL SEISMIC LOADS ACTING SIMULTANEOUSLY ON THE ANCHOR.

5. ANCHOR DESIGN CALCULATIONS AND DETAILS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER LICENSED AND PRACTICING IN THE STATE OF KENTUCKY. THE STRUCTURAL ENGINEER SHALL HAVE PROFESSIONAL LIABILITY INSURANCE TO A LIMIT OF $1,000,000.00 PER OCCURRENCE AND SUBMIT CERTIFICATE OF INSURANCE FOR ARCHITECT'S REVIEW AND FILE.

3.1 CONCRETE NOTES

1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE AS NOTED IN THE DESIGN NOTES. UNLESS NOTED OTHERWISE, MINIMUM CEMENT PER CUBIC YARD OF CONCRETE SHALL BE 540 POUNDS FOR SLABS; 560 POUNDS FOR ALL OTHER C.I.P. CONCRETE. MAXIMUM SLUMP, AT POINT OF PLACEMENT, SHALL BE 5" (±1") FOR SLABS AND 4" (∓1") FOR ALL OTHER C.I.P. CONCRETE – UNLESS NOTED OTHERWISE, BEFORE THE ADDITION OF WATER REDUCING ADMIXTURES. FLYASH MAY CONSTITUTE NO MORE THAN 20% OF THE TOTAL CEMENTITIOUS MATERIAL. ALL SELECTED ADMIXTURES MUST BE COMPATIBLE WITH EACH OTHER; AND MAY NOT CONTAIN ANY CHLORIDE BASED COMPONENTS. MAXIMUM SLUMP OF CONCRETE TO RECEIVE A BUSH HAMMERED FINISH SHALL BE 1 1/2" PRIOR TO THE ADDITION OF ADMIXTURES AND FLUIDIFIERS.

2. ALL MATERIALS USED IN THE CONCRETE CONSTRUCTION SHALL BE NEW. REINFORCING STEELS SHALL BE CONTINUOUS BETWEEN SPLICES. LOCATION OF ALL SPLICES SHALL BE PER PLANS OR AS APPROVED BY THE ARCHITECT. RUSTED REINFORCING STEEL AND RECYCLED MATERIALS (EXCEPT CONCRETE FORMS AS ALLOWED IN THE SPECIFICATIONS) SHALL NOT BE USED IN THE CONSTRUCTION. ALL REJECTED MATERIALS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER OR HIS AGENTS.

3. REINFORCING STEEL PLACING DRAWINGS AND BAR LISTS SHALL CONFORM TO THE CURRENT EDITIONS OF THE AMERICAN CONCRETE INSTITUTE'S "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315) AND "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES" (ACI 315R); AND THESE PUBLICATIONS SHALL FORM PART OF THE CONTRACT DOCUMENTS. ALL BAR AND MESH SUPPORTS MUST BE CLEARLY DETAILED.

4. ALL REINFORCING STEEL DETAILS SHALL BE IN ACCORDANCE WITH THE ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY" (ACI 318, CURRENT EDITION).

5. CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL AS OUTLINED HEREIN AND SHALL BE INDICATED ON THE APPLICABLE REINFORCING STEEL SHOP DRAWINGS.

   UNLESS NOTED OTHERWISE:

   JOISTS AND STRUCTURAL SLABS:
   #11 BARS AND SMALLER — 3/4 IN.
   #14 AND #18 BARS — 1 1/2 IN.

   CLASS 1 THRU 6 SLABS ON GRADE OR METAL DECK:
   TOP — T/4 (2" MAX.): T = SLAB THICKNESS IN INCHES
   SLAB THICKENINGS — SAME AS BOTTOM COVER FOR FOUNDATIONS (3")

   BEAMS, COLUMNS AND PIERS:
   STIRRUPS, SPIRALS, AND TIES — 1 1/2 IN.
   PRINCIPAL REINFORCEMENT — 2 IN.

   WALLS:
   #11 BARS AND SMALLER — 3/4 IN.
   #14 AND #18 BARS — 1 1/2 IN.

   FOUNDATIONS AND STRUCTURAL BASE SLABS:
   AT FORMED SURFACES & BOTTOMS BEARING ON CONCRETE WORK MAT. 2 IN
   AT UNFORMED SURFACES INCLUDING BOTTOMS IN CONTACT WITH SOILS. 3 IN.
   TOP OF FOOTINGS. 2 IN.
   OVER TOP OF PILES. 2 IN.

   EXPOSED SURFACES:

   NO REINFORCING IN AREAS EXPOSED TO EARTH, WEATHER, SEWAGE, WATER OR HIGH HUMIDITY SHALL HAVE COVER LESS THAN 2".

   ADDITIONAL COVER OF 3/4" SHALL BE PROVIDED WHERE REINFORCING STEEL IS PLACED ALONG SURFACES TO RECEIVE BUSH-HAMMERED FINISH.

   ALL REINFORCING STEEL, INCLUDING ANCHOR BOLTS AND EMBEDDED STUDS, SHALL BE SEPARATED BY A DISTANCE OF ONE INCH MINIMUM OR SECURELY WIRED TOGETHER.

6. CONCRETE FORMING CONTRACTOR IS RESPONSIBLE FOR APPLYING THE PROPER FORM LINERS AND/OR TEXTURING DEVICES. AT BUSH-HAMMERED ELEMENTS THE CONCRETE POURING SEQUENCE IS TO BE CONTINUOUS, WITHOUT THE FORMATION OF COLD JOINTS. SEE THE DRAWINGS AND/OR SPECIFICATIONS FOR WALL FINISH SCHEDULE.

7. HOOKS AND BENDS SHALL BE ACI STANDARD UNLESS OTHERWISE INDICATED.

8 REINFORCING STEEL IN FOOTINGS SHALL BE ASSEMBLED IN MAT GRILLES, EQUALLY SPACED AND SECURELY WIRED TOGETHER, BEFORE THE CONCRETE IS POURED.

9. PROVIDE SHEAR KEYS IN THE TOPS OF WALL FOOTINGS SUPPORTING CONCRETE OR MASONRY WALLS; AND IN THE TOPS OF COLUMN FOOTINGS AT CONCRETE OR MASONRY COLUMNS/PIERS/PILASTERS.

10. CENTER ALL FOOTINGS UNDER WALL, PIER OR COLUMN ABOVE UNLESS OTHERWISE INDICATED.

11. PROVIDE CORNER BARS AT ALL CONCRETE WALL CORNERS AND INTERSECTIONS. CORNER BARS SHALL BE LAP SPLICED WITH THE FACE HORIZONTAL BARS AND ARE TO MATCH THE FACE HORIZONTAL BARS IN SIZE, GRADE AND SPACING, UNLESS OTHERWISE SHOWN.

12. UNLESS OTHERWISE INDICATED, CONTINUOUS WALL FOOTINGS SHALL BE TWICE THE WIDTH OF THE WALL ABOVE AND THE FOOTING THICKNESS SHALL BE EQUAL TO THE WIDTH OF THE WALL ABOVE. THE MINIMUM FOOTING THICKNESS SHALL BE ONE FOOT. PROVIDE 3-#4 CONTINUOUS BOTTOM BARS, WITH #4 AT 24" O.C. TRANSVERSE BARS, UNLESS SHOWN OTHERWISE.

13. SPREAD BARS AROUND SMALL OPENINGS AND SLEEVES IN SLABS AND WALLS WHERE POSSIBLE AND WHERE BAR SPACING WILL NOT EXCEED 1.5 TIMES THE NORMAL SPACING. DISCONTINUE BARS AT LARGE OPENINGS WHERE NECESSARY AND PROVIDE AN AREA OF REINFORCEMENT EQUAL TO THE INTERRUPTED REINFORCEMENT, DISTRIBUTING ONE-HALF OF THIS REINFORCEMENT EACH SIDE OF THE OPENING. HOLES LARGER THAN 12 INCHES IN ANY DIRECTION SHALL HAVE 1-#5 x 5'-0" DIAGONAL BAR IN EACH FACE AT EACH CORNER, UNLESS NOTED OTHERWISE.

14. PLANS SHOW ONLY THE CRITICAL REINFORCEMENT IN WALLS FOR CLARITY. MINIMUM REINFORCEMENT IN WALLS, WHERE NOT SHOWN ON PLANS, SHALL BE AS FOLLOWS:

THICKNESS OF WALL	LAYERS	LOCATION	REINFORCEMENT
3.00" TO 8.00"	1	MIDDLE	#4 AT 12" E.W.
8.01" TO 16.00"	2	FACES	#4 AT 12" E.W.
16.01" TO 20.00"	2	FACES	#5 AT 12" E.W.

15. ALL REINFORCED CONCRETE COLUMNS AND PIERS SHALL HAVE MINIMUM #4 TIES AT 12" C/C FULL HEIGHT, UNLESS SPECIFIED OTHERWISE.

16. REINFORCEMENT IN WALLS SHALL BE CONTINUOUS. HORIZONTAL BAR LAP SPLICES SHALL BE STAGGERED.

17. ALL OPENINGS THROUGH WALLS, SLABS OR OTHER STRUCTURAL ELEMENTS NOT DETAILED ON THE STRUCTURAL DRAWINGS MUST BE LOCATED BY THE CONTRACTOR AND SHOWN ON THE APPLICABLE REINFORCING STEEL SHOP DRAWINGS. THE FINAL LOCATION OF ALL OPENINGS MUST BE REVIEWED BY THE CONTRACTOR BEFORE THE CONCRETE IS POURED.

18. PIER, COLUMN AND VERTICAL MASONRY REINFORCEMENT SHALL BE DOWELED TO THE FOOTING. PROVIDE DOWELS EQUAL IN SIZE, NUMBER AND GRADE TO THE VERTICAL REINFORCEMENT ABOVE, UNLESS OTHERWISE INDICATED. DOWELS SHALL BE ACI 90 DEGREE HOOKS AT THE BOTTOM LEVEL OF FOOTING, SLAB OR THICKENED SLAB REINFORCEMENT. DOWELS SHALL BE LAPPED WITH THE VERTICAL REINFORCEMENT ABOVE AND ARE TO HAVE FULL COMPRESSION LAP SPLICES, UNLESS NOTED OTHERWISE.

19. COLUMN FOOTING DOWELS ARE TO HAVE FULL COMPRESSION LAP SPLICES WITH THE COLUMN STEEL, UNLESS NOTED OTHERWISE.

20. SEE THE ARCHITECTURAL DRAWINGS AND THE SPECIFICATIONS FOR THE LOCATIONS OF SPECIAL ANCHORS, CHAMFERS, AND OTHER DETAILS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

21. WELDING, INCLUDING TACK WELDING, OF REINFORCING STEEL IS PROHIBITED. WELDING OF REINFORCING STEEL WILL BE PERMITTED ONLY BY WRITTEN APPROVAL OF THE ARCHITECT.

22. NO REINFORCING STEEL SHALL BE FIELD BENT OR CUT WITHOUT THE APPROVAL OF THE ARCHITECT. FIELD CUT REINFORCING STEEL USING MECHANICAL METHODS SUCH AS REBAR SAW. TORCH CUTTING OF REINFORCING STEEL IS PROHIBITED.

23. ALL LAP SPLICES SHALL BE CLASS 'B' LAPS IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318 – CURRENT EDITION, UNLESS OTHERWISE NOTED. REINFORCING BAR LAP LENGTHS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

   A. UNLESS NOTED OTHERWISE, 50 BAR DIAMETERS FOR BARS SIZES UP TO AND INCLUDING #6; 62 BAR DIAMETERS FOR BAR SIZES LARGER THAN #6.

   B. HORIZONTAL REBAR IN WALLS AND BARS IN TOP LAYERS OF BEAMS, SLABS, MATS AND FOOTINGS: – 64 BAR DIAMETERS FOR BAR SIZES UP TO AND INCLUDING #6; 80 BAR DIAMETERS FOR BAR SIZES LARGER THAN #6.

   AT THE CONTRACTOR'S DISCRETION, THE SHOP DRAWINGS MAY REFLECT THE MORE STRINGENT REQUIREMENTS, GIVEN IN "B" ABOVE, FOR ALL REBAR IN ORDER TO MINIMIZE POSSIBLE ERRORS ON THE SHOP DRAWINGS AND IN THE FIELD. LAP-SPLICE LOCATIONS INDICATED IN THE DRAWINGS ARE INTENDED TO INDICATE ACCEPTABLE LOCATIONS. THEY ARE NOT MANDATORY, UNLESS NOTED OTHERWISE. AT CONTRACTOR'S OPTION, CONTINUOUS BARS MAY BE INSTALLED INSTEAD.

24. PLANS SHOW THE ESSENTIAL REINFORCEMENT BASED UPON DESIGN. ADDITIONAL REINFORCEMENTS THAT ARE REQUIRED TO HOLD THE ESSENTIAL REINFORCEMENT IN ITS TRUE POSITION, WITHIN ALLOWABLE TOLERANCES, SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

25. ALL CONCRETE FLAT WORK, SUCH AS FLOOR SLABS, SHALL BE WET CURED FOR A MINIMUM OF SEVEN DAYS OR BY A CURING METHOD APPROVED BY THE PROJECT ARCHITECT.

26. STRIP FOOTING LONGITUDINAL BARS SHALL BE CONTINUOUS THROUGH SPREAD FOOTINGS. HORIZONTAL WALL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH INTEGRAL PIERS AND COLUMNS. ALL ABUTTING CONCRETE SURFACES, SUCH AS FOOTING TO FOOTING OR WALL TO WALL, SHALL BE DOWELED TOGETHER AND HAVE SHEAR RESISTANCE KEYS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

27. PROVIDE AN AMOUNT OF REINFORCING STEEL FOR CONTINGENCIES, EQUAL TO THE FOLLOWING, TO BE FABRICATED AND PLACED AS DIRECTED BY THE ARCHITECT/ENGINEER:

   #4 200 LINEAR FEET
   #5 200 LINEAR FEET

   GENERAL CONTRACTOR SHALL MAINTAIN AN UP-TO-DATE CONTINGENCY LOG SHEET AND PROVIDE SUCH LOG SHEET TO THE ARCHITECT, AT THE ARCHITECT'S REQUESTS FOR SUCH. GENERAL CONTRACTOR SHALL ALSO ASSIGN A PER POUND UNIT PRICE VALUE FOR THE CONTINGENCY REINFORCING STEEL; AND ABIDE BY THIS PRICE FOR THE DURATION OF THE PROJECT.

   FULL CREDIT FOR UNUSED QUANTITIES SHALL BE GIVEN TO THE OWNER.

3.2 SLAB NOTES

1. SLABS ON GRADE OR METAL DECK SHALL BE IN ACCORDANCE WITH ACI 302.1R-04 MANUAL OF CONCRETE PRACTICE "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION". THE CONTRACTOR SHALL MAINTAIN A COPY OF THIS GUIDE AT THE FIELD OFFICE. FLOORS WITHIN THE BUILDING, AND SLABS AT LOADING DOCKS, SHALL BE PER THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE:

TABLE

ITEM	AREA OF BUILDING	ACI CLASS	MINIMUM THICKNESS (INCHES)	CONCRETE STRENGTH (PSI)	MAXIMUM SLUMP (INCHES)	FLATNESS (Ff)	LEVELNESS (Fl)
1	OFFICES & GENERAL AREAS NOT LISTED ELSEWHERE	2	4.000	3500.00	5.000	25.000	20.000
2	GYMNASIUMS, MULTI-PURPOSE AREAS & CAFETERIA	2	4.000	3500.00	5.000	25.000	20.000
3	CORRIDORS	2	4.000	3500.00	5.000	25.000	20.000
4	LIVING AREAS, RESIDENCE HALLS & APARTMENTS	2	4.000	3500.00	5.000	25.000	20.000
5	DRIVEWAYS & GARAGE FLOORS	4	5.000	4000.00	5.000	35.000	25.000
6	EXTERIOR WALKS	1	4.000	3500.00	5.000	20.000	15.000

2. UNLESS NOTED OTHERWISE, ALL INTERIOR AND EXTERIOR SLABS ON GRADE SHALL BE REINFORCED WITH "FIBERMESH 650" AS MANUFACTURED BY PROPEX CONCRETE SYSTEMS, OR APPROVED EQUIVALENT, AT THE DOSAGE RATE OF THREE POUNDS PER CUBIC YARD OF CONCRETE. FIBERS SHALL COMPLY WITH ASTM C1116, TYPE 3 AND SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY. THE FIBERS SHALL ONLY BE ADDED TO THE CONCRETE MIX AT THE BATCH PLANT.

