LANDSCAPING

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION & QUALITY ASSURANCE

 All property lines were provided and established by others. These plans do not constitute a legal survey. 2. All construction work shall be in accordance with the plans, project specifications, The Standard Specifications and Details

for Public Works Construction as adopted by Carson City. The Uniform Building Code and other codes or regulations that 3. The Contractor shall be a Nevada licensed C-10, bonded, and experienced installer who has completed landscape and

irrigation systems similar in material, design and extent to that indicated for this project. 4. The Contractor shall have on the job site, at all times, a foreman fluent in understanding and speaking the English language.

5. The work shall consist of furnishing all labor, materials, services, tools, equipment and incidentals and performing all of the work required in the contract documents and as specified herein. 6. The Contractor is responsible for locating all underground utilities prior to any digging or construction. Protect utility lines

from damage during all phases of landscape and irrigation work. Existing lines shall be marked prior to digging or trenching.

Call Underground Service Alert at 811. 7. The Contractor shall refer to the Civil drawings for location of utilities. If damage occurs during the course of the work, the Contractor shall promptly repair all damages to existing site at no cost to the Owner. Protect all existing work during

8. The acquisition of all necessary permits and approvals associated with construction shall be the Contractor's responsibility. 9. The Contractor will be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The duties of the Owner or Landscape Architect do not include review of the adequacy of the Contractor's safety in,

10. The Contractor shall be responsible for reading all notes, checking plant names and confirming all numbers, sizes, and plant availability prior to submitting bid. If quantities listed in the planting schedules do not correlate with the quantities indicated

on the plans, then plan quantities shall govern. 11. The Contractor shall take all necessary precautions to provide effective dust control of all prepared soil areas.

12. The Contractor shall perform a soils test to see if there is a need for soil amendments to compensate for a high pH or nutrient deficiencies. Testing shall be conducted as soon as grading is finished, and shall be completed no later than two weeks after Contractor begins work on the site. Samples shall be sent to a certified soils testing laboratory for analysis and recommendations shall be obtained for amending soil if indicated by the lab report. The Landscape Architect shall receive a copy of the lab report and recommendations for improving soils shall become a part of the landscape work

13. It is understood that minor deviation and/or plant substitutions may be necessary during the course of the project. These deviations may be done if approved by the Landscape Architect or others as allowed per NRS, and if consistent with the original approved design and plants selected are similar to the original plan and intended purpose. Notification in writing to the Community Development Planning Department is required for these instances. Approval is required from the Director prior to installation.

There shall be no dumping, parking or storage of materials in areas to be landscaped.

construction.

1. The Contractor shall submit the following items for review and approval prior to purchase and delivery to the site: a. (1) gallon sample of Bark Mulch for use in the planting basins, (2) gallon sample of Decomposed Granite, (2) gallon

sample of River Cobble, (2) gallon sample of Fractured Rock. b. Procured list of all trees and shrubs and certificates of inspection as required by governmental authorities.

c. The Contractor may submit pictures of all trees before ordering. This is encouraged to facilitate smoother ordering and maintain quality control.

d. Pre-emergent herbicide

e. Tree stakes

Specified Topsoil and Fertilizers q. Tags, labels or manufacturer's literature on all mandatory products

1.2 DELIVERY, STORAGE AND HANDLING

l. Deliver packaged materials in original containers showing weight, analysis and name of manufacturer.

2. Protect materials from deterioration during delivery and while stored at the project site.

3. Protect plant material at all times from sun ore drying winds until planted. Plants shall not be handled by unprotected root balls, stems, trunks, or tops, but only by the container. 4. If planting is delayed more than 6 hours after delivery, set plants in shaded area and keep roots moist by watering as

needed, and by covering with mulch, burlap or other acceptable means of retaining moisture. Do not permit roots to dry out for any reason. 5. Shipped or transported plants shall be fully protected from exhaust fumes, wind, whipping, drying, breakage, etc. by any

6. The Construction Manager or Landscape Architect has the authority to reject any plants that are not considered

acceptable at the time of planting or that deteriorate prior to final acceptance.

