STRUCTURAL NOTES

A. GENERAL

1. THE DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTIALLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS, OR TO SERVE AS SHOP DRAWINGS OR PORTIONS THEREOF.
2. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL OR SECTION IS SHOWN.
3. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR AND ALL THE SUB-CONTRACTORS SHALL VERIFY ALL GRADES, LINES, LEVELS, DIMENSIONS AND COORDINATE EXISTING CONDITIONS AT THE JOB SITE WITH THE PLANS AND SPECIFICATIONS. THEY SHALL REPORT ANY INCONSISTENCIES OR ERRORS IN THE ABOVE TO THE ARCHITECT/ ENGINEER BEFORE COMMENCING WORK. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL LAY OUT THEIR WORK FROM ESTABLISHED REFERENCE POINTS AND BE RESPONSIBLE FOR ALL LINES, ELEVATIONS AND MEASUREMENTS IN CONNECTION WITH THEIR WORK.
4. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES ANY REQUIRED SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE DOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THE COMPLETION OF THE PROJECT.
5. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
6. THE CONTRACTOR SHALL USE THE STRUCTURAL DRAWINGS AND SPECIFICATIONS TOGETHER WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND OTHER TRADE DRAWINGS AND SHOP DRAWINGS, TO COORDINATE ALL DETAILS, DIMENSIONS, ELEVATIONS, ETC. NOTIFY ARCHITECT/ENGINEER, IN WRITING, OF ANY POTENTIAL CONFLICTS BEFORE PROCEEDING WITH THE WORK.
7. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THESE STRUCTURAL NOTES, THE SPECIFICATIONS, OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL GOVERN.

B. GOVERNING CODE: 2009 – INTERNATIONAL BUILDING CODE

1. ROOF SNOW LOADS
   - A. GROUND SNOW LOAD: Pg = 35 PSF.
   - B. FLAT-ROOF SNOW LOAD: Pf = 22.05 PSF. (ASCE 7, SECT 7.3)
   - C. SNOW EXPOSURE FACTOR: Ce = 0.9 (TABLE 1608.3.1)
   - D. SNOW LOAD IMPORTANCE FACTOR: Is = 1.0 (TABLE 1604.5)
   - E. SNOW THERMAL FACTOR: Ct = 1.0 (TABLE 1608.3.2)
   - F. ALL APPLICABLE EFFECTS DUE TO SNOW DRIFTING (SECTION 1608)

2. ROOF LIVE LOADS
   - A. MINIMUM ROOF LIVE LOAD = 20 PSF. (SECTION 1607.11.2)
   - B. SEE "PREFABRICATED WOOD TRUSSES" DESIGN CRITERIA FOR ADDITIONAL LOADING INFORMATION.

3. WIND LOADS
   - A. BASIC WIND SPEED = 90 MPH (FIGURE 1609)
   - B. WIND LOAD IMPORTANCE FACTOR: Iw = 1.0 (TABLE 1604.5)
   - C. WIND EXPOSURE CATEGORY "B" (SECTION 1609.4)

4. SEISMIC DESIGN DATA:
   - A. SEISMIC SITE CLASS – BASED ON SECTION 1615.1
   - B. SEISMIC IMPORTANCE FACTOR: Ie = 1.0 (TABLE 1604.5)
   - C. SITE (SOIL) CLASS – SECTION 1615.1.2
   - D. STRUCTURAL FRAMING AND SEISMIC RESISTING SYSTEM: LIGHT-FRAMED WALLS WITH SHEAR PANELS (TABLE 1617.6.2, ITEM 1 K)

C. FOUNDATION

1. FOUNDATIONS ARE DESIGNED TO BEAR ON NATURAL GRADE OR FILL, WELL COMPACTED OF AN ALLOWABLE BEARING CAPACITY, INDICATED ON THE FOUNDATION PLAN.
2. A CERTIFIED TESTING LABORATORY SHALL BE ENGAGED BY THE OWNER TO PERFORM SOIL BORINGS, PROVIDE A FOUNDATION REPORT AND VERIFY THAT THE REQUIRED MINIMUM BEARING CAPACITY WAS OBTAINED.
3. SAID SOIL CAPACITY SHALL BE CERTIFIED AND TESTED BY A REGISTERED FOUNDATION ENGINEER, PRIOR TO CASTING OF CONCRETE IN THE FOOTINGS.
4. BOTTOM OF FOOTING ELEVATION TO BE DETERMINED BY THE SOIL CONDITIONS AND FROST-LINE DEPTH.
5. ALL LONGITUDINAL REBARS IN THE WALL FOOTINGS, SHALL BE CONTINUOUS AND SPLICED AS SPECIFIED. CONTINUE ALL HORIZONTAL REBARS AT BENTS AND CORNERS BY BENDING THE REBARS 48 BAR DIAMETERS AROUND THE CORNERS OR ADDING MATCHING CORNER BARS, EXTENDING 48 BAR-DIAMETERS INTO FOOTING EACH SIDE OF CORNER OR BENT.

