EDITION OF THE IBC INTERNATIONAL BUILDING CODE

AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

AMERICAN CONCRETE INSTITUTE SPECIFICATION FOR STRUCTURAL CONCRETE AMERICAN INSTITUTE OF STEEL CONSTRUCTION

ACI 318 AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AMERICAN SOCIETY OF TESTING AND MATERIALS ASTM

> NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION BY NATIONAL FOREST PRODUCTS ASSOCIATION, 2005.

REFERENCE ARCHITECTURAL PLANS FOR DIMENSIONS NOT SHOWN. REFERENCE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL PLANS FOR SIZES AND LOCATIONS OF WALL AND SLAB OPENINGS, DUCTS, PIPING, CURBS, AND EQUIPMENT PADS. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS, SPECIFICATIONS, OR NOTES ON THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION.

EXISTING DIMENSIONS AND CONDITIONS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL EXISTING CONSTRUCTION AND DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION OR FABRICATION. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORK.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DEVIATIONS OR CHANGES ARE REQUIRED TO THE CONTRACT DOCUMENTS OR APPROVED SHOP DRAWINGS DUE TO INTERFERENCES, FABRICATION ERRORS, OR OTHER CAUSES.

THE STRUCTURE IS SELF-SUPPORTING AND STABLE AFTER THE ENTIRE BUILDING IS COMPLETELY CONSTRUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ERECTION PROCEDURES AND SEQUENCING DURING CONSTRUCTION AND ERECTION TO PROVIDE AND ENSURE LOCAL AND OVERALL STABILITY OF THE BUILDING AND ITS COMPONENTS DURING CONSTRUCTION AND ERECTION. THE CONTRACTOR SHALL RETAIN A LICENSED STRUCTURAL ENGINEER TO DESIGN TEMPORARY BRACING/SHORING AND DETERMINE WHERE THE TEMPORARY BRACING/SHORING IS NEEDED.

USE DEFORMED BILLET-STEEL REINFORCING BARS, GRADE 60, IN CONFORMANCE WITH ASTM A615. REINFORCEMENT SHALL BE ACCURATELY PLACED AND SUPPORTED PRIOR TO CONCRETE PLACEMENT, AND SHALL BE SECURED AGAINST DISPLACEMENT.

THE CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO COMMENCING FABRICATION. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES". SHOP DRAWINGS SHALL SHOW REINFORCING STEEL PLACEMENT DETAILS AND SECTIONS.

MINIMUM CONCRETE COVER FOR REINFORCEMENT	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER	2 INCHES
CONCRETE NOT EXPOSED TO EARTH OR WEATHER IN SLABS AND WALLS (FOR PRIMARY REINFORCEMENT, TIES, AND STIRRUPS)	1½ INCHES
CONCRETE NOT EXPOSED TO EARTH OF WEATHER IN COLUMNS AND BEAMS	1½ INCHES

CONTINUOUS REINFORCEMENT SHALL BE TENSION LAP SPLICED PER LAP SPLICE LENGTH TABLE, U.N.O..

LAP SPLICE LENGTH TABLE							
BAR SIZE	#3	#4	# 5	#6	# 7	#8	#9
MIN LAP SPLICE (INCHES)	18	24	30	36	48	64	81

REINFORCEMENT HOOKS SHALL CONFORM TO STANDARD HOOKS ACCORDING TO ACI 318.

WELDING OF REINFORCEMENT IS NOT PERMITTED, U.N.O.

GENERAL NOTES

NDS

SCALE: NTS

CONCRETE REINFORCING NOTES

SCALE: NTS

ALL STRUCTURAL STEEL WORK SHALL CONFORM TO:

WIDE FLANGE SHAPES AND TEES ASTM A992

SHOP DRAWINGS SUBMITTALS SHALL INCLUDE:

1. VISUAL INSPECTION OF ALL WELDS.

JOINTS USING ASTM A325 BOLTS.

HEX NUTS AND LOCK WASHERS.

STRENGTH OF 70 KSI.

ANGLES, PLATES, CHANNELS

AND SHOPS).

TO AWS D1.1.

AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES

STRUCTURAL STEEL MEMBERS SHALL BE IN CONFORMANCE WITH THE FOLLOWING:

SQUARE AND RECTANGULAR HSS ASTM A500, GRADE B, Fy=46 KSI

ASTM A36, Fy=36 KSI

SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO COMMENCING

1. CERTIFIED MILL TEST REPORTS OF STRUCTURAL STEEL (INCLUDING NAMES AND LOCATIONS OF MILLS

FIELD) AND WELDED CONNECTIONS (SHOP AND FIELD) DEPICTING AWS WELDING SYMBOLS.

4. METAL DECK SHOP DRAWINGS DEPICTING SHEAR STUD LAYOUT ON BEAMS AND GIRDERS.

OWNER SHALL RETAIN A QUALIFIED TESTING AGENCY TO PERFORM AND VERIFY THE FOLLOWING:

4. FIELD BOLTED CONNECTIONS, INCLUDING VERIFICATION OF BOLT GRADES.

STRUCTURAL STEEL SHALL RECEIVE THE FOLLOWING PROTECTIVE COATINGS:

STUDS EQUALLY SPACED BETWEEN SUPPORTS ON A BEAM OR GIRDER.

COATING THAT CAN BE REMOVED EASILY PRIOR TO ERECTION.

PRIMER PAINT, TNEMEC 10-99, OR EQUIVALENT, U.N.O..

EQUIVALENT. APPLY FINISH COAT PER ARCHITECT.

TOP OF CONCRETE SLAB-ON-DECK.

3. PROVIDE RANDOM VERIFICATION VIA ULTRASONIC TESTING OF SHOP FULL PENETRATION WELDS.

1. FIELD CONNECTIONS SHALL UTILIZE MINIMUM 3/4" DIAMETER A325 HIGH STRENGTH BOLTS, U.N.O..

5. SHEAR STUD QUANTITY, PROPER INSTALLATION, SIZE, AND SPACING. SHEAR STUDS SHALL CONFORM

2. CERTIFIED MILL TEST REPORTS OF BOLTS, NUTS AND WASHERS (INCLUDING NAMES AND LOCATIONS OF MILLS

3. STRUCTURAL STEEL FABRICATION AND ERECTION DRAWINGS WHICH INCLUDE BOLTED CONNECTIONS (SHOP AND

2. ULTRASONIC TESTING, IN ACCORDANCE WITH ASTM E-164, ON 100% OF ALL FIELD FULL PENETRATION WELDS.

BOLTED CONNECTION SHALL BE SLIP CRITICAL (SC) AT ALL MOMENT FRAMES, BRACED FRAMES, AND AT

ADDITIONAL LOCATIONS INDICATED IN THE DRAWINGS. SLIP CRITICAL CONNECTIONS SHALL UTILIZE LOAD

3. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 36, STANDARD HEX HEAD FURNISHED WITH HEAVY

4. CONTRACTOR SHALL DESIGN CONNECTIONS NOT ALREADY DETAILED ON STRUCTURAL DRAWINGS. DESIGN

SHALL BE STAMPED BY A LICENSED STRUCTURAL ENGINEER AND SUBMITTED PRIOR TO COMMENCING

1. WELDING SHALL CONFORM TO AWS D1.1. USE LOW-HYDROGEN SMAW ELECTRODES WITH MINIMUM TENSILE

1. DO NOT PAINT SURFACES TO RECEIVE METAL DECK AND/ OR SHEAR CONNECTORS FASTENED BY WELDING,

SURFACES TO BE WELDED IN THE FIELD. IF REQUIRED, PROTECT THESE SURFACES BY RUST-INHIBITING

2. UNEXPOSED STRUCTURAL STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP3 AND PAINTED WITH

ACCORDANCE WITH SSPC-SP6 ,COMMERCIAL BLAST CLEANING. USE TNEMEC ZIN-RICH EPOXY PAINT, OR

4. EXPOSED STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED SHALL BE IN ACCORDANCE WITH ASTM A123.

1. SHEAR CONNECTOR STUDS SHALL BE NELSON, OR EQUIVALENT, 3/2" DIAMETER, U.N.O.. WELD STUDS PER

STUD MANUFACTURER'S RECOMMENDATIONS THROUGH METAL DECKING. STUD LENGTH SHALL BE 1" BELOW

2. SHEAR STUDS, WHERE REQUIRED, ARE INDICATED ON THE DRAWINGS AS [XX], WHERE XX IS THE NUMBER OF

3. EXPOSED STRUCTURAL STEEL TO RECEIVE ZINC-RICH EPOXY PAINT SHALL BE FIRST CLEANED IN

CONTACT SURFACES OF HIGH STRENGTH BOLTED CONNECTIONS, FINISHED BEARING SURFACES, AND

INDICATOR WASHERS OR TENSION CONTROL BOLTS. BOLT HOLES SHALL BE STANDARD SIZE, U.N.O..