2.1 PLANT MATERIALS 1. All plant materials and trees to be #1 grade nursery stock and meet current industry quality standards adopted by The American Association of Nurserymen, American National Standards Institute (ANSI) Z60 and Nevada Revised Statutes (NRS) 555 'Regulations of Nursery and Nursery Stock). All (particularly trees) must comply with the following as applicable:

-no girdling, kinked, circling or "J" roots. -no trees that have been topped

-no large wounds in the trunk bark or on the limbs. Any small wounds must have a satisfactory callus roll formed or forming

-free from insects, disease, sunscald, windburn, rodent or mechanical damage -no trees with large nursery stakes through the rootball or those grown on a nursery stake

-rootball to be appropriate to caliper and crown size

-no double leaders on single trunk species -crotches sound and unsplit

-buds plump on deciduous trees and evergreen foliage with good, intense color

-trunk/crown structure and trunk taper to be appropriate to the species

-all graft unions to be healthy with trunk diameter below the union larger than above the union

-all trees to stand upright without stakes

-roots, bark, and shoot growth to give evidence of good tree vigor

-evergreen trees must branch to the ground -no pruning cuts over 1" diameter in evidence

-all box trees to be stake free nursery stock. No large stakes through rootball.

-Any replacement of plant stock to be equal to original specification and approved by the Construction Manager or Landscape Architect.

2. Deciduous trees shall be single-stem with appropriate trunk taper (larger caliper at the base and smaller caliper at the first branch), intact main leader, height of branching shall bear a relationship to the size and kind of tree so the crown of the tree will be in good balance.

3. Evergreen trees and shrubs shall have full branching structure, oversized root balls, with a well-balanced form that complies with the dimensions required for quality shrubs per the American Standards for Nursery Stock

4. Deciduous shrubs shall have no less than the minimum number of canes required by the Current Edition of the Am. Standards for Nursery Stock. 5. Balled and burlapped stock shall have a firm, natural ball of earth in which they were grown.

6. Containerized stock shall be healthy, vigorous, well-rooted (but not root-bound) established in the container in which they

Trees that arrive with supporting stakes and cannot support themselves, will be rejected.

2.2 MATERIALS OTHER THAN PLANTS

Rock mulches (see Sheet L3-Mulching Plan) Tree stakes and tree ties (see Sheet L2-Planting Details)

3. Plant Fertilizer (see Part 3 - Execution)

4. Bark Mulch for plant basins (see Sheet L3-Mulching Plan) 5. Fill Soil for Excavated Planters - Nevada Organics Screened Topsoil or approved equal

6. Imported Topsoil for Planting Holes and Lawn - Nevada Organics Premium Topsoil Mix 7. Soil Amendment other than Topsoil - Kelloggs amend or equal

8. Weed Fabric - DeWitt Pro-5 (for use under Rock mulches only, not Decomposed Granite) 9. Pre-emergent product - Ronstar / or Bests granular. (DO NOT use around perennials)

PART 3 - EXECUTION

. Before beginning work, the Contractor shall inspect the existing grades and installed work of other trades to verify that landscape construction can begin.

2. All planting beds shall have positive drainage away from existing structures, adjacent property, etc. Insure for even

drainage of planting areas. 3. Hand excavate as required to prevent damage to existing utilities and infrastructure.

4. The Contractor shall be required to insure that all planting bed areas are properly graded/excavated to establish rough grade and finish grade once all required soil amendments and groundcover mulches have been installed. See sheet L3 for

5. Rough grade in all planting bed areas shall be scarified to a minimum depth of 8"-10" (min.) prior to installation of plant material. This is especially critical in areas of compaction. Work with the concrete contractor up front to prevent excess accumulations of base material, or remove excess base material from the planting areas and fill voids with topsoil.

6. See Material Section for Topsoil requirements. 7. All planting beds shall be stripped and cleared of all lawn, roots, weeds, and debris and shall be raked to a smooth and

even grade prior to plant material installation. 8. All mulches must be contained within the boundaries of curb or walk and not mound up or spill over. Install medium chipped bark mulch in all plant basins sized per Sheet L3, Mulching Plan, by plant type. Barked basins shall not have weed fabric under. 9. Final location of all landscape plant material shall be set by the Contractor according to the plans and approved by the Landscape Architect before installation.