3. UNLESS NOTED OTHERWISE, ALL INTERIOR SLABS OVER METAL DECKING SHALL BE REINFORCED WITH "NOVOMESH 850 BLEND" AS MANUFACTURED BY PROPEX CONCRETE SYSTEMS, OR APPROVED EQUIVALENT, AT THE DOSAGE RATE OF TWENTY-FOUR POUNDS PER CUBIC YARD OF CONCRETE. FIBERS SHALL COMPLY WITH ASTM C1116, TYPES 1 & 3 COMBINED AND ASTM A820, TYPE 1. THE FIBERS SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY AND SHALL ONLY BE ADDED TO THE CONCRETE MIX AT THE BATCH PLANT.

4. UNLESS NOTED OTHERWISE, ALL ELEVATED CONCRETE SLABS OVER METAL DECK SHALL BE 6 1/4" THICK FROM BOTTOM OF DECK. CUT CONTROL JOINTS OVER AND ALONG BEAMS/WALLS THAT SUPPORT JOISTS AND/OR METAL DECKING.

5. UNLESS NOTED OTHERWISE, ALL TUNNEL AND CRAWL SPACE CONCRETE SLABS OVER METAL DECK SHALL BE 7 1/4" THICK FROM BOTTOM OF DECK AND BE REINFORCED WITH AND MACRO-SYNTHETIC FIBERS. CONCRETE SHALL BE LIGHT WEIGHT WEIGHING NO MORE THAN 110 POUNDS PER CUBIC FOOT.CUT CONTROL JOINTS OVER AND ALONG BEAMS AND WALLS SUPPORTING JOISTS AND/OR METAL DECK. FIBERS SHALL BE AS SHOWN IN NOTE 3.2.2 DIRECTLY ABOVE.

6. UNLESS NOTED OTHERWISE, SLABS SUBJECTED TO WHEELED TRAFFIC SHALL BE 8" THICK AND REINFORCED WITH TWO LAYERS OF #4@12" O.C. (MINIMUM OF TWO LAYERS OF WWF 6 x 6-W4 x W4) EACH WAY AT TOP AND BOTTOM. THE TOP LAYER SHALL BE LOCATED 1 1/2" CLEAR FROM TOP OF THE SLAB AND THE BOTTOM LAYER SHALL BE LOCATED 2" CLEAR FROM THE BOTTOM. FIRMLY SECURE THE REINFORCEMENT IN PLACE USING SUITABLE CHAIRS AT FREQUENT INTERVAL SO THE MATS DO NOT SAG DURING PLACING OF CONCRETE.

7. UNLESS NOTED OTHERWISE, SLABS LOADED WITH STORAGE RACKS SHALL BE 6" THICK & REINFORCED WITH ONE LAYER OF #4@12 o.c. (MINIMUM OF ONE LAYER OF WWF 6 x 6 – W4 x W4) EACH WAY AT TOP. THE LAYER SHALL BE LOCATED 1 1/2" CLEAR FROM THE TOP OF THE SLAB. FIRMLY SECURE THE REINFORCEMENT IN PLACE USING SUITABLE CHAIRS AT FREQUENT INTERVAL SO THE MAT DOES NOT SAG DURING PLACING OF CONCRETE.

8. PROVIDE ADDITIONAL BAR REINFORCEMENT IN SLABS AT ALL RE-ENTRANT CORNERS, ACUTELY ANGLED SLAB BOUNDARIES AND PENETRATIONS, AS SHOWN IN THE TYPICAL DETAILS.

9. WHERE INTERIOR WALLS ARE LIGHTLY LOADED AND ARE NOT SHOWN OR INDICATED TO BEAR ON STRIP, SPREAD, GRADE BEAM OR OTHER FOUNDATION SYSTEM THEY SHALL BE SUPPORTED ON THICKENED AREAS OF SLAB. THE SLAB SHALL BE THICKENED TO 8" (MIN.) AND EXTEND AT LEAST 8" BEYOND THE FACE OF THE WALL. THE PLANS MAY INDICATE ONLY THIS MINIMUM REQUIREMENT BUT THE LIMITS OF THICKENED AREAS SHALL BE EXTENDED AS NECESSARY, BEYOND THE MINIMUM REQUIRED, TO FACILITATE EXCAVATION, LAYOUT AND COORDINATION WITH SLAB JOINT REQUIREMENTS. KEEP THICKENED AREAS RECTANGULAR IN LAYOUT. THE TRANSITION OF THE BOTTOM SURFACE OF THE SLAB, BETWEEN THICKENED AREAS AND NON-THICKENED AREAS, SHALL BE AT A SLOPE OF 1:10, OR MORE, WHEREVER POSSIBLE. THICKENED SLAB AREAS SHALL BE REINFORCED, IN THE BOTTOM, WITH #5@12" LONGITUDINALLY (3 BARS MIN.) AND #4@24" TRANSVERSE, CENTERED ON THE WALL ABOVE. SUB-BASES AND VAPOR RETARDING MEMBRANE SHALL EXTEND BELOW ALL THICKENED AREAS.

10. SLAB ON GRADE JOINTS:
   SLABS ON GRADE ARE TO BE 'FLOATING' AND SEPARATED FROM FOOTINGS, WALLS AND COLUMNS ETC., UNLESS NOTED OTHERWISE. PROVIDE ISOLATION JOINTS OF PRE-FORMED EXPANSION JOINT FILLER MATERIAL; OR BY TURNING UP THE VAPOR BARRIER IF SHOWN ON SPECIFIC DETAILS; AT PERIMETERS ADJACENT TO WALLS. PROVIDE JOINTS IN SLABS FOR THE CONTROL OF CRACKING AT 10'-0" O.C. (MAX.). SPACING MAY BE INCREASED TO 15'-0" O.C. IN LARGE SLAB AREAS INTERRUPTED BY THICKENED SLABS AND WITH SLUMP OF CONCRETE LESS THAN 4". CONSTRUCTION JOINTS MAY BE PLANNED TO BE COINCIDENT WITH CONTROL JOINT LOCATIONS. UNPLANNED DAY JOINTS MUST BE AT LEAST 5'-0" FROM PARALLEL CONTROL JOINTS. THE CONTRACTOR MUST CAREFULLY PRE-PLAN JOINT LAYOUT AND COORDINATE WITH THICKENED SLAB REQUIREMENTS. LONGITUDINAL JOINTS IN THICKENED AREAS ARE TO BE AVOIDED. CONTIGUOUS SLAB POUR AREAS ARE TO HAVE CONTINUOUS JOINTS WITHOUT OFFSETS OR STAGGERS. ALIGN JOINTS WITH REENTRANT CORNERS WHEREVER POSSIBLE. SLAB REBAR MUST BE DISCONTINUOUS WHEN CROSSING UNDER SLAB JOINTS; CUT REBARS PRIOR TO, OR AFTER, THE SLAB POUR, AT THE CONTRACTOR'S OPTION.

11. THE JOINTS OF THE SLABS SUBJECTED TO WHEELED TRAFFIC SHALL BE CAULKED AND SEALED WITH SEMI-RIGID EPOXY COMPOUND. SIKADUR 51 SL CONTROL JOINT SYSTEM AS MANUFACTURED BY SIKA CORPORATION OF LYNDHURST, N.J. OR OTHER EQUIVALENT PRODUCTS APPROVED BY THE ARCHITECT ARE ACCEPTABLE FOR USE.

12. PLANS SHOW ONLY THE CRITICAL REINFORCEMENT IN SLABS FOR CLARITY. MINIMUM REINFORCEMENT IN ELEVATED STRUCTURAL SLABS, WHERE NOT SHOWN ON PLANS SHALL BE AS FOLLOWS:

THICKNESS OF SLAB	LAYERS	LOCATION	REINFORCEMENT
3.00" TO 6.00"	1	BOTTOM	#4 AT 12" E.W.
6.01" TO 8.00"	2	TOP AND BOT.	#5 AT 12" E.W.
8.01" TO 12.00"	2	TOP AND BOT.	#6 AT 12" E.W.

3.3 SLABS TO RECEIVE MOISTURE-SENSITIVE FLOOR COVERINGS:

1. THE CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT TESTING LABORATORY TO MEASURE THE MOISTURE CONTENT OF THE SLAB, PH OF THE SURFACE TO RECEIVE FLOOR COVERING AND THE RATE OF MOISTURE EMISSION FROM THE SURFACE TO RECEIVE THE COVERING. THE CONTRACTOR SHALL REVIEW THE TEST RESULTS FROM THE LABORATORY AGAINST THE FLOOR COVERING AS WELL AS FLOOR ADHESIVE MANUFACTURER'S INSTRUCTIONS AND CARRYOUT THE INSTALLATION PROVIDED ALL REQUIREMENTS ARE MET. THE INDEPENDENT TESTING LABORATORY SHALL SEND COPIES OF THE REPORTS TO THE ARCHITECT AND THE ENGINEER FOR RECORD.

2. SURFACE MOISTURE TESTS SHALL BE CARRIED OUT PER ASTM F 710, "STANDARD PRACTICE FOR PREPARING CONCRETE FLOORS TO RECEIVE RESILIENT FLOORING". CONDUCT BOTH CALCIUM CHLORIDE AND MAT TESTS. THE MAT TESTS SHALL BE CONDUCTED AS FOLLOWS:

   A. CONDUCT THREE TRIAL MAT TESTS THROUGHOUT THE AREA OF THE BUILDING TO RECEIVE COVERING, WITH ONE TEST NEAR THE MAXIMUM MOISTURE READING INDICATED BY TESTING.

   B. PLACE A 10'-0" x 10'-0" MAT USING THE SELECTED ADHESIVE AND FLOOR COVERING IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

   C. PERFORM A VISUAL AND PHYSICAL INSPECTION AFTER ONE WEEK TO ASSESS THE ACCEPTABILITY.

3. PERFORM SURFACE MOISTURE EMISSION RATE TESTS AS PER ASTM F 1869, "STANDARD TEST METHOD FOR MEASURING MOISTURE VAPOR EMISSION RATE OF CONCRETE SUBFLOOR USING ANHYDROUS CALCIUM CHLORIDE". OBSERVE THE FOLLOWING DURING TESTING:

   A. REMOVE CURING COMPOUNDS OR FLOOR SEALERS BEFORE TESTING.

   B. MAINTAIN THE SAME TEMPERATURE AND HUMIDITY CONDITIONS, AS THE FINAL FLOOR COVERING WILL BE EXPOSED TO, FOR 48 HOURS PRIOR TO AND DURING THE TEST.

   C. MEASURE AT LOCATIONS UNIFORMLY DISTRIBUTED AROUND THE SLAB, WITH THREE TESTS FOR UP TO 1000 SFT AND AN ADDITIONAL TEST FOR EACH ADDITIONAL 1000 SFT OF FLOOR.

4. TESTING FOR PH SHALL BE AS PER ASTM F710, "STANDARD PRACTICE FOR PREPARING CONCRETE FLOORS TO RECEIVE RESILIENT FLOORING". ALTERNATELY, FOLLOW THE FOLLOWING PROCEDURE:

   A. CONDUCT A PH TEST AT EVERY LOCATION AND AT EACH TIME A MOISTURE TEST IS PERFORMED.

   B. PLACE SEVERAL DROPS OF DISTILLED WATER ON A CLEAN CONCRETE SURFACE, FORMING A PUDDLE OF ABOUT ONE INCH DIAMETER.

   C. WAIT 60 (±5) SECONDS AFTER THE PUDDLE HAS FORMED.

   D. DIP THE PH PAPER INTO THE WATER AND REMOVE IMMEDIATELY.

   E. COMPARE THE PAPER COLOR TO THAT ON THE CHART TO DETERMINE THE PH READING.

   F. REPORT THE PH READING WITH EACH MOISTURE TEST RESULT.

5. VAPOR BARRIER SHALL BE VIRGIN POLYETHYLENE SHEET (NOT MANUFACTURED FROM RECYCLED MATERIALS), NON-BIODEGRADABLE, OF MINIMUM THICKNESS 15 MIL SUCH AS "STEGO WRAP VAPOR BARRIER" MANUFACTURED BY STEGO INDUSTRIES, LLC, OR APPROVED EQUIVALENT, MEETING ASTM E 1745 CLASS A PERFORMANCE REQUIREMENTS. THE VAPOR BARRIER SHALL BE INSTALLED DIRECTLY BELOW AND AGAINST THE SLAB. THE INSTALLATION OF VAPOR BARRIER SHALL COMPLY WITH ASTM E1643-09 "STANDARD PRACTICE FOR SELECTION, DESIGN, INSTALLATION AND INSPECTION OF WATER VAPOR RETARDERS USED IN CONTACT WITH EARTH OR GRANULAR FILL UNDER CONCRETE SLABS". CONTRACTOR SHALL USE REINFORCEMENT SUPPORTS TO PREVENT PUNCTURES DURING CONSTRUCTION AND SHALL REPAIR ALL DAMAGED AREAS BEFORE PLACING THE SLAB.

6. THE SURFACE FINISH TO RECEIVE COVERINGS SHALL BE EITHER BULL FLOAT/ STRAIGHTEDGE/LIGHT BROOM FINISH OR LIGHT POWER TROWEL FINISH WITH A LIGHT BROOM TEXTURE UNLESS NOTED OTHERWISE IN ARCHITECTURAL PLANS. CONSULT WITH THE ARCHITECT FOR ACCEPTABLE CONCRETE SURFACE FINISHES.

7. THE ULTIMATE STRENGTH OF CONCRETE SHALL BE 4000.00 PSI WITH WATER/CEMENT RATIO NOT TO EXCEED 0.40. THE RECOMMENDED MINIMUM DRYING TIME FOR THIS CONCRETE MIX SHALL BE NINETY DAYS. SILICA FUME MAY BE ADDED TO ACCELERATE THE DRYING TIME. APPROXIMATELY 10% SILICA FUME BY WEIGHT OF CEMENT MAY BE ADDED TO SHORTEN DRYING TIME BY 28 DAYS.

8 FLOOR COVERING ADHESIVES SHALL BE SUITABLE FOR APPLICATION ON A SURFACE WITH PH VALUE BETWEEN 9 AND 10.

9. CONCRETE SURFACE REPAIRS HAVE AN ADVERSE EFFECT ON FLOORING-ADHESIVE BOND. CONSULT WITH THE COVERING/ADHESIVE MANUFACTURER'S REPRESENTATIVE FOR ACCEPTABLE PATCHING METHODS AND SUBSEQUENT DRYING PERIOD BEFORE APPLYING ADHESIVE.

3.4 CONCRETE TESTING

1. GENERAL: UNLESS SPECIFICALLY NOTED OTHERWISE, QUALITY ASSURANCE OF CONCRETE IN PLACE SHALL COMPLY WITH THE PROVISIONS OF ACI 301, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE", CURRENT EDITION.

2. SLUMP: ASTM C143; ONE TEST AT POINT OF DISCHARGE FOR EACH POUR SESSION FOR EACH TYPE OF CONCRETE; ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY SEEMS TO HAVE CHANGED. THE TESTING TECHNICIAN SHALL MONITOR THE QUALITY OF CONCRETE SUPPLIED FOR THE ENTIRE POUR TO ASSURE THAT THE CONCRETE IN-PLACE REPRESENTS THE SPECIMENS CAST. OBTAIN THE DELIVERY TICKETS FOR EACH TRUCK AND SEND COPIES TO THE ARCHITECT ALONG WITH TEST REPORTS.

3. AIR CONTENT: ASTM C173 VOLUMETRIC METHOD FOR LIGHT WEIGHT CONCRETE; ASTM C231 PRESSURE METHOD FOR NORMAL WEIGHT CONCRETE; ONE FOR EACH POUR SESSION FOR EACH TYPE OF AIR-ENTRAINED CONCRETE.

4. CONCRETE TEMPERATURE: TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEGREES F (4 DEGREES C) AND BELOW; AND WHEN 80 DEGREES F (27 DEGREES C) AND ABOVE; AND EACH TIME A SET OF COMPRESSION TEST SPECIMENS ARE MADE.