2. HIGH STRENGTH BOLTS SHALL BE INSTALLED AND TIGHTENED PER AISC SPECIFICATION FOR STRUCTURAL

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, NINTH EDITION

ASTM A53, TYPE E OR S, GRADE B, Fy=35 KSI

LIBRARY STACK ROOMS = 150 PSF LOBBIES AND FIRST FLOOR CORRIDORS = 100 PSF CORRIDORS ABOVE FIRST FLOOR = 80 PSF

DESIGN CRITERIA

SCALE: NTS

SCALE: NTS

ALL CONCRETE WORK, INCLUDING MATERIAL SELECTION, ADMIXTURES, MIXING, AND PLACEMENT OF CONCRETE SHALL BE IN CONFORMANCE WITH APPLICABLE BUILDING CODES. IN ADDITION, REFERENCE THE FOLLOWING CONCRETE STANDARDS AND SPECIFICATIONS:

- ACI 318 AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
- ACI 301 AMERICAN CONCRETE INSTITUTE SPECIFICATIONS FOR STRUCTURAL CONCRETE ACI 305 STANDARD SPECIFICATION FOR HOT WEATHER CONCRETING
- ACI 306 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING

ACI 308 STANDARD PRACTICE FOR CURING CONCRETE

REQUI	REQUIRED CONCRETE PARAMETERS ARE AS FOLLOWS:								
	LOCATION	MAX W/C RATIO	f'c	AIR-ENTRAINMENT					
IN	Г. CONC./WALLS/SLABS	.52	3,000 PSI	2% ± 1½%					
	UNDATIONS, FOOTINGS, FOUNDATION WALLS	.52	3,000 PSI	5–7%					
IN	Г. SLAB-ON-GRADE	.47	4,000 PSI	2% ± 1½%					
EX	T. SLAB-ON-GRADE	.45	4,000 PSI	6% ± 1½%					

WHERE: W/C = WATER TO CEMENT RATIO AND

MAXIMUM AGGREGATE SIZE SHALL BE ¾", IN CONFORMANCE WITH ASTM C33. USE PORTLAND CEMENT TYPE II, IN CONFORMANCE WITH ASTM 150. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C 260. ADMIXTURES SHALL CONFORM TO "SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" ASTM C 494. FLY ASH USED AS ADMIXTURES SHALL CONFORM TO ASTM C 618.

f'c = COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS

CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE IS NOT PERMITTED. MAXIMUM SLUMP AFTER THE ADDITION OF A WATER-REDUCING ADMIXTURE IS 8 INCHES.

CONCRETE EXPOSED TO FREEZING AND THAWING, INCLUDING FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, AND EXTERIOR WALKWAYS SHALL BE AIR ENTRAINED WITH AIR CONTENT BETWEEN 5% AND 6%. CONTRACTOR SHALL NOT PLACE CONCRETE ON FROZEN GROUND OR IN WATER. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING NEAR-FREEZING OR FREEZING WEATHER. REFERENCE ACI 306, AS NOTED ABOVE, FOR RECOMMENDATIONS FOR COLD WEATHER CONCRETING.

CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE MIX DESIGN AND LABORATORY TESTS OF FABRICATED CYLINDERS VERIFYING CONCRETE STRENGTH OR PERFORMANCE HISTORY OF MIX TO ENGINEER FOR ACCEPTANCE PRIOR TO PLACEMENT OF CONCRETE. CONCRETE USED ON SITE SHALL BE FIELD TESTED IN ACCORDANCE WITH AND IN THE PRESENCE OF AN APPROVED TESTING AGENCY. FIELD TESTING INFORMATION SHALL INDICATE SLUMP, AIR CONTENT, AND TEMPERATURE. COMPRESSION TEST 1 CYLINDER AT 7 DAYS AND 2 AT 28 DAYS. HOLD AN ADDITIONAL CYLINDER FOR A 56 DAY BREAK, IF NECESSARY. PROVIDE A SET OF 4 CYLINDERS FOR EACH PLACEMENT AND PER 50 CUBIC YARDS OF CONCRETE PLACED. THE OWNER SHALL PAY FOR ALL CONCRETE TESTING.