10. No plant or irrigation locations shall be placed to conflict or create conflict with signs, lights, utilities, sight lines, etc. If a proposed location will create a conflict, contact the Landscape Architect or Construction Manager for direction.

11. The Contractor shall space plant materials to accommodate evergreen tree growth. Space all

shrubs/groundcovers/perennials a minimum of 8' away from any evergreen tree trunk 12. All planting pits shall be either hand or backhoe dug (no auger). The bottom and sides of the planting pits shall be scarified before installation of the plant material. Holes shall be three times as wide as the rootball diameter, the same depth as the rootball and backfilled with an approved soil mix. The Contractor shall remove twine, ties, containers and wire baskets from all plant material. Do not disturb rootballs. Remove any excess soil on trees or shrubs that has accumulated during the packaging 4 shipping process, (B4B stock - especially) in order to determine proper planting depth in order to place rootball at 1" above grade. Clean down to the top of structural (flared) root system. Peel back and remove excess burlap so that the remaining fabric is concealed underneath the soil. Slash in several places underground. Remove wire baskets once the tree is placed in the planting hole. Foot tamp soil around the rootball as the hole is filled. Do not plant trees with rootballs that are loose and unstable.

13. Do not plant in areas with poor drainage. If a planting hole, filled with water, has not drained after 30 minutes, contact the Landscape Architect or Construction Manager for alternative locations, or drainage measures.

14. Install Best Paks (or approved equal) water soluble starter plant fertilizer, in all planting pits. Use: (1) per 1-gallon container

(3) per 5-gallon container (5) per 15-gallon container/2"-caliper or larger tree 15. Tree staking shall be done on all trees. The Contractor shall stake as per details. Original nursery stakes on trees shall be removed before installation. Trees must stand upright without support to be acceptable. Add a third stake if trees are not stable with two. Allow for some flex of trunk Remove stakes after one or two growing seasons. Cut stakes to a level where they do not interfere with or injure tree branches. Top of cut stakes shall be at the same height. 16. Spread Ronstar or Best's pre-emergent granules on the soil in planting areas and wet in prior to laying down mulch. Apply

SOD INSTALLATION

per manufacturer's specifications.

 Sod Lawn Preparation: a. Place 2" (inches) Nevada Organic Premium Topsoil in sod areas as shown on the drawings and till in 6" deep.

conditions dictate. Longer irrigation times may be required due to type of sprinkler head. Do not water at night.

b. Top dress all lawn areas with an additional 2" (inches) topsoil to establish finish grade. c. Use topsoil in a relatively dry state. Place during dry weather.

d. Fine grade soil to a uniform finish. Remove all surface rock larger than I" diameter. Maintain levels, profiles and contours of existing grades. Roll all sod lawn areas to approximately 80% compaction, do not overcompact. e. Install sod so all joints are tight and smooth on a moist, lightly compacted surface. lay sod such that long edges are

parallel to contours and perpendicular to slope. Alternate joints in a running bond pattern. . Roll sod. Adjust grade irregularities as required. q. Upon completion of rolling, the lawn shall be watered frequently (typically 3 times/day) for 5-10 minutes or as weather

PART 4 - MAINTENANCE

The Contractor shall remove and haul away all debris from landscape work on a daily basis from the site. Keep all equipment, materials or other items on the jobsite out of the way of pedestrian and vehicular areas. 2. Begin maintenance upon completion of and immediately after installation of any landscape plant material. 3. Any pruning shall be in accordance with the most recent edition of the ANSI A300 Pruning Standards. 4. The Contractor shall inspect the site regularly to review the condition of all plantings. If any changes in the overall

maintenance program are required to improve the conditions to an acceptable standard the Contractor shall notify the Owner in writing. Otherwise the Contractor accepts full responsibility for the condition of the plantings and must honor the guarantee. Any plants replaced under this quarantee shall be quaranteed for one (1) full year from the date of replacement. 5. The Contractor shall be required to provide maintenance of the entire irrigation system 4 all landscaping until Final Acceptance.