5. COMPRESSION TEST SPECIMEN: ASTM C31; ONE SET OF (4) STANDARD CYLINDERS FOR EACH COMPRESSIVE STRENGTH TEST, UNLESS OTHERWISE DIRECTED. MOLD AND STORE CYLINDERS IN LABORATORY FOR LABORATORY CURED TEST SPECIMENS EXCEPT STORE IN FIELD IF FIELD-CURED TEST SPECIMENS ARE REQUIRED.

6. COMPRESSIVE STRENGTH TESTS: ASTM C39; ONE SET FOR EACH POUR SESSION EXCEEDING (5) CUBIC YARDS AND LESS THAN (25) CUBIC YARDS FOR EACH CLASS OF CONCRETE. MAKE ADDITIONAL SETS FOR EACH (50) CUBIC YARDS OVER AND ABOVE THE FIRST (25) CUBIC YARDS OF EACH CONCRETE CLASS PLACED IN ANY ONE SESSION; ONE SPECIMEN SHALL BE TESTED AT (7) DAYS, TWO SPECIMENS TESTED AT (28) DAYS, AND ONE SPECIMEN RETAINED IN RESERVE FOR LATER TESTING IF REQUIRED. TESTING SEQUENCE: (5) C.Y. TO (25) C.Y. = ONE SET; (26) C.Y. TO (75) C.Y. = TWO SETS; (76) C.Y. TO (125) C.Y. = THREE SETS; (126) C.Y. TO (175) C.Y. = FOUR SETS; ETC., ETC.

3.5 CHEMICAL ANCHORS AND DRILL-AND-DOWEL REBAR

(NOTE: CHEMICALLY ANCHORED HARDWARE AND DOWELS MAY NOT BE DETAILED IN THE PLANS BUT SHOULD THEIR USE BE DEEMED NECESSARY, & APPROVED BY THE ARCHITECT OR ENGINEER, THEY SHALL BE AS FOLLOWS:)

1. HILTI HIT RE 500 SD BY HILTI CORP., OR APP'D EQUIV., SHALL BE USED FOR DOWELS AND ANCHORS INTO CONCRETE AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SELECTED PRODUCT MANUFACTURER'S RECOMMENDATIONS.

2. HILTI HIT HY 150 MAX BY HILTI CORP., OR APP'D EQUIV., SHALL BE USED FOR DOWELS AND ANCHORS INTO SOLID MASONRY WALLS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SELECTED PRODUCT MANUFACTURER'S RECOMMENDATIONS.

3. HILTI HIT HY 20 BY HILTI CORP., OR APP'D EQUIV., SHALL BE USED FOR DOWELS AND ANCHORS INTO HOLLOW MASONRY WALLS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SELECTED PRODUCT MANUFACTURER'S RECOMMENDATIONS.

5.1 STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING", CURRENT EDITION.

University of Louisville – Student Recreation Center (Phase #3 – Construction Set) Louisville, Ky

RANGASWAMY AND ASSOC., INC.
Suite 420, The Landmark Building
Louisville, Kentucky 40202.
phone : (502)589-2212
Fax : (502)589-2240 : www.rangaswamy.com
consulting engineers

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

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UNIVERSITY OF LOUISVILLE

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2. ALL MATERIALS USED IN THE STRUCTURAL STEEL CONSTRUCTION SHALL BE NEW. ALL STRUCTURAL STEEL MEMBERS AND COVER PLATES, IF ANY, SHALL BE CONTINUOUS BETWEEN SPLICES OR BETWEEN THE SUPPORTS. LOCATION OF ALL SPLICES SHALL BE PER PLANS OR AS APPROVED BY THE ARCHITECT. RUSTED STRUCTURAL STEEL AND RECYCLED MATERIALS (EXCEPT MEMBERS AS ALLOWED IN THE SPECIFICATIONS) SHALL NOT BE USED IN THE CONSTRUCTION. ALL REJECTED MATERIALS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER OR HIS AGENTS.

3. UNLESS OTHERWISE SHOWN, BOLTED CONNECTIONS SHALL BE FRICTION-TYPE CONNECTIONS USING F1852 (A325TC) TENSION CONTROL BOLTING SYSTEM; TWIST-OFF SPLINE TYPE.

4. SHOP CONNECTIONS, UNLESS OTHERWISE SHOWN, MAY BE EITHER BOLTED OR WELDED. ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS SHOWN OTHERWISE ON THE STRUCTURAL DRAWINGS.

5. CONNECTIONS NOT SHOWN SHALL BE SIMILAR TO "SUGGESTED DETAILS" OF PART 4 OF AISC MANUAL AND DESIGNED BY THE STEEL SUPPLIER IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION". SIMPLE SPAN CONNECTIONS SHALL BE DESIGNED FOR ONE-HALF THE BEAM LOAD CAPACITY AS GIVEN IN THE AISC TABLES UNDER SECTION 2 TITLED "ALLOWABLE UNIFORM LOADS IN KIPS FOR BEAMS LATERALLY SUPPORTED".

6. LENGTH OF CONNECTION ANGLES FOR BEAM-TO-COLUMN CONNECTIONS SHALL BE THE LARGEST STANDARD LENGTH "L" WHICH IS NOT LESS THAN (T-3") AND NOT MORE THAN THE "T" DIMENSION OF THE BEAM. STANDARD LENGTHS OF CONNECTION ANGLES ARE FOUND IN "A.I.S.C. MANUAL OF STEEL CONSTRUCTION", NINTH EDITION, FRAMED BEAM CONNECTIONS, TABLE II.

7. STRUCTURAL STEEL MEMBER SIZES, SPACINGS, CONNECTIONS, ETC. SHALL BE DETAILED AND PROVIDED AS SHOWN ON CONTRACT DOCUMENTS. IN THE EVENT THAT THE STRUCTURAL STEEL FABRICATOR/SUPPLIER CHOOSES TO REQUEST CHANGES FROM THE CONTRACT DOCUMENTS, SUCH CHANGES SHALL BE PRESENTED ON DETAILED SHOP DRAWINGS HIGHLIGHTING THE PROPOSED CHANGES. THESE SHOP DRAWINGS, ALONG WITH SUPPORTING CALCULATIONS, MUST BEAR THE STAMP, SIGNATURE & DATE OF A LICENSED STRUCTURAL ENGINEER LICENSED AND PRACTICING IN KENTUCKY. CERTIFICATE OF PROFESSIONAL LIABILITY INSURANCE, IN THE AMOUNT OF $1,000,000.00, SHALL ALSO BE INCLUDED WITH SUCH SUBMITTALS. SHOP DRAWING SUBMITTALS, THAT VARY FROM THE ORIGINAL DESIGN INTENT, THAT ARE NOT INCLUSIVE OF BOTH OF THE ABOVE REQUIREMENTS SHALL BE REJECTED AND RETURNED WITHOUT FURTHER REVIEW. ADDITIONALLY, ALL COSTS INCURRED BY THE ENGINEER OF RECORD FOR REVIEW OF SUCH SUBMITTED CALCULATIONS AND SHOP DRAWING WILL BE BACK-CHARGED TO THE GENERAL CONTRACTOR.

8. UNLESS SHOWN OTHERWISE, ALL COLUMNS SHALL HAVE A BASE PLATE AND A CAP PLATE. BASE PLATES SHALL HAVE A MINIMUM THICKNESS OF 3/4" AND HAVE FOUR BOLT HOLES FOR 3/4" DIAMETER ANCHOR BOLTS. ALL CAP PLATES SHALL HAVE A MINIMUM OF 5/8" THICKNESS AND HAVE TWO 13/16" DIAMETER BOLT HOLES PER BEAM SEATED ON THE COLUMN CAP.

9. PROVIDE VERTICAL WEB STIFFENERS ON EACH SIDE OF WEB OF BEAM AT ALL POINTS SUBJECTED TO CONCENTRATED LOADS SUCH AS COLUMN RESTING ON BEAM, CONTINUOUS BEAM FRAMING OVER COLUMN OR WALL SUPPORT AND BEAM FRAMING INTO A BEAM. THE STIFFENERS SHALL EXTEND TO FULL DEPTH OF BEAM AND THE BOUNDARY OF FLANGE WITH MINIMUM THICKNESS OF 1/2".

10. ANY CAMBER EXISTING IN BEAMS SHALL BE TURNED POSITIVE UPWARD.

11. BURNING OR CUTTING OF HOLES IN STRUCTURAL STEEL IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

12. PROVIDE AN AMOUNT OF STEEL FOR CONTINGENCIES, EQUAL TO THE FOLLOWING, TO BE FABRICATED AND ERECTED AS DIRECTED BY THE ARCHITECT.

L3-1/2 x 3-1/2 x 5/16 – 200 LINEAR FEET (ASTM A-36)

W8 x 24 – 200 LINEAR FEET (ASTM A-992)

GENERAL CONTRACTOR SHALL MAINTAIN AN UP-TO-DATE CONTINGENCY LOG SHEET AND PROVIDE SUCH LOG SHEET TO THE ARCHITECT, AT THE ARCHITECT'S REQUESTS FOR SUCH. GENERAL CONTRACTOR SHALL ALSO PROVIDE A PER POUND UNIT PRICE VALUE FOR THE FABRICATED, ERECTED CONTINGENCY STRUCTURAL STEEL; AND ABIDE BY THIS PRICE FOR THE DURATION OF THE PROJECT.

FULL CREDIT FOR UNUSED QUANTITIES SHALL BE GIVEN TO THE OWNER.

13. THE LATERAL LOADS ON THIS BUILDING ARE RESISTED BY MOMENT FRAMES, WHICH MAY NOT BE BUILT OR AVAILABLE DURING ERECTION OF STRUCTURAL STEEL TO RESIST ANY LATERAL LOADS DURING CONSTRUCTION. THE ERECTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY BRACING OR GUYING DURING ERECTION FOR STABILIZING THE STEEL FRAMING. BRACING SHALL REMAIN IN PLACE UNTIL THE MOMENT FRAMES ARE IN PLACE.

14. BEAMS AND LINTELS BEARING ON MASONRY SHALL HAVE SPECIAL SLIP CONNECTIONS ON BOTH ENDS OF THE BEAMS. REFER TO THE TYPICAL DETAILS FOR BEAM BEARING ON MASONRY.

15. UNLESS NOTED OTHERWISE, PROVIDE FOR AND INSTALL ALL ELEVATOR HOISTWAY BEAMS, SILL ANGLES, GUIDE RAILS, AND ALL OTHER ITEMS NECESSARY FOR THE INSTALLATION AND COMMISSIONING OF THE ELEVATORS. THE ELEVATOR SUPPLIER IS RESPONSIBLE FOR ADEQUATELY SIZING, DETAILING AND LOCATING ALL SUCH ITEMS. COORDINATE WITH ELEVATOR SPEC. AND OTHER DISCIPLINES.

16. CONNECTION DETAILS NOT COMPLETELY DETAILED ON THE DRAWING INCLUDING MATERIAL GRADE AND SIZES, WELD SIZES AND NUMBER OF BOLTS SHALL BE DESIGNED BY THE CONTRACTOR PER THE SPECIFICATIONS. SEE TYPICAL DETAILS FOR CONNECTION DETAILS EXPECTED.

17. ALL BEAMS FRAMING INTO WALLS, CONCRETE COLUMNS AND PIERS, ETC., SHALL BE DETAILED TO ACCOUNT FOR TOLERANCES OF CONCRETE WALL CONSTRUCTION. SEE SPECIFICATIONS FOR ALIGNMENT/ PLUMB TOLERANCES OF CONCRETE WORK.

18. ALL FILLET WELDS SHALL BE A MINIMUM OF 1/4 INCH.

19. SHOP AND FIELD TESTING OF WELDS, INCLUDING THOSE OF PROPRIETARY SYSTEMS (EG: SIDEPLATE) AND BOLTS SHALL BE AS FOLLOWS:

A. ALL WELDS SHALL BE VISUALLY INSPECTED.

B. FILLET WELDS FOR BEAM SHEAR-CONNECTION PLATES (10% AT RANDOM) SHALL BE CHECKED BY MAGENTIC PARTICLE METHOD (ASTM 109) FOR FINAL PASS ONLY.

C. ULTRASONICALLY TEST 100% OF ALL FULL PENETRATION WELDS.

D. ULTRASONICALLY TEST 25% OF ALL PARTIAL PENETRATION COLUMN SPLICE WELDS.

E. VISUALLY INSPECT ALL SHEAR-STUDS ON BEAMS AND EMBED PLATES ACCORDING TO AWS STANDARDS

F. TEST ONE OUT OF EVERY 20 SHEAR-STUDS ON BEAMS AND EMBEDDED PLATES BY BENDING THE STUD 30 DEGREES, ACCORDING TO AWS STANDARDS. WELD TEST FOR FAILURE PER C, ABOVE.

G. THE OWNER'S TESTING AGENCY SHALL PERFORM ALL SHOP AND FIELD INSPECTION AND TESTING. THE STRUCTURAL STEEL FABRICATOR AND ERECTOR SHALL SCHEDULE ALL WORK TO ALLOW THE ABOVE TESTING REQUIREMENTS TO BE COMPLETED.

20. COORDINATE ALL CONSTRUCTION SEQUENCES RELATED TO STEEL WORK AND SET ALL CLEARANCES AND ERECTION PROCEDURES. ALL ADDITIONAL STEEL REQUIRED TO MAINTAIN PLUMB AND LEVELS TO REQUIRED TOLERANCES SHALL BE PROVIDED AT NO ADDITIONAL COST.

21. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATTER.

22. PRIOR TO APPLICATION OF SPRAYED-ON FIREPROOFING, REMOVE, IN THE FIELD, ALL LOOSE MILL SCALE, RUST AND OTHER FOREIGN MATTER.

23. NO PAINTING IS REQUIRED FOR STRUCTURAL STEEL TO RECEIVE SPARY-ON FIREPROOFING.

24. WHERE COMPOSITE STEEL BEAMS ARE SPECIFIED, USE 3/4 INCH DIAMETER BY 4 1/2 INCH HEADED STUDS.

25. QUANTITY OF SHEAR STUDS AND ITS WELD IS BASED ON FULL AISC STUD VALUE FOR 4,000 PSI STONE CONCRETE.

26. MOMENT CONNECTIONS:

A. THE STEEL-FRAMED MOMENT-CONNECTION DETAILS SHOWN IN THESE PLANS ARE BASED ON THE DESIGNS OF A PARTICULAR MANUFACTURER. EQUIVALENT CONNECTIONS OFFERED BY OTHER FABRICATORS, TO CONFORM WITH THE INTENT OF THOSE SHOWN IN THE PLANS, ARE ACCEPTABLE, PROVIDING THE DUCTILITY OF THE CONNECTION, FLEXIBILITY, LOAD PATH, AND MOMENT-RESISTING FRAME PHILOSOPHY, AND ITS BEHAVIOR, ARE EQUIVALENT TO THE SYSTEM SHOWN IN THE PLANS. TO PRESERVE THE INTEGRITY OF THE LOAD PATH, THE LOCATION OF THE MOMENT CONNECTIONS SHALL REMAIN THE SAME AS THAT SHOWN ON THE PLANS.

B. ALL MOMENT CONNECTION DESIGN SHALL BE PERFORMED BY A STRUCTURAL ENGINEER LICENSED IN KENTUCKY. THIS ENGINEER SHALL BE REFERRED TO AS THE SPECIALTY STRUCTURAL ENGINEER (SSE). THE SSE SHALL HAVE PROFESSIONAL LIABILITY INSURANCE TO COVER ERRORS AND OMISSIONS. THE LIABILTY LIMIT SHALL BE NO LESS THAN $1,000,000 PER OCCURRENCE, WITH $2,000,000 MINIMUM AGGREGATE COVERAGE. SUBMIT A CERTIFICATE OF INSURANCE, WITH THE STRUCTURAL ENGINEER OF RECORD (SER) SHOWN AS A CERTIFICATE HOLDER, ATTACHED TO THE CALCULATIONS AND DETAILS FOR THE CONNECTION(S).