D. REINFORCED CONCRETE

1. MATERIALS:
   - A. SPECIFICATIONS: IN GENERAL, COMPLY WITH ACI 301-(LATEST EDITION) "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."
   - B. STRUCTURAL CONCRETE:

CLASS	LOCATION	F'c
I.	FOOTINGS, CAISSONS, & GRADE BEAMS	3,000
II.	INTERIOR SLABS ON GRADE, AND ALL INTERIOR CONCRETE NOT OTHERWISE IDENTIFIED	3,500
III.	PIERS PLACED INTEGRALLY WITH WALLS, EXTERIOR SLABS ON GRADE, AND ALL EXTERIOR CONCRETE (WITH AIR) NOT OTHERWISE IDENTIFIED	4,000
IV.	BACKFILL BELOW FOOTINGS AND GRADE BEAMS	1,500

   - C. ALL DEFORMED REINFORCING BARS: FY = 60,000,
   - D. GALVANIZED WELDED WIRE FABRIC SHALL CONFORM TO ASTM A165 (LATEST EDITION). USE SHEET FORM, NOT ROLLED.

2. FIELD MANUAL: PROVIDE AT LEAST ONE COPY OF THE ACI FIELD REFERENCE MANUAL, SP-15, IN THE FIELD OFFICE AT ALL TIMES.

3. CONTINGENCIES:
   - A. PROVIDE SUPPORTS AS REQUIRED TO MAINTAIN ALIGNMENT AND CONCRETE COVER OVER THE REINFORCING.

4. FOOTINGS:
   - A. VERTICAL DOWELS IN FOOTINGS TO MATCH VERTICAL WALL REINFORCING.
   - B. PROVIDE LEAN CONCRETE (CLASS IV) UNDER FOUNDATIONS FOR ACCIDENTAL OVER-EXCAVATION, SOFT SPOTS AND TRENCHES.

5. SPLICES: UNLESS NOTED OTHERWISE, MINIMUM LAP SPLICE LENGTHS TO BE AS FOLLOWS:

A.	VERTICAL BARS IN WALLS, PIERS, OR COLUMNS (INCLUDING DOWELS)	30 DIAMETER
B.	HORIZONTAL BARS IN SLABS & FOOTING	35 DIAMETER
C.	HORIZONTAL BARS IN WALL	45 DIAMETER

6. SAW-CUT & CONSTRUCTION JOINTS:
   PROVIDE JOINTS IN ALL SLABS-ON-GRADE, AS INDICATED ON THE FOUNDATION PLAN.

7. CONCRETE COVER: UNLESS NOTED OTHERWISE, DETAIL REINFORCING TO PROVIDE CONCRETE COVER AS FOLLOWS:

A.	CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3 INCHES
B.	CONCRETE EXPOSED TO EARTH OR WEATHER:	
	#5 BARS AND SMALLER	1-1/2 INCHES
	OTHERS	2 INCHES
C.	CONCRETE NOT EXPOSED TO EARTH OR WEATHER:	
	BEAM AND COLUMN BARS INCLUDING TIES, STIRRUPS AND SPIRALS	1-1/2 INCHES
	SLABS, WALLS, JOISTS:	
	#11 BARS AND SMALLER	1 INCH
	OTHERS	1-1/2 INCHES