CONSTRUCTION JOINTS IN WALLS SHALL BE PERMITTED AS DETAILED ON THE STRUCTURAL DRAWINGS. SURFACES OF CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL NOT EXCEED A SPACING OF 40 FEET.

WHERE ELECTRICAL CONDUIT/ RADIANT HEATING TUBES RUN IN THE SLAB, THEY SHALL BE LOCATED AT MID-DEPTH OF THE SLAB. ALUMINUM CONDUIT AND SLEEVES ARE NOT PERMITTED.

ANCHOR BOLTS SHALL CONFORM TO ASTM F1554. ANCHOR BOLTS SHALL HAVE HEAVY HEX NUTS AND LOCK WASHERS.

CONCRETE NOTES

CARE SHALL BE TAKEN TO PROTECT TIMBER FROM WEATHER AND DAMPNESS. DO NOT STACK IN SUCH A WAY AS TO CAUSE WARPING OR PREVENT ADEQUATE AIR CIRCULATION.

WOOD GRADES AND SPECIES:

- 1. SPRUCE-PINE-FIR, No.1/No.2 OR BETTER FOR TYPICAL LUMBER (JOISTS, WALLS, ETC) U.N.O.
- AS PRESERVATIVE PRESSURE TREATED LUMBER (PT OR PPT).

HAS THE FOLLOWING MINIMUM ALLOWABLE STRESSES:

Fv = 285 PSI

Fc = 750 PSI (PERPENDICULAR TO GRAIN) E = 2,000,000 PSIFt = 1555 PSI

CONCRETE. ALL CONNECTORS THAT ARE IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT-DIP

U.S. DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS20-99.

ALL PLYWOOD SHALL BE APA RATED CDX SHEATHING:

2. USE 5/8" PLYWOOD ROOF SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO FRAMING. STAGGER PANEL ENDS. USE SHEATHING CLIPS BETWEEN SHEETS WHERE BLOCKING IS NOT REQUIRED

PROVIDE FULL DEPTH BLOCKING AT ENDS AND INTERIOR SUPPORTS OF ALL JOISTS AND RAFTERS WHERE BLOCKING FOR EACH 8'-0" OF SPAN FOR ALL JOISTS AND RAFTERS.

WHERE BEAMS ARE LABELED ON PLAN, DO NOT SPLICE BEAM NOR ANY PLY OF BEAM BETWEEN SUPPORTS.

FASTENERS SHALL COMPLY WITH RECOMMENDED FASTENING SCHEDULE OF REFERENCED BUILDING CODE, U.N.O. ON DRAWINGS, SPIKE TOGETHER ALL FRAMING MEMBERS WHICH ARE BUILT-UP USING A MINIMUM OF 2-ROWS OF 16d NAILS AT 12" O.C. STAGGERED, UNLESS OTHERWISE NOTED IN BOCA OR ON THE DRAWINGS. NAIL MULTIPLE LVL'S TOGETHER AS RECOMMENDED BY THE MANUFACTURER USING A MINIMUM OF 2-ROWS OF 16d NAILS AT 12" o.c. STAGGERED. ALL FASTENERS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED.

ALIGN COLUMNS SUCH THAT COLUMNS BEAR CONTINUOUSLY TO FOUNDATION SUPPORT.

PROVIDE HORIZONTAL BLOCKING FOR ALL LOAD BEARING WALLS AT 4'-0" O.C. VERTICAL, MAXIMUM.

SUBMIT SHOP DRAWINGS FOR ALL PREFABRICATED WOOD JOISTS AND WALL PANELS TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

WOOD NOTES SCALE: NTS

ALL LUMBER SHALL BE VISUALLY GRADED AND STAMPED WITH GRADE DESIGNATION, SPECIES, AND ADDITIONAL INSPECTION INFORMATION, U.N.O..

2. USE SOUTHERN YELLOW PINE FOR EXTERIOR EXPOSURE APPLICATIONS AND WHERE SHOWN ON DRAWINGS

3. WHERE NOTED LVL ON DRAWINGS, PROVIDE VERSA LAM 3100 BY BOISE CASCADE, OR EQUIVALENT, WHICH

A. LVL PROPERTIES: Fb = 3100 PSIFc = 2510 PSI (PARALLEL TO GRAIN)

STRUCTURAL LUMBER SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 19%.