C. CONNECTION DESIGN SHALL CONFORM TO THE CURRENT PROVISIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) ANSI/AISC 341-02, TITLED 'SEISMIC PROVISIONS', INCLUDING ITS UPDATES, TO DATE. MOMENT-CONNECTION DETAILS THAT DIFFER FROM THOSE SHOWN IN THE PLANS WILL LIKELY AFFECT DETAILS OF OTHER CONNECTIONS AT THE SAME LOCATION. THE SSE IS RESPONSIBLE FOR REDESIGNING AND/OR MODIFYING THOSE DETAILS AFFECTED, AS APPROPRIATE.

D. SUBMIT ALL CALCULATIONS AND ALL CONNECTION DETAIL DRAWINGS TO THE SER FOR REVIEW. ALL CALCULATIONS, AND THE CONNECTION DESIGN DRAWINGS, SHALL BE SIGNED AND SEALED BY THE SSE. FOR FULL SUBMITTAL ENDORSEMENT REQUIREMENTS SEE THE GENERAL PROVISIONS, ARTICLE 1.4.3.

5.2 STEEL JOIST NOTES

1. STEEL JOIST CONSTRUCTION SHALL CONFORM TO THE STEEL JOIST INSTITUTE'S STANDARDS LISTED UNDER DESIGN NOTES AND "RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AND JOIST GIRDERS", 2005, UNLESS NOTED OTHERWISE.

2. THE MAXIMUM SPACING OF STEEL JOISTS SHALL BE AS SHOWN ON THE STRUCTURAL PLANS. PROVIDE HEADERS AND DOUBLE JOISTS TO FRAME AROUND OPENINGS, WHETHER SHOWN IN THE STRUCTURAL PLANS OR NOT. THE WORK SHALL BE FULLY COORDINATED WITH ALL OTHER TRADES AND DESIGNED TO WITHSTAND THE DESIGN LOADS SHOWN HEREIN IN ADDITION TO CONCENTRATED LOADS FROM EQUIPMENT.

3. ENDS OF STEEL JOISTS SHALL BE ANCHORED TO THE SUPPORTS BY WELDING OR BOLTING, PER S.J.I. AND O.H.S.A. RECOMMENDATIONS AND REQUIREMENTS.

4. PROVIDE JOIST SUBSTITUTES CAPABLE OF CARRYING ALLOWABLE TOTAL SAFE LOADS IN POUNDS PER LINEAR FOOT AS CALLED FOR ON DRAWINGS.

5. EXTEND BOTTOM CHORD OF ALL JOISTS ON COLUMN LINE AND WELD OR BOLT TO COLUMN, AFTER APPLICATION OF DEAD LOADS.

6. BRIDGINGS, WHERE NOT SHOWN ON PLANS, SHALL BE FURNISHED AND INSTALLED TO STABILIZE THE STEEL JOISTS AT THE SPECIFIED DESIGN LOADS.

7. PROVIDE AN ADDITIONAL ROW OF CROSS BRIDGING AT LINE OF SUPPORT FOR ALL JOISTS BEARING AT BOTTOM CHORD.

8. FURNISH AND INSTALL BOTTOM AND TOP CHORD LATERAL BRACING AS REQUIRED FOR STRENGTH AND STABILITY OF JOISTS GIRDERS.

9. TYPICALLY, LOCATE HANGERS AND APPLIED LOADS ONLY AT JOIST PANEL POINTS. UNLESS SPECIFICALLY APPROVED OR DESIGNED BY THE JOIST MANUFACTURER, PROVIDE (2) ADDITIONAL L2-1/2 x 2-1/2 x 1/4 WEB REINFORCEMENTS AT ALL POINTS WHERE SUCH LOADS ARE APPLIED TO THE CHORDS OF THE JOISTS. CONTRACTOR SHALL COORDINATE REQUIREMENTS WITH JOIST SUPPLIER FOR ALL SUCH CONDITIONS.

10. THE JOISTS CARRYING CONCENTRATED LOADS DESIGNATED IN PLANS AS "SP" ARE SPECIAL JOISTS HAVING EQUIVALENT CONFIGURATION OF JOISTS NOTED IN PLAN. THESE SPECIAL JOISTS SHALL BE DESIGNED BY THE MANUFACTURER TO CARRY THE DESIGN LOADS SPECIFIED HEREIN IN ADDITION TO THE CONCENTRATED LOADS. THE FINAL OPERATING LOADS, LOCATION AND METHODS OF ATTACHMENT SHALL BE COORDINATED WITH THE CONTRACTOR BEFORE SUBMITTING THE SHOP DRAWINGS. SUBMIT CALCULATIONS FOR ALL "SP" JOISTS.

11. STEEL JOISTS SIZES, SPACINGS, CONNECTIONS, ETC. SHALL BE DETAILED AND PROVIDED AS SHOWN ON CONTRACT DOCUMENTS. IN THE EVENT THAT THE STEEL JOIST FABRICATOR/SUPPLIER CHOOSES TO REQUEST CHANGES FROM THE CONTRACT DOCUMENTS, SUCH CHANGES SHALL BE PRESENTED ON DETAILED SHOP DRAWINGS HIGHLIGHTING THE PROPOSED CHANGES. THESE SHOP DRAWINGS, ALONG WITH SUPPORTING CALCULATIONS, MUST BEAR THE STAMP, SIGNATURE & DATE OF A LICENSED STRUCTURAL ENGINEER LICENSED AND PRACTICING IN KENTUCKY. CERTIFICATE OF PROFESSIONAL LIABILITY INSURANCE, IN THE AMOUNT OF $1,000,000.00, SHALL ALSO BE INCLUDED WITH SUCH SUBMITTALS. SHOP DRAWING SUBMITTALS, THAT VARY FROM THE ORIGINAL DESIGN INTENT, THAT ARE NOT INCLUSIVE OF BOTH OF THE ABOVE REQUIREMENTS SHALL BE REJECTED AND RETURNED WITHOUT FURTHER REVIEW. ADDITIONALLY, ALL COSTS INCURRED BY THE ENGINEER OF RECORD FOR REVIEW OF SUCH SUBMITTED CALCULATIONS AND SHOP DRAWINGS WILL BE BACK-CHARGED TO THE GENERAL CONTRACTOR.

12. SHOP DRAWINGS SHALL CLEARLY SHOW LOCATION AND ELEVATION OF ALL JOIST SEATS INCLUDING THE LAYOUT NECESSARY FOR CONTRACTOR TO INSTALL JOISTS IN CURVED OR ANGLED SITUATIONS.

5.3 STEEL DECK NOTES

1. THE TYPICAL STEEL ROOF DECK SHALL BE TYPE F36, 1-1/2" DEEP, 22 GAGE GALVANIZED DECK (1.5F36-22) AS MANUFACTURED BY WHEELING OR APPROVED EQUIVALENT. PROVIDE 1-1/2" DEEP, 22 GAGE GALVANIZED ACOUSTICAL DECK (NON-CELLULAR) AS MANUFACTURED BY WHEELING OR APPROVED EQUIVALENT OVER AREAS AS INDICATED BY THE ARCHITECT. COORDINATE ANY/ALL OF THESE SUCH AREAS WITH THE ARCHITECT. SEE SPECIFICATIONS FOR REQUIRED FIRE RATING CERTIFICATION.

2. STEEL FLOOR DECK SHALL BE TENSILFORM TYPE TF, 20 GAGE, 3" NOMINAL DEPTH, GALVANIZED AS MANUFACTURED BY WHEELING OR APPROVED EQUIVALENT. DECKING SUPPLIER SHALL PROVIDE ALL CONCRETE STOPS, FLUTE CLOSURES, TRIM PIECES, SHEET MATERIAL AROUND COLUMNS, ETC. SO AS TO CONSTITUTE A COMPLETE SYSTEM.

3. STEEL DECK CONSTRUCTION SHALL CONFORM TO THE STEEL DECK INSTITUTE'S DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS – PUBLICATION NO. 31, CURRENT EDITION.

4. ALL DECKS SHALL BE THREE OR MORE SPANS CONTINUOUS WHERE POSSIBLE.

5. SEE THE SPECIFICATIONS AND TYPICAL DETAILS FOR MINIMUM REQUIREMENTS FOR FASTENING THE DECK TO ITS SUPPORTS.

6. ALL OPENINGS THROUGH FLOOR OR ROOF DECKS NOT SHOWN ON THE STRUCTURAL PLANS SHALL BE FRAMED FOUR SIDES WITH ANGLE FRAMING SUPPORTED BY THE JOIST, UNLESS NOTED OTHERWISE. OPENINGS 4 FEET WIDE OR LESS PERPENDICULAR TO THE SPAN OF THE DECK SHALL BE FRAMED WITH L4 x 4 x 5/16. OPENINGS GREATER THAN 4 FEET WIDE PERPENDICULAR TO THE SPAN OF THE DECK SHALL BE FRAMED WITH MEMBERS DESIGNED TO CARRY THE SPECIFIED DESIGN LIVE AND DEAD LOADS. OPENINGS THROUGH FLOOR OR ROOF DECKS THAT ARE 6" DIAMETER OR LESS; OR 30 SQUARE INCHES OR LESS; ARE NOT REQUIRED TO BE FRAMED AS NOTED ABOVE.

7. UNLESS NOTED OTHERWISE, PROVIDE L3 x 3 x 1/4 AT UNSUPPORTED DECK BOUNDARIES PARALLEL TO DECK SPAN, AND AT EDGES OF DECKS THAT ARE CUT DIAGONALLY AT SKEWED WALLS AND ALONG BOTH SIDES OF ALL ROOF HIPS AND VALLEYS, ETC.

8. THE STEEL DECK SYSTEM IS DESIGNED AS A WIND FORCE RESISTING DIAPHRAGM. REFER TO GENERAL PROVISION SECTION 5.7 FOR FURTHER REQUIREMENTS.

9. ALL METAL DECKS SHALL BE COMPOSITE DECK DESIGNED FOR THE CONDITIONS SHOWN IN THE DRAWINGS.

10. ASSUME A SUITABLE CONSTRUCTION LIVE LOAD WHICH WILL CONSIDER THE PARTICULAR METHOD OF CONCRETE PLACEMENT. THE ASSUMED CONSTRUCTION LIVE LOAD SHALL NOT BE LESS THAN 20 PSF. THE CONCRETE CONTRACTOR SHALL NOT EXCEED THE CONSTRUCTION LIVE LOADS ASSUMED IN DESIGN WITHOUT TAKING PROPER SAFETY PRECAUTIONS, SUCH AS SHORING.

11. SHEAR-STUDS SHALL BE WELDED THROUGH THE METAL DECK BY PREQUALIFIED METHODS.

12. THE NON-CELLULAR METAL DECK SHALL HAVE WIDE RIBS SUITABLE FOR SHEAR-STUD PLACEMENT. THE CONFIGURATION OF THE METAL DECK SHALL BE SUCH AS TO DEVELOP THE SHEAR VALUE OF THE STUD FOR PARTICULAR WEIGHTS OF THE CONCRETE, AS LISTED IN THE AISC SPECIFICATION, LATEST EDITION.

13. ALL DECK DESIGN IS TO BE ON A NON-SHORED BASIS UNLESS REQUIRED FOR THE DEAD LOAD AND CONSTRUCTION LOAD. THE METAL DECK CONTRACTOR SHALL SPECIFY WHERE SHORING IS NECESSARY IN HIS BID.

14. PROVIDE STRAP ANCHORS, IF REQUIRED, FOR CONTROL OF CANTILEVER DEFLECTION AT EDGE OF FLOOR SLAB.

5.4 STRUCTURAL COLD-FORMED, LIGHT GAGE STEEL FRAMING

1. DESIGN, FABRICATION AND USE:

A. COLD-FORMED STEEL DESIGN MANUAL BY AMERICAN IRON AND STEEL INSTITUTE, CURRENT EDITION, INCLUDING COMMENTARY AND "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", CURRENT EDITION.

B. LIGHTWEIGHT STEEL FRAMING SYSTEMS MANUAL BY METAL LATH/STEEL FRAMING ASSOCIATES, CURRENT EDITION.

2. ALL EXTERIOR WALL FRAMING EXPOSED TO RESIST WIND FORCES SHALL BE TREATED AS STRUCTURAL LIGHT GAGE STEEL FRAMING.

3. ALL STRUCTURAL LIGHT GAGE FRAMING SHALL BE FACTORY PUNCHED PER THE MANUFACTURER. FIELD PENETRATIONS WILL NOT BE PERMITTED.

4. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL LIGHT GAGE FRAMING. SHOW CONNECTIONS TO STRUCTURAL STEEL FRAMING, INCLUDING PROVISIONS FOR DEFLECTION OF STEEL FRAME.

5. DESIGN CRITERIA: LIVE LOAD = 25 PSF HORIZONTAL LOAD APPLIED AGAINST WALLS.; DEFLECTION LIMIT FOR FLOOR FRAMING: L/360 WHERE L = SPAN OF FLOOR FRAMING. FOR STUD WALLS PROVIDING LATERAL SUPPORT FOR MASONRY WALLS, DEFLECTION LIMIT SHALL BE L/480 WHERE L = UNSUPPORTED HEIGHT OF STUD. FOR LINTELS SUPPORTING MASONRY WALLS, DEFLECTION LIMIT SHALL BE L/600 WHERE L = SPAN OF THE LINTEL.

6. CONNECTION DESIGN: ALL FIXED CONNECTIONS SHALL BE WELDED CONNECTIONS (20 GA. MEMBERS MAY BE SCREWED) DESIGNED TO DEVELOP FULL AXIAL TENSILE CAPACITY OF MEMBERS. SHOW ALL CONNECTION DETAILS, BETWEEN LIGHT GAGE FRAMING AS WELL AS TO OTHER STRUCTURAL ELEMENTS ON THE SHOP DRAWINGS.

7. PROVIDE STRUCTURAL STEEL TUBE REINFORCEMENTS AT OPENINGS IF LIGHT GAGE FRAMING IS NOT FEASIBLE.

8. STRUCTURAL LIGHT GAGE STEEL FRAMING SHOWN IN THESE PLANS IS BASED ON THE PRODUCTS OF A PARTICULAR MANUFACTURER AND IS SHOWN TO ILLUSTRATE THE CONCEPT AND METHODS BEHIND THE SYSTEM. THE DESIGNS ARE BY NO MEANS EXPLICIT AND ALL PANELS AND CONNECTIONS NECESSARY TO CONSTRUCT A SYSTEM WHICH IS CAPABLE OF CARRYING THE LOADS PRESCRIBED BY THE LOCAL BUILDING CODES IS NOT SHOWN. THE FRAMING CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND DETAILING ALL CONNECTIONS AND PANELS REQUIRED TO COMPLETE THE EXTERIOR WALL FRAMING PER LOCAL BUILDING CODE REQUIREMENTS.

9. ALL DESIGNS SHALL BE PERFORMED BY A REGISTERED ENGINEER LICENSED TO PRACTICE IN THE STATE OF KENTUCKY. STRUCTURAL ENGINEER SHALL CARRY PROFESSIONAL LIABILITY INSURANCE FOR $1,000,000.00 MIN. SUBMIT INSURANCE CERTIFICATE, DESIGN CALCULATIONS AND SHOP DRAWINGS STAMPED BY THE ENGINEER FOR REVIEW BY THE ARCHITECT. SUBMITTALS, NOT ACCOMPANIED WITH CERTIFICATE OF PROFESSIONAL LIABILITY INSURANCE, WILL BE RETURNED WITHOUT FURTHER REVIEW.

5.5 STEEL LINTELS NOTES (U.N.O)

1. STEEL LINTELS SCHEDULE:
8" MIN. BEARING EACH END.
L.L.V. – LONG LEG VERTICAL.

OPENING WIDTH	NUMBERS OF MEMBERS PER THICKNESS OF MSRY.	MIN. MEMBER SZ.
LESS THAN 3'-4"	1 PER 4" THICK	L3-1/2 x 3-1/2 x 3/8
3'-4" BUT LESS THAN 5'-6"	1 PER 4" THICK	L5 x 3-1/2 x 3/8 (L.L.V.)
5'-6" BUT LESS THAN 8'-6"	1 PER 4" THICK	L6 x 3-1/2 x 3/8 (L.L.V.)
8'-6" BUT LESS THAN 10'-6"	1 PER OPENING	W8 x 21 + 3/8" PLATE @ BOT. FLG. FOR 6" CMU W8 x 28 + 3/8" PLATE @ BOT. FLG. FOR 8" CMU W8 x 35 + 3/8" PLATE @ BOT. FLG. FOR 12" CMU

SEE THE TYPICAL DETAILS FOR STEEL LINTEL VARIATIONS, OPTIONS, BEARINGS, ETC.