<u>PART 5 - INSPECTIONS AND APPROVALS</u>

. All approvals shall be made by the Construction Manager, Landscape Architect or Carson City representative, who shall be present for the following tests and inspections:

a. Finish grade for all planting beds shall be approved before installation of plant material and mulches.

b. All trees and shrub quality to be approved upon delivery and prior to installation.

required to correct all non-conforming items identified as incomplete or inadequate.

c. Field placement of all boulders shall be approved prior to planting and installation of mulches. d. Plants shall be set in proposed locations and reviewed/approved by the Landscape Architect prior to digging in. e. A walk-through and punch list will be made at the time of Substantial Completion. At this time, the Contractor will be

f. A final walk-through will be made after being notified by the Contractor of 100% completion of all punch list items. Plant species identification tags are to be left on plants until after approval of the landscaping and then removed.

All landscape and irrigation work and products shall be warranted for (1) year following Final Acceptance. Replacement of any plant which dies shall be done within (2) weeks notice, with plants equal to original materials used except for plant losses due to vandalism, acts of nature, animal damage, or neglect by the Owner.

IRRIGATION

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION & QUALITY ASSURANCE

All plumbing and electrical work shall be completed as per all local codes.

2. Installation of materials shall be per manufacturers recommendations or as specified. No extra payment will be made where piping must be offset to avoid existing conditions, other work or where changes are necessary to facilitate installation.

3. The Contractor shall have all necessary qualifications to perform the work (see Landscape). 4. The irrigation system shall be constructed for full winterization by the Contractor who shall supply manual

mainline drains in any location required. See Record Drawing requirements. 5. The Contractor shall take all precautionary measures necessary to protect existing improvements which are to remain in place, from damage, and all such improvements damaged by the Contractor's operations shall be repaired or reconstructed to the Owner's satisfaction at the Contractor's expense. 6. The Contractor shall use extreme caution when working near overhead or underground power and/or telephone, water, gas and sewer facilities so as to safely protect all utilities, personnel, and equipment,

and shall be responsible for all costs and liability in connection therewith. The Contractor shall coordinate his work with other Contractors, for the location and installation of pipe sleeves and laterals under sidewalks and paving.

8. The layout is diagrammatic and field adjustment shall be made in response to actual site conditions. Do not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade differences or differences in the area dimensions exist that might not have been considered in the design. Such obstructions or differences shall be brought to the attention of the Construction Manager. In the event this notification is not performed, the Contractor shall assume full

responsibility for any revisions necessary. 9. Provide equipment and parts not specifically noted, but reasonably inferred from the plans and standard installation practice for a complete and workable system. All equipment, specialties and accessories on the job shall be listed, labeled or permanently marked.

10. There shall be no substitutions of products on this project without pre-approval. 11. All materials shall be new, without flaws and considered the best available. The completed system shall have a one-year warranty after final project acceptance on all parts and labor. 12. The design is to an estimated constant of 60 psi at the minimum. Test for static water pressure prior to starting work. Notify the Landscape Architect if pressure differs significantly or high pressure requires

1.1 SUBMITTALS

additional in-line pressure regulation.

The Contractor shall initially submit the following items for review and approval prior to purchase and delivery to the site. This list shall provide the item number, trade name, corresponding catalog number and other. supportive data in the form of catalog sheets, specifications or brochures including detailed information for each item:

a. Information/date on all products or materials to be used in the construction of the irrigation system including but not limited to PVC pipe, Polytubing, Glues and Fittings, Backflow Preventer including Test Equipment, Backflow Blanket, Controller, Valves (both manual and automatic control), Quick Couplers, Isolation Valves, Sprinklers, Drip Equipment, and Field Control Wiring.

2. The Contractor shall submit post-construction the following items: a. Record Drawings (see description below) b. One Controller Chart, showing the areas covered by each valve and hermetically sealed between two pieces of plastic for installation on the controller door. Chart to be a legible, reduced drawing

of the actual as-built system. c. Maintenance and product data/warranties in an 'Operations and Maintenance Manual' for project close-out for the: Backflow Preventer (including instructions for testing), Pressure Regulators (as req.d.), Automatic Control Valves and Quick Coupler Valves, and the Controller.

. All products and materials used in construction shall comply with the approved list for projects occurring in Carson City and used on public projects.