PROVIDE PRESSURE TREATED OR WOLVANIZED LUMBER FOR ALL LUMBER IN CONTACT WITH MASONRY OR

NOMINAL SIZES ARE TYPICALLY REFERENCED ON THE DRAWINGS. PROVIDE ACTUAL SIZES AS SET FORTH IN

- 1. USE ½" PLYWOOD WALL SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO WALL STUDS. STAGGER PANEL ENDS AND BLOCK ALL PANEL EDGES.
- 3. USE 34" PLYWOOD FLOOR SHEATHING. ATTACH PLYWOOD WITH LONG SIDE PERPENDICULAR TO FRAMING. STAGGER PANEL ENDS.

JOISTS AND RAFTERS FRAME OVER SUPPORTS. PROVIDE 1x3 DIAGONAL BRIDGING OR FULL DEPTH SOLID

STRUCTURAL STEEL NOTES SCALE: NTS

ANCHOR BOLT DOUBLE ANGLE ADDITIONAL ADDL **ARCHITECT** ARCH POUND LINEAR FOOT LONG LEG HORIZONTAL LLV BOTTOM OF FOOTING LONG LEG VERTICAL MAXIMUM MECHANICAL BOTTOM MANUFACTURER BEARING MINIMUM BETWEEN MISCELLANEOUS STRUCTURAL STEEL CHANNEL **NEAR FACE** CANT CANTILEVER CAST-IN-PLACE CONCRETE NUMBER CIP NEAR SIDE CJ CONTROL JOINT NOT TO SCALE CENTERLINE CLR ON CENTER CONCRETE MASONRY UNIT OUTSIDE FACE CNJ CONSTRUCTION JOINT COL COLUMN CONC OPPOSITE CONCRETE CONN CONNECTION PIER DESIGNATION CONT CONTINUOUS CONTR CONTRACTOR PARTIAL PENETRATION WELD COMPLETE PENETRATION WELD PREFAB PREFABRICATED CY CUBIC YARD PSF POUNDS PER SQUARE FOOT PSI POUNDS PER SQUARE INCH DIAMETER DIMENSION REINF REINFORCING STEEL DISCONT DISCONTINUOUS REQ, REQD REQUIRED DWG DRAWING ROOF DRAIN EXISTING SLIP CRITICAL FACH SECT SECTION EACH FACE SHEATH SHEATHING EL, ELEV ELEVATION SIMILAR SLAB-ON-GRADE **EQUIP EQUIPMENT** SPAC SPACING EACH SIDE SPECS **SPECIFICATIONS** EW EACH WAY STAINLESS STEEL EXP EXPANSION STANDARD EXT EXTERIOR STIFF STIFFENER FOOTING DESIGNATION STR STRAIGHT FDN FOUNDATION STRUCTURAL STRUCT FINISH FLOOR FLG FLANGE FLR **FLOOR** TOP AND BOTTOM FOOT FTG FOOTING TOC, T/CONC TOP OF CONCRETE T/FTG, TOF TOP OF FOOTING FIELD VERIFY TEMPERATURE T/SHELF TOP OF SHELF GALVANIZED T/SLAB TOP OF SLAB T/STL TOP OF STEEL HOR, HORIZ HORIZONTAL TOP OF WALL T/WALL HOLLOW STRUCTURAL SHAPE HSS STRUCTURAL TUBING HEIGHT

ABBREVIATIONS SLOPE _ SLOPE DESIGNATION UNDISTURBED EARTH **ELEVATION MARK** LEDGE ROOF PITCH COMPACTED STRUCTURAL FILL SPAN DIRECTION CONCRETE SECTION MARK GROUT DWG. WHERE SHOWN-BRICK CMU

INSIDE FACE

INFORMATION

KSI

KIP (1 KIP = 1,000 LBS)

KIPS PER SQUARE INCH

LEGEND SCALE: NTS

WELDED WIRE FABRIC SCALE: NTS

UNO

VER, VERT

UNLESS NOTED OTHERWISE

STRUCTURAL STEEL WIDE FLANGE

VERIFY IN FIELD

WITHOUT

WEIGHT

WORK POINT

0410 AND JRB/ \sim 0 0

CAROLYN C.

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MAIN BIDDING

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STRUCTURAL NOTES

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PLAN NUMBER