5.6 WELD NOTES

1. E70XX ELECTRODES SHALL BE USED FOR ALL WELDS.

2. FIELD WELDING OF STRUCTURAL STEEL, JOISTS AND DECKING SHALL ONLY BE UNDERTAKEN BY APPROVED, CERTIFIED WELDERS. SUBMIT WELDING CERTIFICATES TO THE ARCHITECT FOR REVIEW.

3. WELDING OF WET CONTACT SURFACES IS NOT PERMITTED. STEPS SHALL BE TAKEN TO PRE-DRY THE CONTACT SURFACES UNDER SUCH CONDITIONS. WELDING OF SURFACES EXPOSED TO PRECIPITATION IS ALSO NOT PERMITTED UNLESS TEMPORARY ENCLOSURES ARE PROVIDED TO BLOCK THE PRECIPITATION. SUCH ENCLOSURES, AT CONTRACTOR'S OPTION, SHALL BE PROVIDED AT NO ADDITIONAL COSTS TO THE OWNER OR THE OWNER'S AGENTS.

4. STEEL CONTACT SURFACES MUST BE A MINIMUM OF 40 DEGREES FAHRENHEIT FOR WELDING OPERATIONS TO TAKE PLACE. PRE-HEATING OF CONTACT SURFACES MAY BE UNDERTAKEN, AT THE CONTRACTOR'S OPTION. THE CONTRACTOR IS REQUIRED TO PROVIDE PROPER INSTRUMENTS, SUCH AS MAGNETIC THERMOMETERS, THAT ARE DESIGNED FOR MEASURING THE STEEL TEMPERATURE WITH NO INFLUENCES FROM THE SURROUNDING AIR TEMPERATURES. TEMPERATURE MEASUREMENTS SHALL BE REQUIRED AT NO LESS THAN 25% OF THE WELDED CONNECTIONS WHEN THE AIR TEMPERATURE HAS FALLEN BELOW 45 DEGREES FAHRENHEIT WITHIN THE PAST 24 HOURS; AND AT 100% OF THE WELDED CONNECTIONS WHEN THE AIR TEMPERATURE HAS FALLEN BELOW 40 DEGREES FAHRENHEIT WITHIN THE PAST 24 HOURS. TEMPERATURE MEASUREMENTS SHALL BE TAKEN WITHIN SIX INCHES OF THE PROPOSED WELDED CONNECTIONS.

5. PRE-HEATING OF STEEL THAT HAS FALLEN UNDER 40 DEGREES FAHRENHEIT SHALL COMPLY WITH THE RECOMMENDATIONS OF THE A.I.S.C. AND THE A.W.S. THE CONTRACTOR IS REQUIRED TO MONITOR THE TEMPERATURE OF EACH PRE-HEATED AREA USING EITHER STEEL TEMPERATURE MEASURING DEVICES THAT ARE DESIGNED FOR SUCH READINGS; OR BY THE USE OF A TEMPSTICK CRAYON DESIGNED TO MELT AT THE TEMPERATURE OF AT LEAST 100 DEGREES FAHRENHEIT. ABSOLUTELY NO PRE-HEATING OR WELDING OF STEEL SHALL TAKE PLACE WHEN THE SURROUNDING AIR TEMPERATURE HAS FALLEN BELOW ZERO DEGREES FAHRENHEIT WITHIN THE PAST 24 HOURS.

5.7 ROOF DIAPHRAGM

1. THE ROOF DECK IN THIS BUILDING IS DESIGNED AS A STRUCTURAL DIAPHRAGM TO RESIST THE HORIZONTAL SHEAR FROM WIND AND SEISMIC LOADS TO THE SHEAR WALLS.

2. THE ROOF DECK SHALL BE MADE CONTINUOUS AT ALL RIDGES, HIPS AND VALLEYS USING A 16 GAGE (0.0598") THICK MINIMUM BENT PLATE AND SCREWING OR WELDING THE BENT PLATE TO THE ROOF DECK ON BOTH SIDES OF THE RIDGE, HIP OR VALLEY. LEGS OF BENT PLATE SHALL BE 6" MINIMUM AND AS NECESSARY TO FACILITATE PROPER LAP BETWEEN THE LEG AND METAL DECK. WELDING OR SCREWING (FASTENINGS) SHALL MEET THE MINIMUM FASTENER SPECIFICATIONS SPECIFIED HEREIN UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED ELSEWHERE.

3. THE MINIMUM ALLOWABLE SHEAR CAPACITY OF THE DIAPHRAGM AND CONNECTION SHALL BE 600 POUNDS PER LINEAR FOOT. THE FACTOR OF SAFETY FOR WELDED DIAPHRAGM SHALL BE 2.75 AND THAT FOR MECHANICALLY FASTENED SHALL BE 2.35. ULTIMATE SHEAR CAPACITY OF THE DIAPHRAGM SHALL BE THE ALLOWABLE SHEAR CAPACITY MULTIPLIED BY THE FACTOR OF SAFETY.

4. FOR WELDED DIAPHRAGM, MINIMUM WELDING REQUIREMENT IS AS FOLLOWS: THE SUPPORT FASTENERS SHALL BE 3/4" PUDDLE WELD SPACED AT 6" ON CENTERS AND THE SIDE LAP FASTENERS SHALL BE EITHER 5/8" PUDDLE WELD OR A 3/8" X 1 1/4" ARC SEAM WELD SPACED AT 12" MAXIMUM ON CENTERS OR MINIMUM FIVE WELDS BETWEEN THE SUPPORTS; WHICHEVER IS MORE STRINGENT.

5. FOR MECHANICALLY FASTENED DIAPHRAGM, MINIMUM FASTENING REQUIREMENT IS AS FOLLOWS: THE SUPPORT FASTENERS SHALL BE HILTI ENP2K & HSN SERIES FASTENERS SPACED AT 6" ON CENTERS AND THE SIDE LAP FASTENERS SHALL BE #10 TEK SCREWS SPACED AT 7 1/2" MAXIMUM ON CENTERS OR MINIMUM EIGHT FASTENERS BETWEEN THE SUPPORTS; WHICHEVER IS MORE STRINGENT. FOR ATTACHMENT TO STRUCTURAL STEEL SECTIONS USE HILTI ENP2 FASTENERS.

6. THE DECK SHEAR SHALL BE TRANSFERRED TO THE SHEAR WALLS THROUGH BENT COLLECTOR PLATES OF 14 GAGE (0.0747") INSTALLED BETWEEN THE TRUSSES/JOISTS AND FASTENED TO THE ROOF DECK AS PER THE MINIMUM FASTENING SPECIFIED HEREIN. THE BENT PLATES SHALL BE WELDED TO THE EMBEDDED ANGLE OVER THE TOP OF THE WALL USING 1/8" FILLET WELD X 2" LONG SPACED AT 12" ALTERNATELY. THIS CONDITION IS TYPICAL OVER THE ENTIRE LENGTH OF THE OUTER BOUNDARY WALLS AS WELL AS INTERIOR SHEAR WALLS. IF TRUSSES ARE LOCATED OVER AND PARALLEL TO THE INTERIOR SHEAR WALLS AND CONNECTED TO THE SHEAR WALLS ALONG THE LENGTH OF THE TRUSS, BENT PLATES ARE NOT NECESSARY OVER THESE INTERIOR WALLS.

7. ROOF DECKING CONTRACTOR IS RESPONSIBLE FOR FURNISHING THE NECESSARY BENT PLATES AT ALL PLANE BREAKS, 14 GAGE BENT COLLECTOR PLATES, SUPPORT EDGE ANGLES AND FASTENERS AS WELL AS NECESSARY LABOR TO INSTALL A COMPLETE DIAPHRAGM SYSTEM AS DESCRIBED HEREIN.

8. THE DIAPHRAGM CONTRACTOR SHALL HAVE MINIMUM FIVE YEARS EXPERIENCE IN INSTALLING STEEL DECK DIAPHRAGMS SIMILAR TO THOSE SHOWN IN THE PLANS. SUBMIT AT LEAST FIVE SIMILAR PROJECTS COMPLETED IN THE PAST FIVE YEARS WITH THE PROJECT, LOCATION, OWNER, ARCHITECT AND STRUCTURAL ENGINEER ALONG WITH THEIR ADDRESSES AND TELEPHONE NUMBERS. SEISMIC DESIGN CATEGORY OF THE PROJECTS SUBMITTED SHALL BE "D" AS PER KENTUCKY BUILDING CODE, CURRENT EDITION.

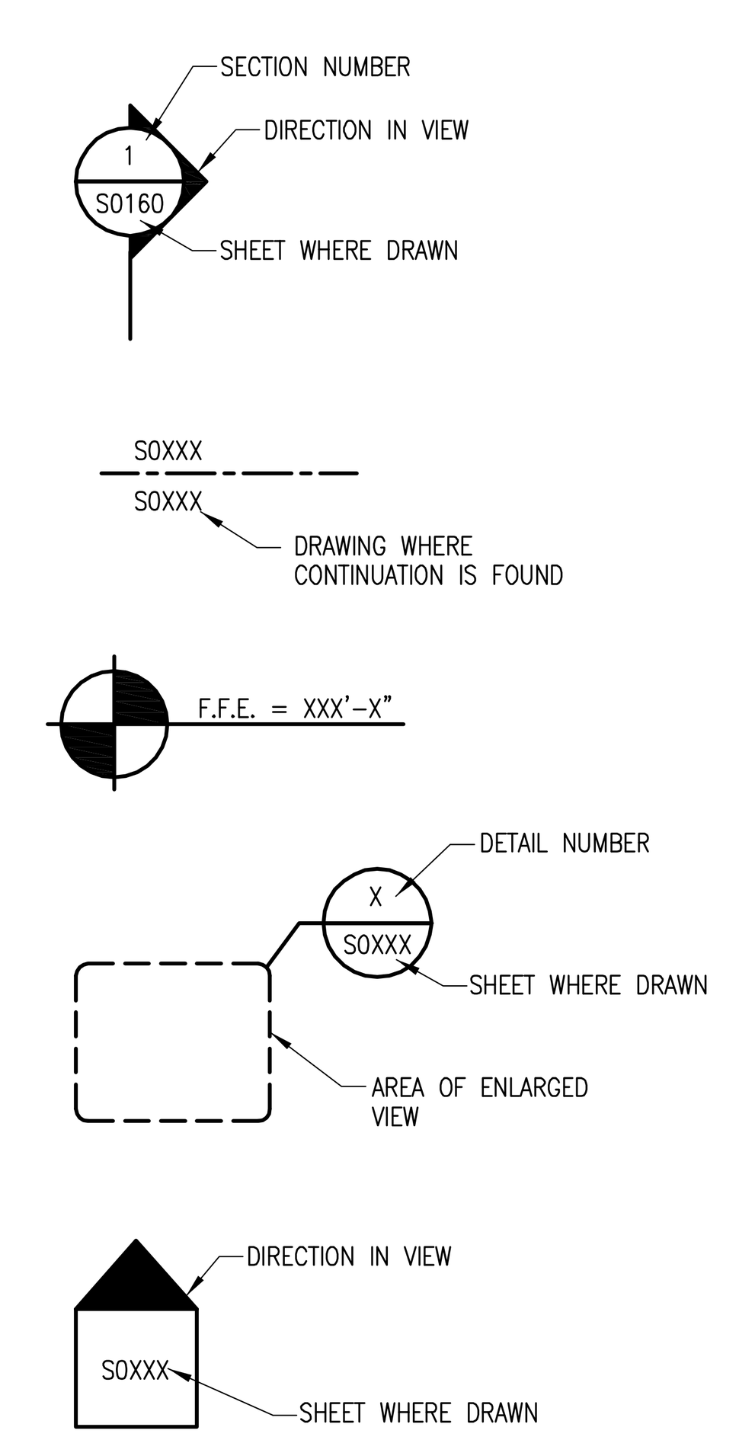
9. THE DIAPHRAGM DESIGN IS BASED ON FASTENERS FROM A SPECIFIC MANUFACTURER. ALTERNATE DESIGNS BASED ON FASTENERS MANUFACTURED BY OTHER MANUFACTURERS MAY BE CONSIDERED PROVIDED THE DESIGN IS CERTIFIED BY A STRUCTURAL ENGINEER LOCATED AND LICENSED IN THE STATE OF KENTUCKY AND THE DIAPHRAGM DESIGN VALUES ARE JUSTIFIED BY ICBO EVALUATION REPORTS. STRUCTURAL ENGINEER SHALL CARRY PROFESSIONAL LIABILITY INSURANCE FOR $1,000,000.00 MIN. SUBMIT INSURANCE CERTIFICATE, DESIGN CALCULATIONS AND SHOP DRAWINGS STAMPED BY THE ENGINEER FOR REVIEW BY THE ARCHITECT. SUBMITTALS, NOT ACCOMPANIED WITH CERTIFICATE OF PROFESSIONAL LIABILITY INSURANCE, WILL BE RETURNED WITHOUT FURTHER REVIEW.