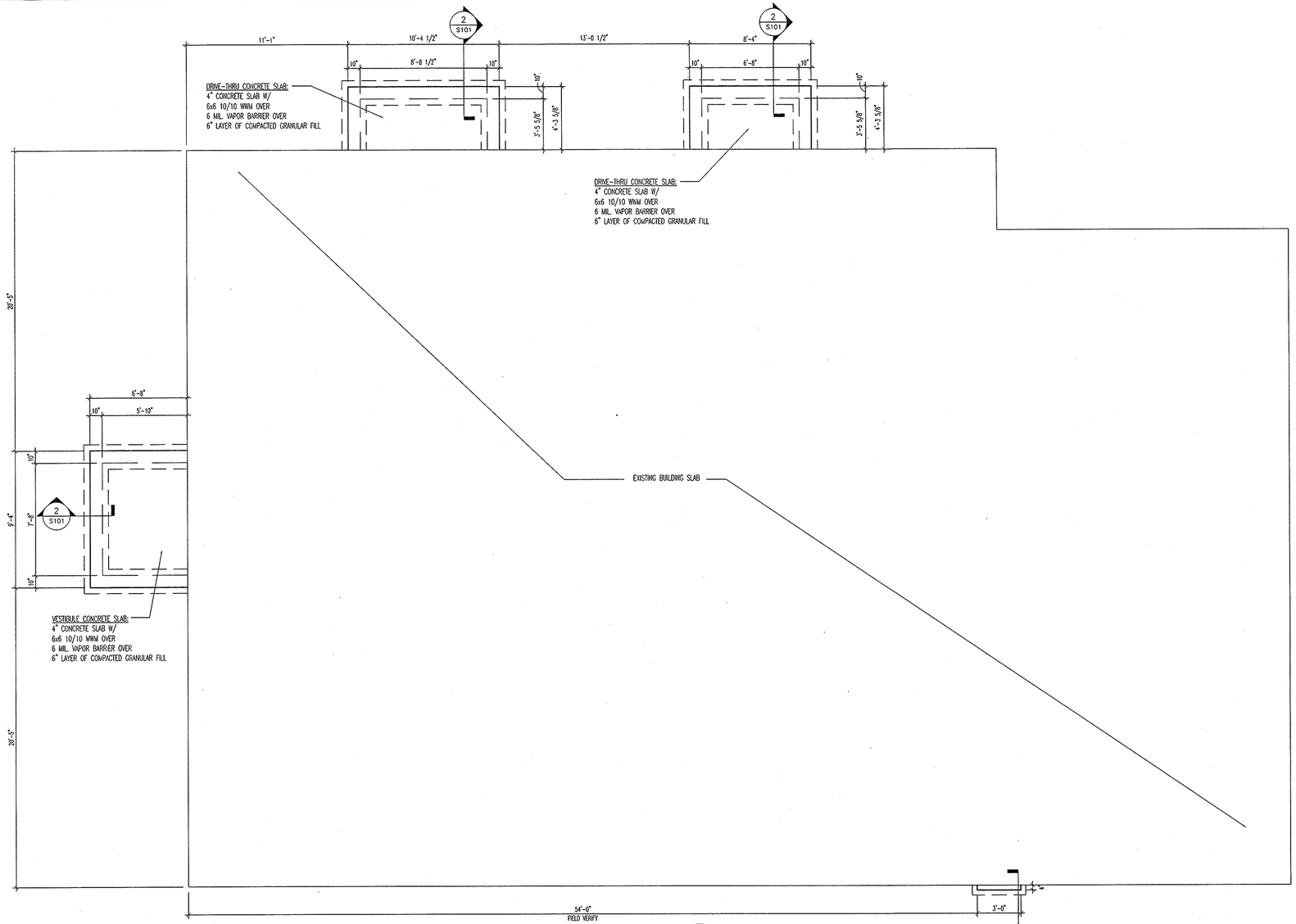
E. STRUCTURAL LUMBER

1. A. STUDS: STRUCTURAL LUMBER: DOUGLAS FIR-LARCH #2, OR APPROVED EQUAL:

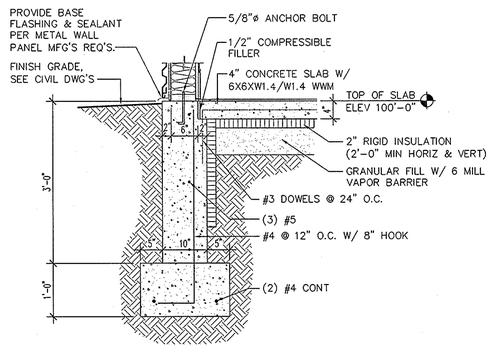
SIZE	Fb	Ft	Fv	Fc ⊥	Fc	E
2x4	1,500	825	90	565	1,650	1,600,000
2x6	1,250	725	90	565	1,600	1,600,000
2x8	1,200	650	90	565	1,550	1,600,000
2x10	1,050	600	90	565	1,500	1,600,000
2x12	975	550	90	565	1,450	1,600,000
LVL's	2,650	---	285	750	2,350	1,900,000

   B. ROOF/WALL: ORIENTED STRAND BOARD: STRUCTURAL 1, EXPOSURE I, EXTERIOR GLUE. FOR ROOF AND WALLS PANEL IDENTIFICATION INDEX 24/16 – 5/8 INCH OR 24/0 – 1/2 INCH (WITH PLYWOOD CLIPS AT ROOF).
   C. ROOF/WALL: PLYWOOD: C-CPLUGGED, STRUCTURAL 1, EXPOSURE 1. EXTERIOR GLUE FOR ROOF AND WALL PANEL IDENTIFICATION INDEX 24/16-5/8 INCH OR 24/0-1/2 INCH (WITH PLYWOOD CLIPS AT ROOF).
   D. SILL PLATES: NO. 2 SPRUCE-PINE-FIR, OR EQUAL FC=675 PSI, FV=70 PSI, E= 1,200,000 PSI

2. SPECIFICATIONS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
   - A. NATIONAL DESIGN SPECIFICATION FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
   - B. U.S. PRODUCT STANDARD PS-1 FOR SOFTWOOD PLYWOOD – CONSTRUCTION AND INDUSTRIAL.