PART 3 - EXECUTION 3.1 DESCRIPTION

1. The RPA backflow unit shall be protected by a winterization blanket. Lock and key shall be provided.

2. On all threaded joints within the irrigation system, the Contractor shall use 2-3 full turns of teflon tape at each connection. The Contractor may use teflon paste as a lubricant with teflon tape, but not as a substitute for it.

3. Pipe dope shall not be used anywhere on the irrigation system.

4. Filter fabric for above all rock sumps shall be Dewitt Pro-5 weed barrier or an approved equal. 5. All irrigation mainline 4 lateral piping shall be schedule 40 Polyvinyl Chloride (PVC) plastic pipe, ASTM D 1785 except where noted under roads, Note 7 and 8 below.

6. All Sch. 80 plastic pipe fittings and risers shall be molded fittings manufactured of the same material as the pipe and shall be suitable for solvent weld, slip joint ring tight seal, or screwed connections. 7. Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes shall be permitted, but substitutions of larger sizes may be approved. All damaged and rejected pipe shall be removed from the site at the time of said rejection.

8. PVC pipe joining materials shall be solvent cement, ASTM F 65 Primer and ASTM D 2564 Solvent cement in color other than orange. No clear glue or hot glue is permitted.

9. Irrigation mainline to be buried 24" below finished grade and all lateral line piping to be buried 18" below finish grade. All drip irrigation tubing to be buried 4"-6" below finish grade.

10. Trench walls shall be vertical, free of rocks and debris and bottom of trench shall be excavated tree inches below the required grade so that the pipe can be laid on a compacted bed of imported Type A Bedding Sand.

II. Install piping at a uniform slope, free of sag and bends. Slope all lines to drain. Install Manual drains to drain down backflow and wherever else needed on mainline for proper winterization. White King drains shall be installed at all low points on the lateral lines. Construct gravel sumps under mainline drains (min. 2 cu. ft.). 12. Gate Valves 2" and smaller shall be brass, rising-stem gate valves with (PFTE) impregnated packing and star top handle.

13. Provide concrete thrust blocks under RPA as shown in the detail. 14. Backfilling: backfill material shall be installed in 4-6 inch lifts with each lift being thoroughly moistened and compacted to a relative density of not less than 95% by the use of hand tampers. No water jetting shall be allowed. Use only materials that is either sand, pit run, or excavated material that contains no rocks larger than I inch in diameter.

15. The Contractor shall expose ends of all irrigation sleeves. Any broken or shattered ends shall be cut to a clean and even end before installation of either mainline pipe, lateral lines or drip irrigation tubing. All sleeve ends shall be inspected by the Construction Manager or Landscape Architect before burying. 16. Mainlines shall be flushed and pressure tested at 1.5 times the static pressure for a minimum 2 hour period. Test will be considered successful if no pressure loss occurs during the two hours. If any leaks are present they shall be corrected and lines shall be re-tested. Notify the Construction Manager two (2) working days in advance to schedule a hydrostatic pressure test. 17. The Contractor shall flush all laterals and emitter lines prior to installing drip emitters.

3.2 CONTROL YALVES AND WIRING

1. All irrigation valves shall be located in professional grade valve boxes, Carson Industries or NDS Pro Series. Size of valve boxes shall vary with number of valves located in box. All valve box lid elevations shall be set flush with finished grade. Provide box size that will allow 6" clearance around all sides of valves, rectangular for valves, and round for quick couplers and manual drains. Place 3" min. drain rock 3" below valve. Use valve box extensions if required. Surrounding soil areas must be shielded in all cases. Provide bolts per manufacturer's recommendations and secure each valve box.

2. All control wire shall bear a U/L approved label for direct underground burial in National Electric Code class it circuits. AllG sizes. All new wiring shall be 12/1 AllG UF gauge for control wires and copper 12/1 AWG UF RHH for common. Control wire shall have a jacket color of red -- Common wire shall have a jacket color white. Furnish cables with jackets of different colors for multiple cable installation in each trench. All wires shall be labeled in valves boxes and at the controller. No 14 gauge wire will be permitted anywhere on this project.

3. Provide (2) extra valve control wires as a system backup and loop into each valve box. See Detail i.4 and i.8, Sheet L6, for extra wiring diagram.