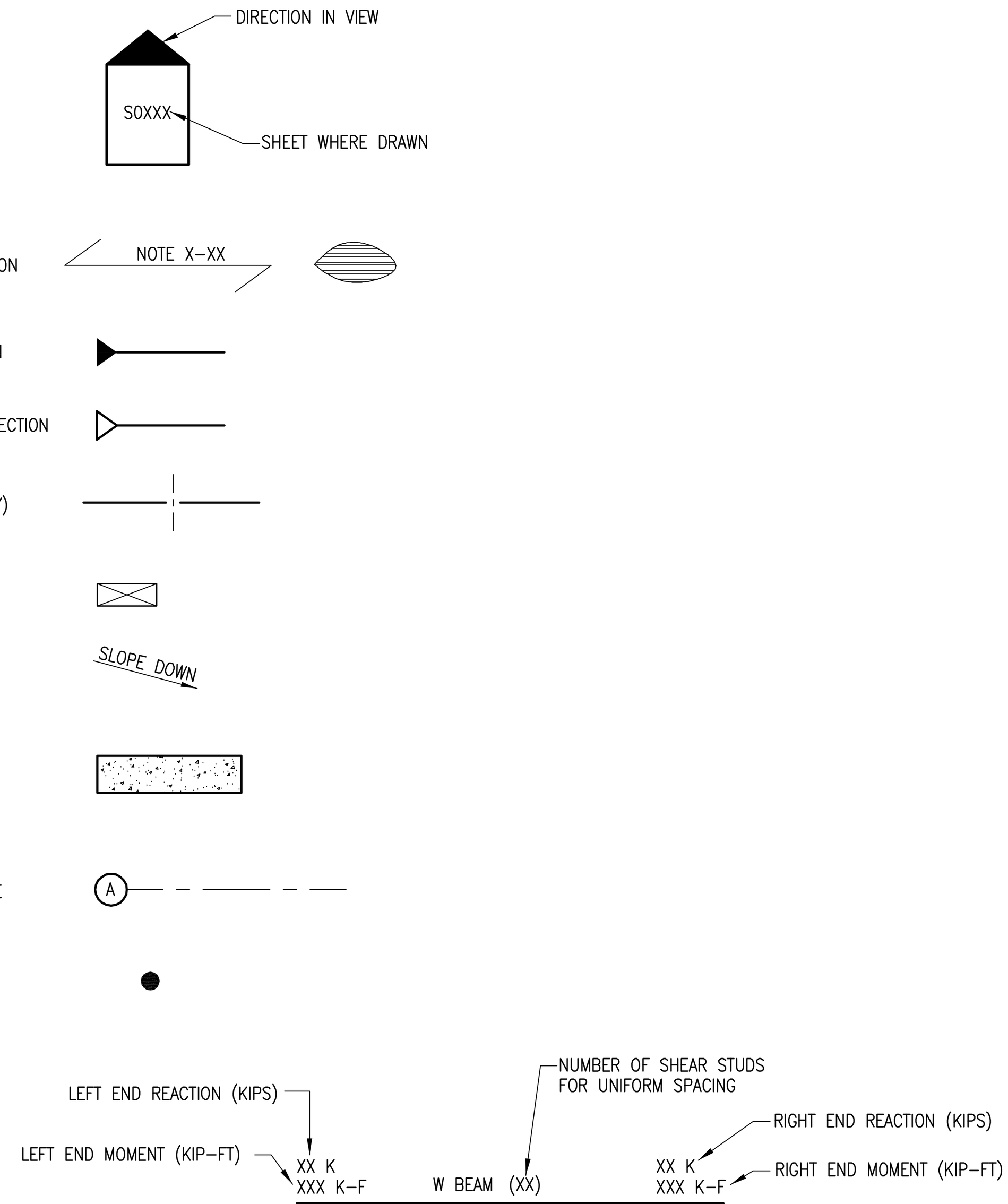
6.1 ABBREVIATIONS

ABBREVIATIONS					
A.B.	–	ANCHOR BOLT	IN.	–	INCH/INCHES
ADD'L.	–	ADDITIONAL	INV.	–	INVERT
A.F.F.	–	ABOVE FINISHED FLOOR			
ALT.	–	ALTERNATE/ ALTERNATIVE	JNT.	–	JOINT
			JST.	–	JOIST
ALUM.	–	ALUMINUM	J.B.E	–	JOIST BEARING ELEVATION
APPROX.	–	APPROXIMATE			
ARCH.	–	ARCHITECT/ ARCHITECTURAL	L.L.V.	–	LONG LEG VERTICAL
@	–	AT	L.S.H.	–	LONG SIDE HORIZONTAL
B./BOTT./BOT.	–	BOTTOM	L.P.	–	LOW POINT
B.F.F.	–	BELOW FINISHED FLOOR	LYR.	–	LAYER/LAYERS
BLDG.	–	BUILDING			
BM.	–	BEAM	MAX.	–	MAXIMUM
B.O.	–	BOTTOM OF	MACH.	–	MACHINE/MACHINERY
B.O.S.	–	BOTTOM OF STEEL	M.C.	–	MECHANICAL CONTRACTOR
BRDG.	–	BRIDGING	MCJ	–	MASONRY CONTROL JOINT
B.S.	–	BRICK SHELF	MECH.	–	MECHANICAL
B/W	–	BETWEEN	MFGR.	–	MANUFACTURER/ MANUFACTURING
			MAT'L.	–	MATERIAL
C/C, c/c	–	CENTER TO CENTER (IN INCHES U.N.O.)	MID.	–	MIDDLE/ MID-POINT
			MIN.	–	MINIMUM
CANT.	–	CANTILEVER	MSRY.	–	MASONRY
C.I.P.	–	CAST IN PLACE	MTL.	–	METAL
C.J.	–	CONTROL JOINT			
℄	–	CENTER LINE	NEC.	–	NECESSARY
CLR. , CL.	–	CLEAR	N.F.	–	NEAR FACE
CMU	–	CONCRETE MASONRY UNIT	N.T.S.	–	NOT TO SCALE
COL.	–	COLUMN	O.D.	–	OUTSIDE DIAMETER
CONC.	–	CONCRETE	O.F.	–	OUTSIDE FACE
CONSTR.	–	CONSTRUCTION	OPNG.	–	OPENING
CONN.	–	CONNECTION	OPP.	–	OPPOSITE
CONT.	–	CONTINUOUS	OR EQ.	–	OR EQUAL/EQUIVALENT (SEE NOTE BELOW)
CORP.	–	CORPORATION			
CTR.	–	CENTER	o.c. OR O/C	–	ON CENTERS
DET.	–	DETAIL	PERIM.	–	PERIMETER
DIA. OR ø	–	DIAMETER	℄	–	PLATE
DIM.	–	DIMENSION	PRO.	–	PROPOSED
DN.	–	DOWN	P.R.V.	–	PRESSURE RELIEF VALVE
DO.	–	DITTO	PT.	–	POINT
DP.	–	DEEP			
DWG.	–	DRAWING	R.C.	–	REINFORCED CONCRETE
DWL.	–	DOWEL	REINF.	–	REINFORCED/ REINFORCEMENT
EA.	–	EACH	REQ'D.	–	REQUIRED
EL., ELEV.	–	ELEVATION	REQ'T.	–	REQUIREMENT
E.F.	–	EACH FACE	SIM.	–	SIMILAR
E.J.	–	EXPANSION JOINT	SEC.	–	SECTION
ELEC.	–	ELECTRIC/ELECTRICAL	S.C.J.	–	SAWN CONTROL JOINT
EMB./EMBED.	–	EMBEDMENT			
EQ.	–	EQUAL/EQUIVALENT	S.J.I.	–	STEEL JOIST INSTITUTE
E.W.	–	EACH WAY	SP.	–	SPACE/SPACES
EXP.	–	EXPANSION	SPEC.	–	SPECIFY/SPECIFICATIONS
EXTG.	–	EXISTING	SQ. OR ⌷	–	SQUARE
			S.S.	–	STAINLESS STEEL
F.D.	–	FLOOR DRAIN	STAG.	–	STAGGER/STAGGERED
F.F.	–	FAR FACE	STIFF.	–	STIFFENER
FIN.	–	FINISH/FINISHED	STD.	–	STANDARD
FLG.	–	FLANGE	STIRR.	–	STIRRUP
FLR.	–	FLOOR	STL.	–	STEEL
FND.	–	FOUNDATION	STR.	–	STRAIGHT
FT.	–	FOOT/FEET			
FTG.	–	FOOTING	T.	–	TOP
F.F.E.	–	FINISHED FLOOR ELEVATION	TH., THK.	–	THICK/THICKNESS
			THRU	–	THROUGH
			T.O.	–	TOP OF
GA.	–	GAGE	T.O.S.	–	TOP OF STEEL
G.C.	–	GENERAL CONTRACTOR	TRANS.	–	TRANSVERSE
			TYP.	–	TYPICAL/TYPICALLY
GR.	–	GRADE/GROUND	T.O.F. / T/F	–	TOP OF FOOTING
GRTG.	–	GRATING	T/W	–	TOP OF WALL
H.	–	HORIZONTAL REINFORCING	U.N.O.	–	UNLESS NOTED OTHERWISE
HK.	–	HOOK	V., VERT.	–	VERTICAL
HORIZ.	–	HORIZONTAL	V.I.F.	–	VERIFY IN FIELD
H.P.	–	HIGH POINT	V.W.A.	–	VERIFY WITH ARCHITECT
HR.	–	HANDRAIL			
HT.	–	HIGH/HEIGHT	w/	–	WITH
			WD.	–	WIDE/WIDTH
I.D.	–	INSIDE DIAMETER	W.P.	–	WORK POINT
I.F.	–	INSIDE FACE	W.S.	–	WATERSTOP

NOTE: "OR EQUAL" MEANS EQUIVALENT IN THE OPINION OF THE ENGINEER.
"PROVIDE FOR" MEANS FURNISH AND INSTALL INCLUDING COORDINATION WITH MATERIAL AND EQUIPMENT SUPPLIERS' REQUIREMENTS.

7.1 SYMBOLS AND NOTATIONS





END OF GENERAL PROVISIONS

DISCLAIMER NOTE:
THIS SET OF CONSTRUCTION DRAWINGS HAS BEEN UPDATED TO INCLUDE ANY CHANGES ISSUED THROUGH ADDENDUM OR OTHER MEANS. EVERY EFFORT HAS BEEN TAKEN TO INCLUDE ALL CHANGES TO DATE. THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING ANY ITEMS THAT WERE SHOWN AS PART OF THE ORIGINAL BID SET THAT MAY HAVE BEEN OVERLOOKED AND NOT INCLUDED IN THIS SET.

University of Louisville – Student Recreation Center (Phase #3 – Construction Set) **Louisville, Ky**

RANGASWAMY AND ASSOC., INC.
Suite 420, The Landmark Building
Louisville, Kentucky 40202.
phone : (502)589-2212
Fax : (502)589-2240 : www.rangaswamy.com
consulting engineers

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

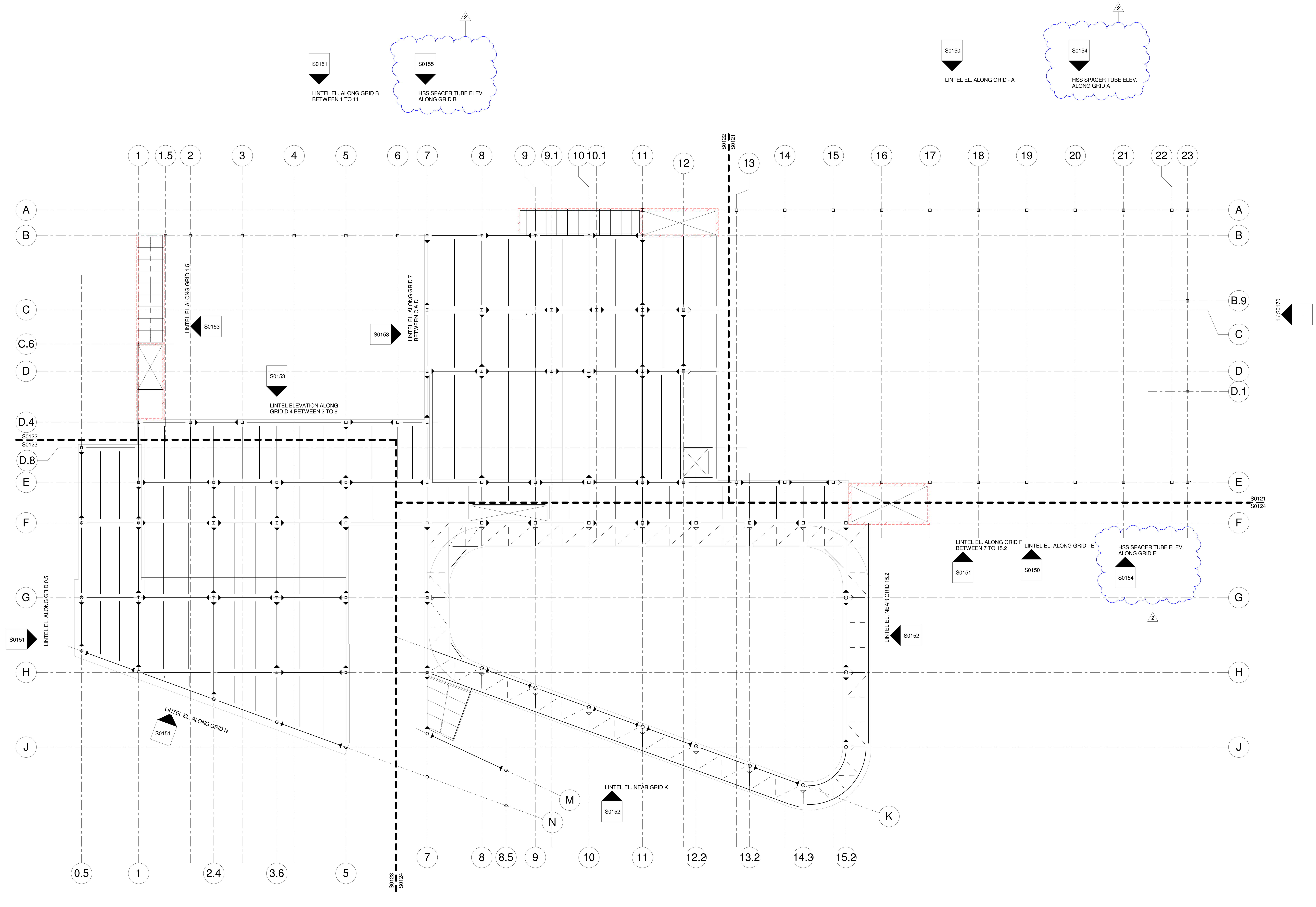
CANNONDESIGN

UNIVERSITY OF LOUISVILLE

#	Revision Date

Drawing Name: GENERAL PROVISIONS CONT'D
U of L Project Number:
Project Number: Omni – 1105.00 Cannon – 03667.00
Date: March 02, 2012
Drawn By: PGK Checked By: ANTHONY

S0001



OVERALL MEZZANINE FLOOR FRAMING PLAN

SCALE : 1/16" = 1'-0"

1
S0120

LEGEND:

= CLOUDED ITEMS WHERE CHANGED PER ADDENDUM

1 ← ADDENDUM NUMBER

DISCLAIMER NOTE:

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02-03-2012 16:12:23

University of Louisville - Student Recreation Center (Phase #3 - Construction Set) Louisville, Ky

RANGASWAMY AND ASSOC., INC.
Suite 402, The Lexington Building
Louisville, Kentucky 40202
phone: (502)569-2212
Fax: (502)569-2240 www.rangaswamy.com

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

UNIVERSITY OF LOUISVILLE

#	Revision Date
2	Jan 24, 2012

Drawing Name: OVERALL MEZZANINE FLOOR FRAMING PLAN

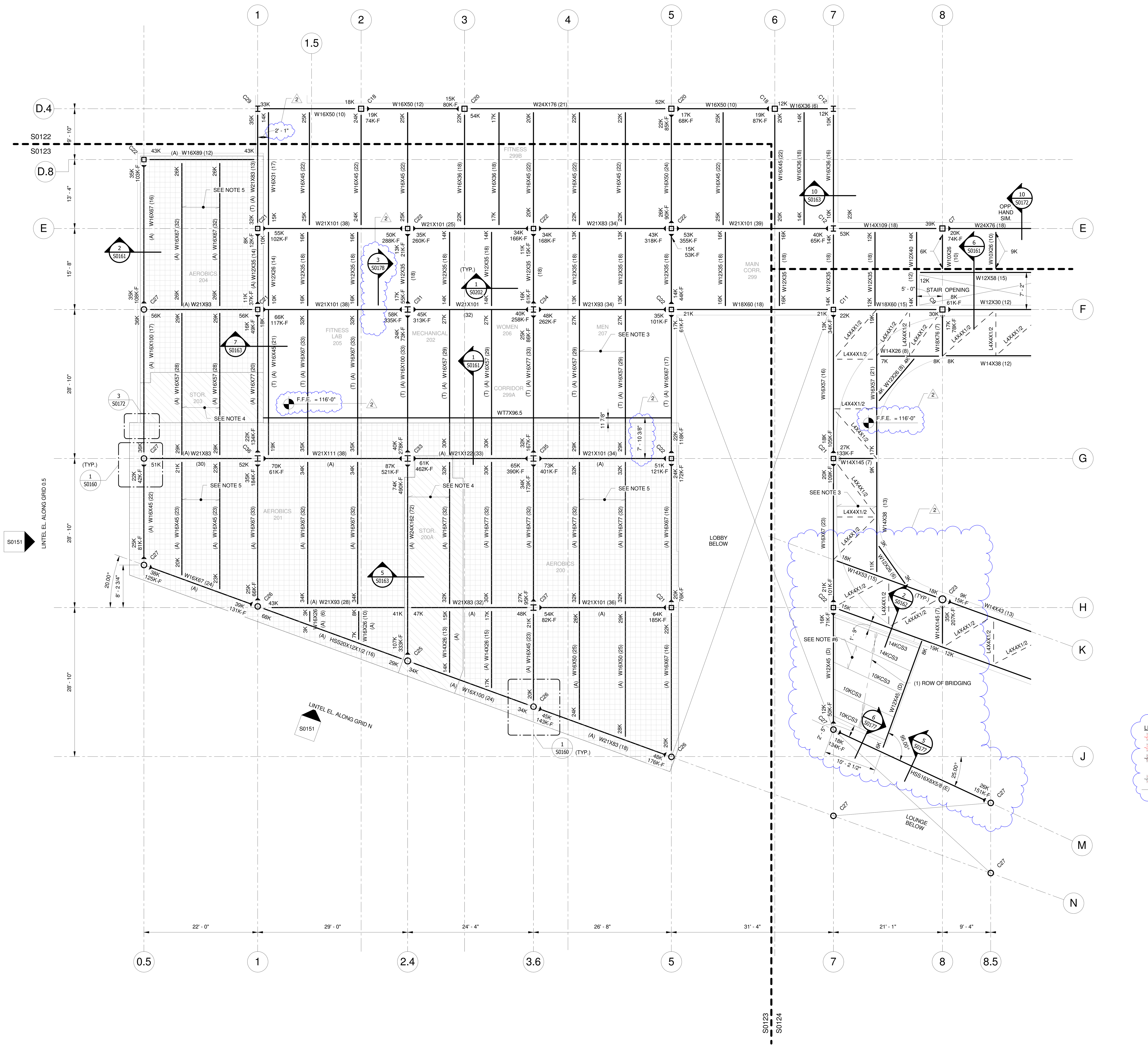
U of L Project Number:

Project Number: Omni - 1105.00 Cannon - 03667.00

Date: March 02, 2012

Drawn By: VPP Checked By: ANTHONY

S0120



MEZZANINE FLOOR FRAMING PLAN- AREA-C

SCALE : 1/8" = 1'-0"

1 / S0123

MEZZANINE FLOOR FRAMING NOTES:

1. ESTABLISHED ELEVATIONS:

F.F.E.	116'-0" UNO
TOP OF BEAM EL.	115'-5 3/4" UNO

ELEVATIONS ARE TO BE AS INDICATED ABOVE, UNLESS OTHERWISE NOTED +/- INCHES ABOVE/BELOW.