1 S101 **FOUNDATION PLAN**
SCALE: 1/4"=1'-0"



2 S101 **FOUNDATION DETAIL**
SCALE: 3/4"=1'-0"

E. STRUCTURAL LUMBER CONTINUED....

3. CONNECTIONS:
   - A. JOISTS TO BEAMS – 16 GA. GALVANIZED STD. JOIST HANGERS, UNLESS SHOWN OTHERWISE.
   - B. PLYWOOD TO ROOF TRUSSES OR RAFTERS – NAILED – USE 8d RING SHANK NAILS AT 6 INCHES O/C AT PANEL EDGES AND 12 INCHES C/C AT INTERMEDIATE SUPPORTS. PROVIDE PLYWOOD CLIPS AT MID-SPAN OF PLYWOOD BETWEEN SUPPORTS.

4. ALL STRUCTURAL WOOD TO BE SURFACED FOUR (4) SIDES (S-4-S) A AND MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

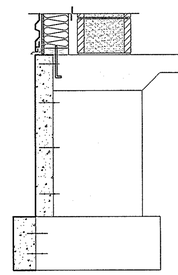
5. ALL LUMBER AND PLYWOOD IN CONTACT WITH CONCRETE, STUCCO, MASONRY OR OTHER CEMENTITIOUS MATERIALS SHALL BE TREATED WITH AN E.P.A. ACCEPTABLE WOOD PRESERVATIVE (SUCH AS "AQC" – ALKALINE-COPPER-QUATERNARY OR "CBA-A" COPPER AZOLE TYPE A & B).

6. ALL WOOD CONNECTORS SHALL BE GALVANIZED STEEL OR RUST-PROOF PAINTED STEEL (U.O.N.). ALL GALVANIZED METAL CONNECTORS IN CONTACT WITH TREATED WOOD (ITEM #5) SHALL BE "TRIPLE-ZINK G-185" GALVANIZED. ANY FIELD WELDS (INTERIOR OR EXTERIOR) OF SUCH CONNECTORS SHALL BE WIRE BRUSH CLEANED AND RUST PROOF PAINTED.

7. MISCELLANEOUS:
   - A. USE ONE LINE OF SOLID BLOCKING OR CROSS BRIDGING AT 8'- 0" O/C MAX. FOR ALL JOISTS AND RAFTERS, USE SOLID BLOCKING AT JOIST AND RAFTER BEARING.
   - B. USE SOLID BLOCKING AT MID-HEIGHT FOR ALL EXTERIOR STUD WALLS AND INTERIOR BEARING PARTITIONS.
   - C. USE DOUBLE STUDS UNDER BEAM AND LINTEL BEARING, UNLESS SHOWN OTHERWISE.

F. ABBREVIATIONS:

T = TOP	T.O.W. = TOP OF WALL ELEVATIONS
B = BOTTOM	S.O.G. = SLAB ON GRADE
C.M.U. = CONCRETE MASONRY UNIT	W.W.F. = WELDED WIRE FABRIC
E.F. = EACH FACE	U.N.O. = UNLESS NOTED OTHERWISE
E.W. = EACH WAY	TYP = TYPICAL
E.E. = EACH END	T.B. = TRUSS BEARING ELEVATION
O.C. = ON CENTER	J.B. = JOIST BEARING ELEVATION
T.O.F. = TOP OF FOOTING ELEVATION	L.L.V. = LONG LEG VERTICAL
T.O.S. = TOP OF SLAB ELEVATION	L.L.H. = LONG LEG HORIZONTAL



3 S101 **FOUNDATION DETAIL**
SCALE: 3/4"=1'-0"

REV	DESCRIPTION	BY	DATE

WIGHTMAN & PETRIE
SURVEYING ENGINEERING ENVIRONMENTAL LANDSCAPE ARCHITECTURE
412 South Lafayette Blvd South Bend, IN 46601 p: 574.232.4388 f: 574.232.4333

Burger King Restaurant
Kentwood, Michigan

BRAVOKILO, INC.
Mishawaka, Indiana
4220 Edison Lakes Parkway

FOUNDATION PLAN & DETAILS

DESIGNED BY: STEVE LACLUYSE
REVIEWED BY:
DRAWN BY: MATT SCHUSTER
DATE: MAY 2, 2011
JOB NUMBER: 2010-5068
SCALE: AS SHOWN

X-1710-S101

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