4. All control wire runs less than 1000' shall have no splices. If a splice occurs on a field control wire, the Contractor shall install the splice in a 6" round valve box using RainBird Pen-Tite or Kingwire watertight splice wire connectors. All splices have to be approved by the Carson City Parks and Recreation Department, otherwise the entire field control wire shall have to be removed and replaced.

5. Tape and bundle all control wire to the bottom of the mainline pipe at 10' on center except in sleeving under roads where separate sleeves have been provided. 6. Electrical connections for the Controller to be installed by a licensed Electrician. The Contractor will be responsible for connecting the valve wires to the controller.

3.3 DRIP IRRIGATION

l. Drip Emitters schedule: use Rain Bird pressure compensating XB-10 and XB-20. (2) each one gal/hour for all I gal. plants

(3) each one gal/hour for all 5 gallon plants and Evergreen speciman shrubs

(4) each two gal/hour for Vanderwolf Pines (5) each two gal/hour for all 2" and larger Caliper Trees Multiple emitters shall be evenly distributed around the rootball. Locate emitters to wet the rootball and

3.4 CONCRETE THRUST BLOCKS

1. Concrete: Portland cement mix, 3000 psi., ASTM C 150, Type 1. Fine Aggregate: ASTM C 33, sand. Coarse Aggregate: ASTM C 33, crushed gravel. Water: Potable. Reinforcement: Steel Bars, ASTM A 615 Grade 60, deformed.

areas of new soil. Do not place emitters at the trunk. Secure all drip and emitter tubing with tubing

PART 4 - INSPECTIONS AND APPROVALS

All approvals to be by the Landscape Architect or Carson City representative, who shall be present

for the following tests and inspections: a. Open trench mainline inspection (lines can be covered for static pressure test, but all joints and

valve connections must be visible).

b. Open trench wire control wire inspection c. Sleeving inspection, prior to burial

d. Layout of the drip system prior to coverage e. 100% Coverage test/automatic operation of the drip system

. Inspection and punchlist at the time of Substantial Completion Inspection prior to Final Acceptance. **DO not backfill lines/trenches prior to inspection. Failure to do so will result in the Contractor digging up selected areas for spot checking quality of workmanship at no cost to the Owner.

2. A minimum of 48 hours advance notice is required for all inspections. 3. Prior to final project acceptance, the Contractor shall instruct the Animal Services staff in the irrigation system operation and winterization to insure for a smooth transition.

PART 5 - PROJECT CLOSE OUT

. Record Drawings : The Contractor shall provide and keep current a complete set of Record Drawings which shall be corrected daily to show changes in the original drawings. All mainline piping, valve locations and drip tubing layout shall be shown with actual measurements to reference points. These drawings shall be submitted to the Construction Manager for in-field inspection and verification prior to final payment.

PART 6 - CONTRACT WARRANTY

See Landscape Specifications 2. In addition, the Contractor shall be responsible for any settling in the irrigation trenches or failure of

any components or workmanship executed by the Contractor. 3. All manufacturer's extended warranties shall apply for the period provided by the manufacturer of the



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SES URP(IRRIGATES)