2. MAXIMUM SPACING BETWEEN FLOOR BEAMS, AND BETWEEN ALL OTHER FLOOR BEARING MEMBERS, SHALL NOT EXCEED 11'-0" C/C.

3. TYPICAL FLOOR SLAB (6 1/4" TOTAL DEPTH) : 3 1/4" LIGHT WEIGHT CONCRETE w/FIBERMESH ON 3 VLI, 18 GAGE,GALVANIZED METAL DECK BY VULCRAFT OR APPROVED EQUIVALENT (TYP., U.N.O.)

4. FLOOR SLAB [6 1/4" TOTAL DEPTH] 3 1/4" MIN. LIGHT WEIGHT CONCRETE W/FIBERMESH ON 3VLI 18 GAGE GALVANIZED METAL DECK BY VULCRAFT OR APPROVED EQUIVALENT (TYP. U.N.O.) AND 4 3/4" TOPPING SLAB W/FIBERMESH CONCRETE ABOVE INSULATION. SEE DETAIL (5/S0163).

5. FLOOR SLAB [6 1/4" TOTAL DEPTH] 3 1/4" MIN. LIGHT WEIGHT CONCRETE W/FIBERMESH ON 3VLI, 18 GAGE GALVANIZED METAL DECK BY VULCRAFT OR APPROVED EQUIVALENT (TYP. U.N.O.) AND SLAB [4" TOTAL DEPTH] 2 1/2" MIN. LIGHT WEIGHT CONCRETE W/FIBERMESH ON 1.5C, 20 GAGE GALVANIZED METAL DECK BY VULCRAFT OR APPROVED EQUIVALENT ABOVE ISO-LAT SYSTEM. SEE DETAIL (5/S0163).

6. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR HOUSEKEEPING AND/OR EQUIPMENT PADS, CURB SIZES AND LOCATIONS. SIZES AND LOCATIONS OF PAD SHALL BE VERIFIED WITH APPROVED MANUFACTURER'S EQUIPMENT SHOP DRAWING PRIOR TO CONSTRUCTION.

7. ALL FLOOR DRAINS MAY NOT BE SHOWN. COORDINATE EXACT LOCATIONS AND QUANTITIES WITH THE PLUMBING DRAWING. PROVIDE POSITIVE SLOPES (WARPS) IN T.O. FLOOR SLAB IN ORDER TO PROVIDE REQUIRED DRAINAGE. COORDINATE FLOOR FINISHES WITH THE ARCHITECT.

8. ALL BEAMS HAVE 1 ROW OF STUDS (UNO).

NUMBER OF STUDS PER BEAM DENOTED THUS ( )

9. COLUMN CALLOUT DENOTED THUS:

Cxx ◄—— COLUMN DESIGNATION [SEE COLUMN SCHEDULE]

10. PROVIDE #4@12" o.c TOP TRANSVERSE, OVER ALL BEAMS W/#4@12" o.c. LONGIT. (TYP.) SEE TYPICAL COMPOSITE SLAB REINF. DETAIL (1/S0202).

11. REFER TO ARCHITECTURAL DRAWINGS AND MEP DRAWINGS FOR SLAB OPENINGS AND PENETRATIONS.

12. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DIMENSION AND CONSTRUCTION, SLAB DEPRESSIONS AND ELEVATOR OPENINGS.

13. SEE STRUCTURAL LINTEL ELEVATION SHEETS FOR LINTEL BEAMS AND METAL PANEL FRAMING DETAILS.

14. PROVIDE 1/4" THICK BENT PLATE OR 1/4" THICK ANGLE FOR ALL DECK EDGE FRAMING, IF THE CANT. LENGTH IS LESS THAN OR EQUAL TO 1'-0". FOR COMPOSITE DECK EDGE DETAIL SEE 2/S0202.

15. PROVIDE ADD'L REINF. (2) #5 BENEATH NON-LOAD BEARING CMU WALLS FOUNDED ON FLOOR SLAB.

16. PROVIDE SLIP CONNECTION PER DETAIL 2/S0200 FOR BEAMS BEARING ON MASONRY.

17. COORDINATE WITH ARCH. FOR SLAB EDGE / BOUNDARY DETAILS.

ROOF FRAMING NOTES:

#1. ☐◄—— : INDICATES JOIST BOTTOM CHORD EXTENSION. MAKE FINAL ATTACHMENT TO COLUMN ONLY WHEN ALL ROOF DEAD LOADS ARE IN PLACE. JOISTS LOCATED ON COLUMN LINES SHALL ALWAYS BE "KCS" SERIES JOISTS AND THE JOIST END MOMENT SHALL BE 75% OF THE JOIST M0MENT CAPACITY.

#2. MAXIMUM SPACING BETWEEN STEEL BAR JOISTS SHALL NOT EXCEED 5'-0" C/C, U.N.O.

#3. UNLESS NOTED OTHERWISE, ALL ROOF JOIST SEATS SHALL BE 4" DEEP.

#4. TERMINATE ALL S.J.I. BRIDGING LINES AS SHOWN ON DETAILS 5/S0200 (SIMILAR), 12/S0200 & 10/S0201.

#5. ALL JOISTS SHALL BEAR ON STEEL BEAMS OR STEEL PLATES THAT ARE SOLIDLY GROUTED INTO CMU. DO NOT BEAR JOISTS ON HOLLOW CMU BLOCKS, WOOD, ETC. UNLESS APPROVED BY THE ARCHITECT. WELD OR BOLT JOISTS TO BEARING STEEL PER THE JOIST SUPPLIER'S SHOP DRAWING DETAILS.

#6. TYPICAL ROOF DECK TYPE B, 1 1/2" DEEP 20 GAGE G-90 DECKING BY VULCRAFT OR APPROVED EQUIVALENT. (TYP. U.N.O.)

#7. FIELD MODIFICATIONS TO BAR JOISTS SHALL ONLY BE PERFORMED WITH THE PERMISSION OF THE JOIST SUPPLIER.

#8. ALL OPENINGS THROUGH THE ROOF THAT EXCEED 6" DIAMETER OR 30 SQUARE INCHES SHALL HAVE THE DECK SUPPORTED USING STEEL MEMBERS, JOIST HEADERS, ETC. - SEE DETAIL 7/S0201.

#9. WELD OR SCREW METAL DECK TO SUPPORTS PER THE DECKING SUPPLIER'S SHOP DRAWING DETAILS. DECKING SUPPLIER MUST GRANT PERMISSION FOR ANY CHANGES TO THE ATTACHMENT METHODS.

#10. ALL WATER PIPES OVER 3" IN DIAMETER SHALL BE HUNG FROM JOIST PANEL POINTS OR JOIST CHORDS SHALL BE REINFORCED PER TYPICAL DETAIL 4/S0200.

#11. MECHANICAL EQUIPMENT HANGING UNDER THE ROOF JOISTS SHALL BE SUPPORTED BY AT LEAST THREE JOISTS. SEE TYPICAL DETAILS FOR JOIST REINFORCEMENT REQUIREMENTS. STRUCTURAL IS NOT RESPONSIBLE FOR THE DESIGN OF THE ACTUAL MEMBERS USED TO DISTRIBUTE, SUPPORT AND ISOLATE THE ACTUAL EQUIPMENT AND IT'S LOADS.

#12. MECHANICAL EQUIPMENT SITTING ON THE ROOF SHALL BE LOCATED SO THAT RELATIVE ROOF OPENINGS FOR THE EQUIPMENT DO NOT INTERFERE WITH JOISTS OR BRIDGING LINES. SEE DETAIL 7/S0201 FOR DECK SUPPORT AT ROOF OPENINGS.

#13. RD INDICATES ROOF DRAIN. ALL ROOF DRAINS MAY NOT BE SHOWN. COORDINATE EXACT LOCATIONS AND QUANTITIES WITH THE PLUMBING DRAWINGS. PROVIDE POSITIVE SLOPES/WARPS TO THE ROOF IN ORDER TO PROVIDE REQUIRED DRAINAGE. COORDINATE ROOF FINISHES WITH THE ARCHITECT.

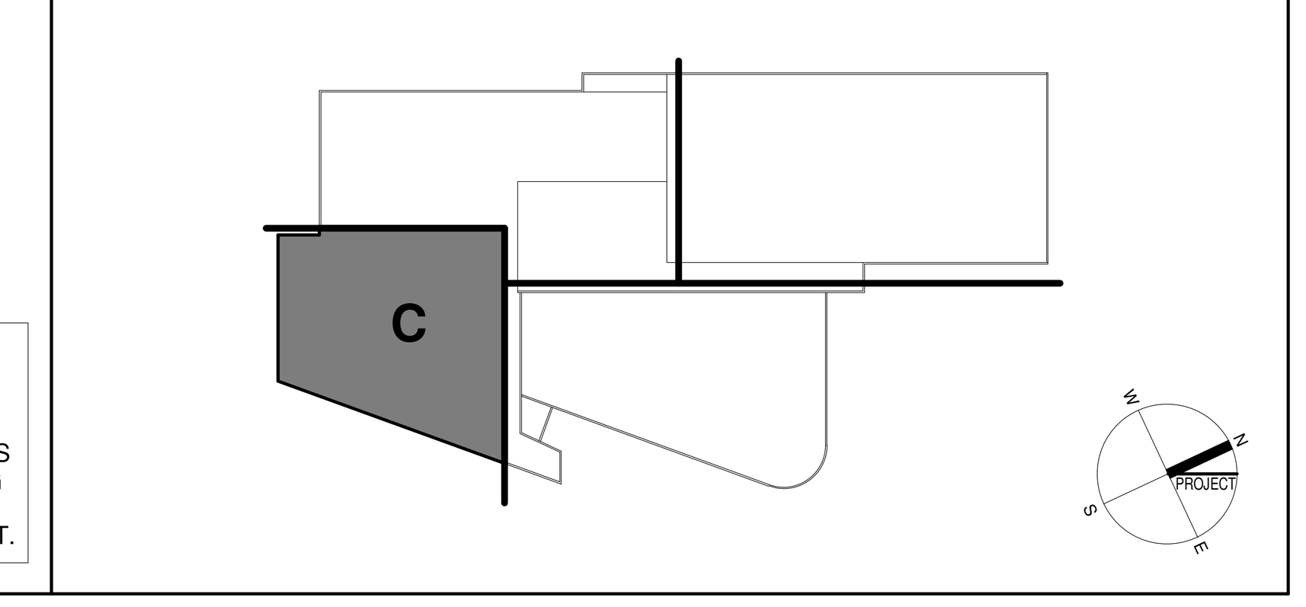
LEGENDS:

- = 12" REINFORCED CMU w/(2) #6 IN EACH CORE
- = 12" REINFORCED CMU w/(2) #7 IN EACH CORE
- = LOAD BEARING CMU WALL AND/OR EXTERIOR CMU WALL ABOVE
- 252 = ADDITIONAL VERTICAL CMU REINF. REQUIRED (SEE TYPICAL DETAIL)
- = LOAD BEARING CMU WALL AND/OR EXTERIOR CMU WALL BELOW
- = STANDARD S.J.I. BRIDGING
- INDICATES MOMENT CONNECTION BY OTHERS.
- INDICATES CANTILEVER MOMENT CONNECTION BY OTHERS.
- REFER TYPICAL DETAIL 14/S0200 FOR BEAM AND COLUMN CONNECTION. (U.N.O.)
- (A) = INDICATES TOP OF STEEL ELEVATION 114'-10"
- (B) = INDICATES TOP OF STEEL ELEVATION 115'-3 7/8"
- (C) = INDICATES TOP OF STEEL ELEVATION 137'-1 1/2"
- (D) = INDICATES TOP OF STEEL ELEVATION 115'-1 3/4"
- (E) = INDICATES TOP OF STEEL ELEVATION 113'-4 3/8"
- (T) = INDICATES WT7X96.5 ABOVE BEAM, T.O.S. EL. 115'-5 3/4"
- (H1) = INDICATES HSS3X3X1/4 ABOVE ROOF BEAM, T.O.S. EL. VARIES, SEE PLAN
- (H2) = INDICATES HSS5X2 1/2X3/16 ABOVE FLOOR BEAM, T.O.S. EL. 137'-1 1/2"
- (H3) = INDICATES HSS8X8X1/2 ABOVE ROOF BEAM, T.O.S. EL. VARIES, SEE PLAN
- (H4) = INDICATES HSS10X10X1/2 ABOVE ROOF BEAM, T.O.S. EL. VARIES, SEE PLAN
- = AEROBICS STORAGE FLOOR SLAB - 7 3/4" DEPRESSION
- = AEROBICS FLOOR SLAB - 7 3/4" DEPRESSION
- = RACQUET BALL FLOOR SLAB - 1 7/8" DEPRESSION
- = GYM FLOOR SLAB - 2 1/2" DEPRESSION
- = CLOUDED ITEMS WHERE CHANGED PER ADDENDUM
- ◄—— ADDENDUM NUMBER

DISCLAIMER NOTE:

THIS SET OF CONSTRUCTION DRAWINGS HAS BEEN UPDATED TO INCLUDE ANY CHANGES ISSUED THROUGH ADDENDUM OR OTHER MEANS. EVERY EFFORT HAS BEEN TAKEN TO INCLUDE ALL CHANGES TO DATE. THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING ANY ITEMS THAT WERE SHOWN AS PART OF THE ORIGINAL BID SET THAT MAY HAVE BEEN OVERLOOKED AND NOT INCLUDED IN THIS SET.