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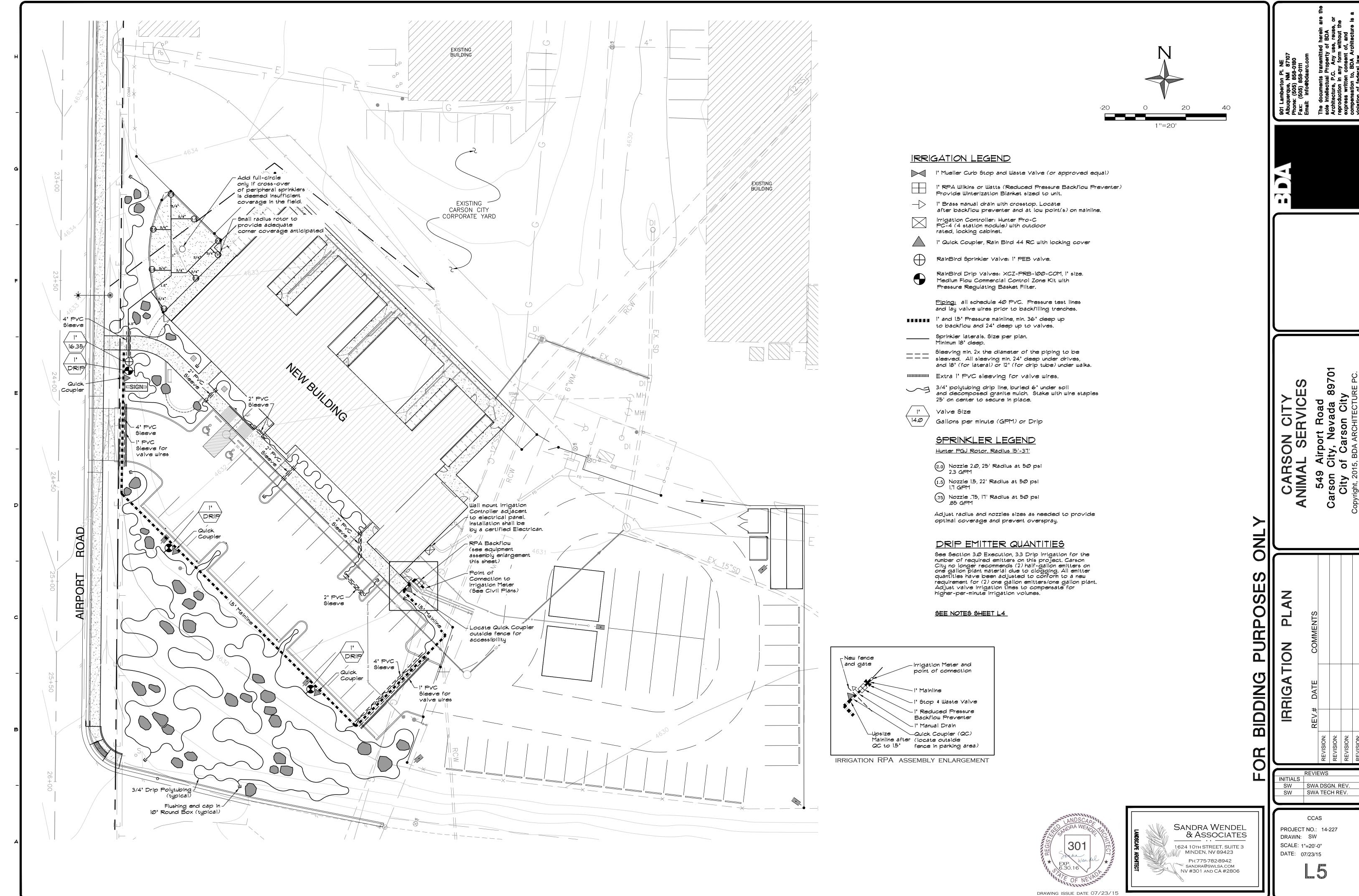
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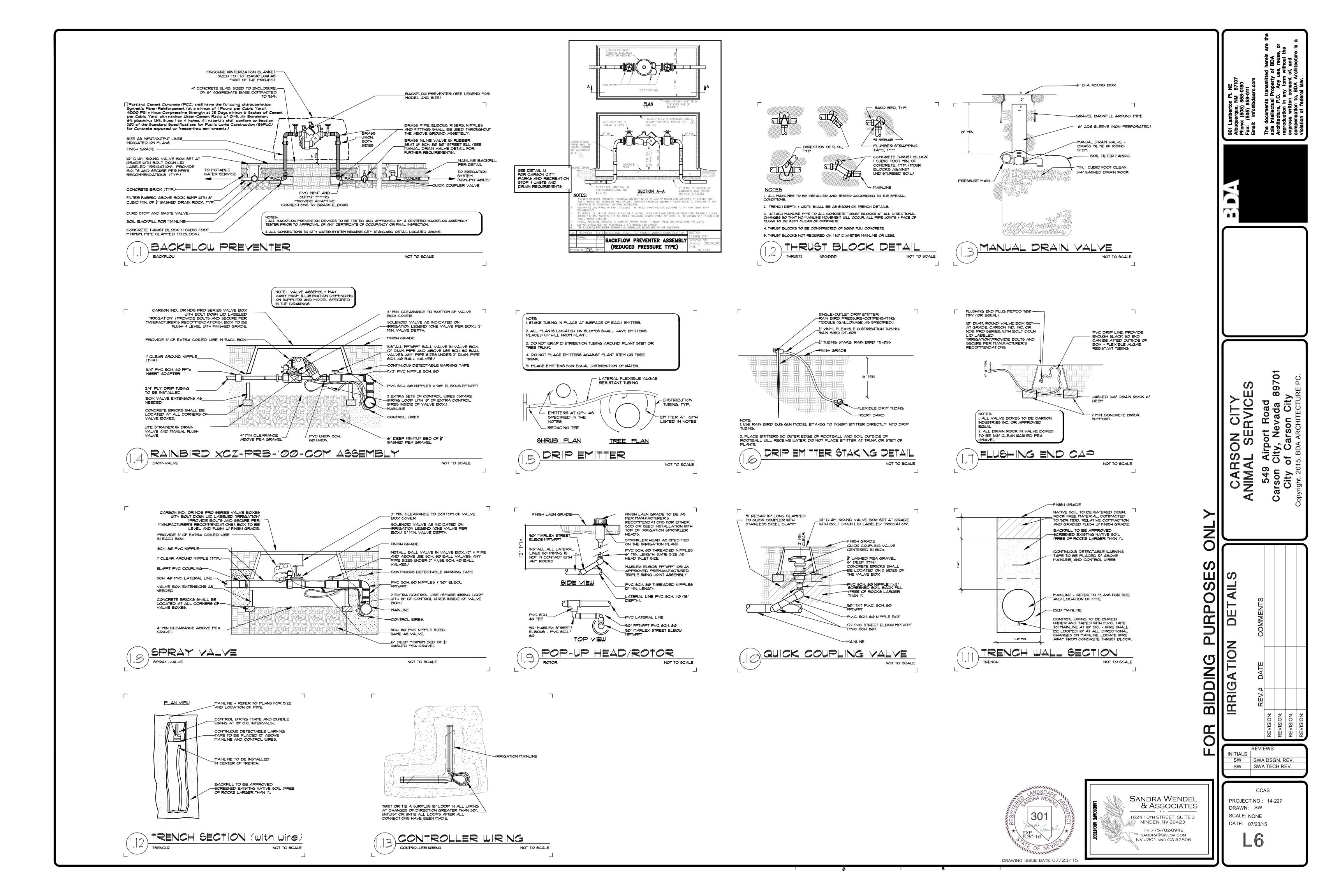
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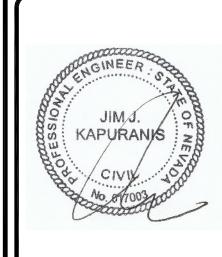
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DRAWING ISSUE DATE 07/23/15