Keyplan



University of Louisville - Student Recreation Center (Phase #3 - Construction Set) Louisville, Ky

RANGASWAMY AND ASSOC., INC.
Suite 420, The Landmark Building
Louisville, Kentucky 40202.
phone : (502)589-2212
Fax : (502)589-2240 : www.rangaswamy.com

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

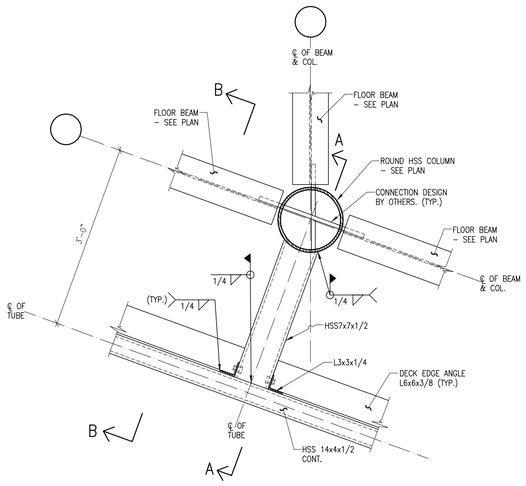
UNIVERSITY OF LOUISVILLE

#	Revision	Date
2		Jan 24, 2012

Drawing Name:	MEZZANINE FLOOR FRAMING PLAN- AREA-C
U of L Project Number:	
Project Number:	Omni - 1105.00 Cannon - 03667.00
Date:	March 02, 2012
Drawn By:	VPP
Checked By:	ANTHONY

S0123

02-03-2012 16:13:09

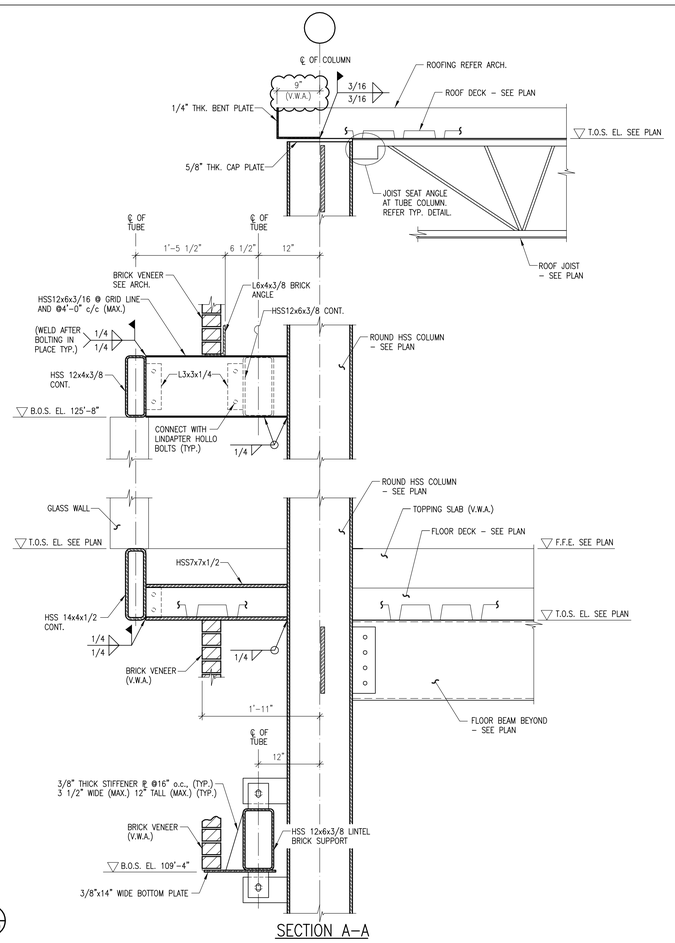


MEZZANINE FLOOR PLAN

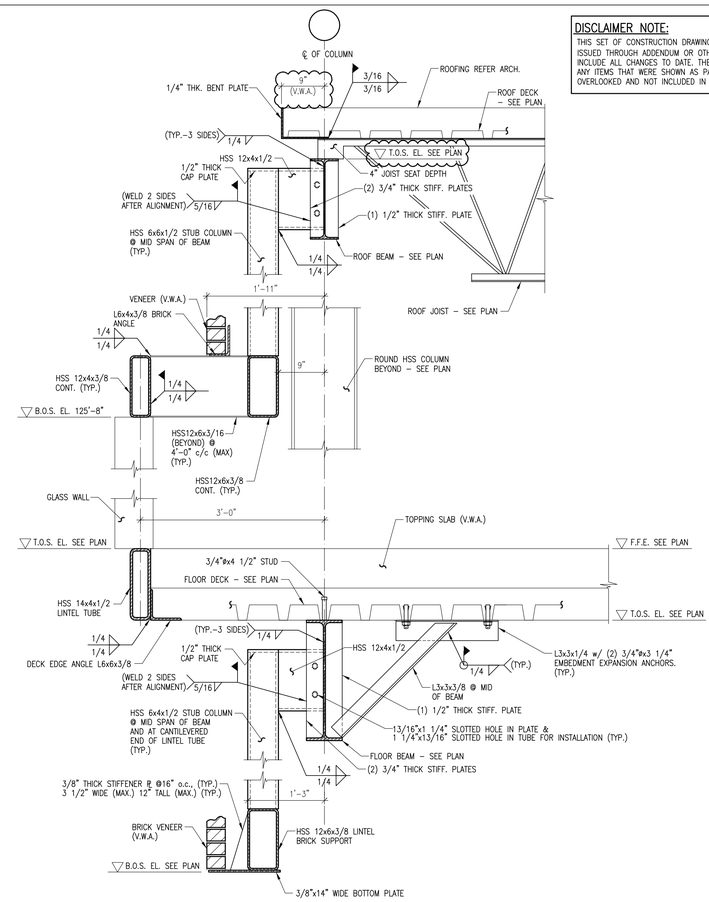
NOTES:

1. DECK NOT SHOWN FOR CLARITY. DECK SUPPORT AT COL. LOCATIONS REFER TYP. DETAIL 10/S0202
2. MOMENT CONNECTIONS ARE INDICATED ON PLAN THUS: –
3. MOMENT CONNECTION DETAIL BY OTHERS.

DETAIL 1 / S0160
SCALE: 1"=1'-0"



SECTION A–A



SECTION B–B

DISCLAIMER NOTE:

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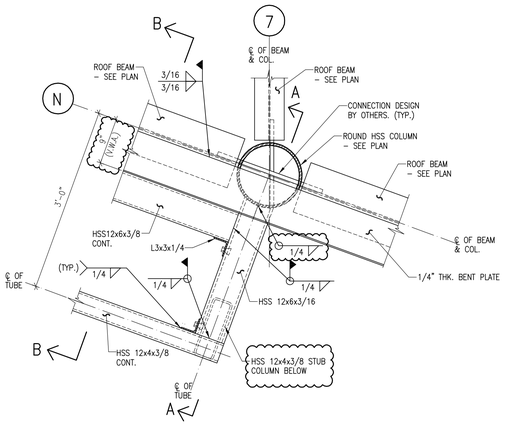
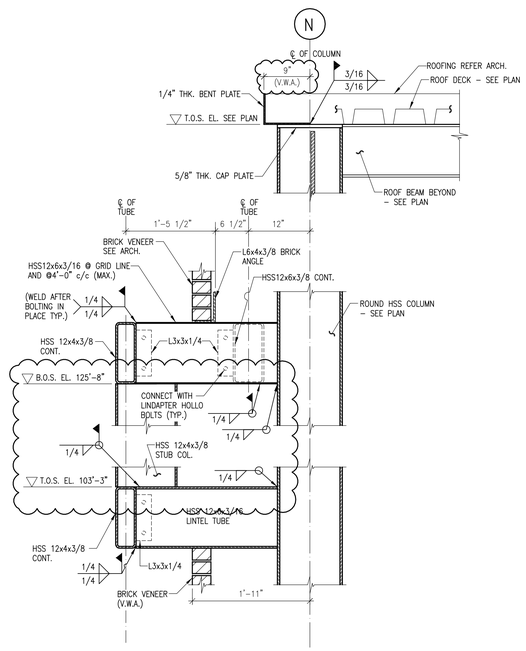


ROOF PLAN

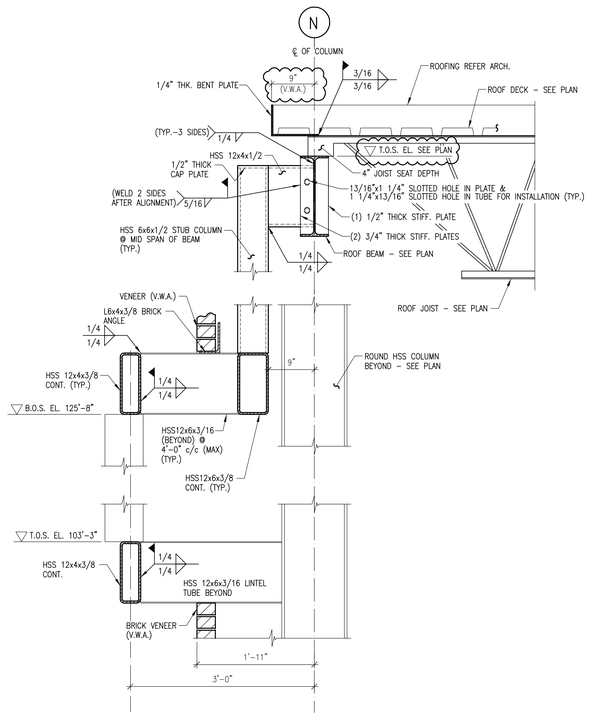
NOTES:

1. DECK NOT SHOWN FOR CLARITY. DECK SUPPORT AT COL. LOCATIONS REFER TYP. DETAIL 10/S0202
2. MOMENT CONNECTIONS ARE INDICATED ON PLAN THUS: –
3. MOMENT CONNECTION DETAIL BY OTHERS.

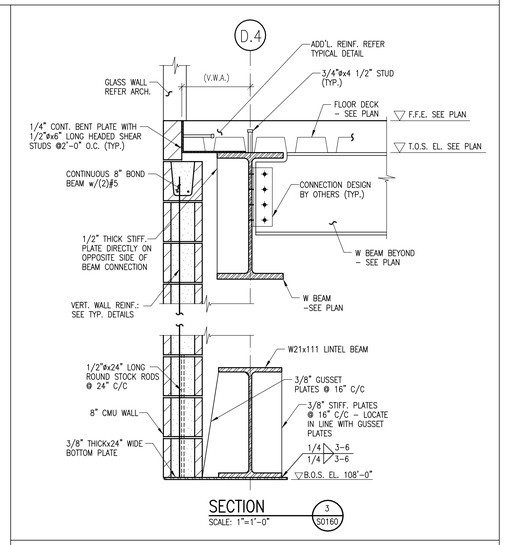
DETAIL 2 / S0160
SCALE: 1"=1'-0"



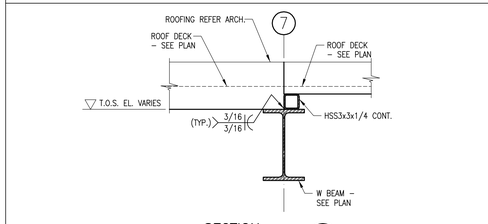
SECTION A–A



SECTION B–B



SECTION
SCALE: 1"=1'-0"
3 / S0160



SECTION
SCALE: 1"=1'-0"
4 / S0160

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RANGASWAMY AND ASSOC., INC.
Suite 420, The Landmark Building
Louisville, Kentucky 40202.
Phone : (502)589-2242
Fax : (502)589-2240 : www.rangaswamy.com

212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

#	Revision Date

Drawing Name: SECTIONS AND DETAILS
U of L Project Number:
Project Number: Omni – 1105.00 Cannon – 03667.00
Date: March 02, 2012
Drawn By: VPP **Checked By:** ANTHONY

S0160

COLUMN SCHEDULE

LEVEL / MARK	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25
HIGH ROOF EL. SEE PLAN																									
RACQUETBALL COURT ROOF EL. SEE PLAN																									
LOW ROOF EL. SEE PLAN																									
LEVEL 02 EL. SEE PLAN																									
MEZZANINE EL. SEE PLAN																									
LEVEL 01 EL. SEE PLAN	HSS12x12x5/8	HSS12x12x5/8	HSS12x12x1/2	HSS12x12x3/8	HSS16x12x5/8	HSS16x12x5/8	HSS12x12x5/8	HSS12x12x5/8	HSS12x12x1/2	HSS12x12x1/2	HSS10x10x3/8	W12x53	W12x58	W12x72	W12x79	W12x106	W14x99	HSS12x12x1/2	HSS12x12x3/8	HSS12x12x5/8	HSS10x10x5/8	HSS10x10x1/2	HSS16x0.625	HSS16x0.625	HSS14x0.625
FITNESS TIER 1 EL. SEE PLAN																									
FITNESS TIER 2 EL. SEE PLAN																									
BASE PLATE SIZE A&B&t	(19"x19"x2.25")	(19"x19"x1.75")	(19"x19"x1.75")	(19"x19"x1.75")	(19"x22"x2.25")	(19"x23"x2.25")	(19"x19"x1.75")	(19"x19"x1.75")	(19"x19"x1.75")	(19"x19"x1.75")	(17"x17"x1.75")	(17"x19"x1.75")	(17"x20"x1.75")	(19"x20"x1.75")	(19"x20"x1.75")	(20"x20"x1.75")	(22"x22"x1.75")	(19"x19"x1.75")	(19"x19"x1.75")	(19"x19"x1.75")	(17"x17"x1.75")	(17"x17"x1.75")	(23"x23"x1.75")	(23"x23"x1.75")	(19"x21"x1.75")
ANCHOR RODS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REMARKS	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6	SEE NOTE 6
COLUMN LOCATIONS	13/A 13/E 14/A 14/E 15/A 15/E	14/A 14/E 15/A 15/E 16/A 16/E 17/A 17/E 18/A 18/E 19/A 19/E 20/A 20/E 21/A 21/E	22/A 22/E	23/A 23/B.9 23/D.1 23/E	12/C	12/D	8/E 9/E 10/E 11/E	12.2/F 13.2/F	8/F 9/F 10/F	14.2/F 15.2/F	7/F	7/D.4 7/E	7/D	6/D 10/D 11/B	8/D	11/C 11/G	11/A	1.5/B 2.5/B 6/D.4	2/B 2.5/B 4/B 6/B	3/D.4 3/D.4	1/E 1/G 5/H	0.5/C.8 2.5/E 3.6/E 5/E 5/G 7/H	8/K 9/K 10/K 11/K 12.2/K	13.2/K 14.2/K 15.2/J 15.2/K	2.4/N	12/A

LEVEL / MARK	C26	C27	C28	C29	C30	C31	C32	C33	C34	C35	C36	C37	C38
HIGH ROOF EL. SEE PLAN													
RACQUETBALL COURT ROOF EL. SEE PLAN													HSS8x8x3/8
LEVEL 02 EL. SEE PLAN													
LOW ROOF EL. SEE PLAN													
MEZZANINE EL. SEE PLAN	HSS12.750x0.500	HSS12.750x0.375	W12x53	W12x58	W12x65	W12x72	W10x77	W12x106	W12x58	W12x72	W12x79	W12x87	
LEVEL 01 EL. SEE PLAN													
FITNESS TIER 1 EL. SEE PLAN													
FITNESS TIER 2 EL. SEE PLAN													
BASE PLATE SIZE A&B&t	(20"x20"x1.75")	(20"x20"x1.75")	(17"x19"x1.75")	(17"x20"x1.75")	(19"x20"x1.75")	(19"x20"x1.75")	(18"x18"x1.75")	(20"x20"x2.25")	(17"x20"x1.75")	(19"x20"x1.75")	(20"x20"x1.75")	(20"x20"x1.75")	(15"x9"x0.75")
ANCHOR RODS	-	-	-	-	-	-	-	-	-	-	-	-	-
REMARKS	SEE NOTE 6	SEE NOTE 6	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 7	SEE NOTE 6
COLUMN LOCATIONS	1/N 3.6/N 5/N	0.5/F 0.5/G 0.5/N 7/N 8.4/N 8.5/N	7/B 8/B 10/B	1/D.4 2/C 9/B	9.1/C 10.1/C	2.4/F 8/C	1/C.6	2.4/G	3.6/F	3.6/G	1/G	3.6/H	12/A

NOTES:

1. REFER STRUCTURAL STEEL DRAWINGS FOR GENERAL PROVISIONS.
2. SEE PLAN AND DETAILS FOR COLUMN ORIENTATION.
3. SEE PLAN AND DETAILS FOR TOP ELEVATIONS OF COLUMN.
4. ALL COLUMNS SHALL BE CENTERED ON COLUMN REFERENCE LINES UNLESS NOTED OTHERWISE.
5. FOR BASE PLATE AND ANCHOR BOLT DETAIL - REFER TYPICAL DETAILS.
6. PROVIDE SQUARE OR RECTANGULAR HSS SECTIONS WITH INTUMESCENT PAINT.
7. FOR WIDE FLANGE COLUMN PROVIDE SPRAY ON FIREPROOFING.

S0171

University of Louisville – Student Recreation Center (Phase #3 – Construction Set) **Louisville, Ky**

Drawing Name:	COLUMN SCHEDULE		
U of L Project Number:			
Project Number:	Omni – 1105.00 Cannon – 03667.00		
Date:	March 02, 2012		
Drawn By:	VPP	**Checked By:**	ANTHONY

#	Revision Date

UNIVERSITY OF LOUISVILLE

Omni ARCHITECTS
212 North Upper Street
Lexington, Kentucky 40507-1001
p 859.252.6664 f 859.253.2358
www.omniarchitects.com

CANNONDESIGN

R&A consulting engineers
RANGASWAMY AND ASSOC., INC.
Suite 420, The Landmark Building
Louisville, Kentucky 40202.
phone : (502)589-2212
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