	DESIGN CRITERIA		GE	NERAL NOTES			SUPPLEMENTARY NOTES	
	1. INTERNATIONAL BUILDING CODE (2012) WITH AMENDMENTS / ASCE	E 7–10	THESE CONTRACT DOCUMENTS REPRESENT THE FINISHE PROVIDE ALL MEASURES NECESSARY TO PROTECT THE INCLUDE, BUT ARE NOT LIMITED TO, MEANS AND METHO	E STRUCTURE, WORKERS AND OTHER PERSONS IODS, BRACING, SHORING, FORMS, SCAFFOLDING,	DURING CONSTRUCTION. SUCH MEASURES SHALL GUYING OR OTHER MEANS TO AVOID EXCESSIVE	• CERTIFICATIONS :	AND EPOXIED INTO CONCRETE AS DETAILED OR NOTED ON T	HE CONSTRUCTION DOCUMENTS SHALL BE ONE OF THE
	2. AISC MANUAL OF STEEL CONSTRUCTION — (9TH EDITION) 3. ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL REINFORCED CONCRETE. ACI 318 — 08. 4. MATIONAL DESIGN SPECIFICATION FOR WOOD (2005)		STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLENGINEER OR STRUCTURAL OBSERVERS SHALL NOT INCI	LACE DURING DEMOLITION/CONSTRUCTION. OBSE		ESR #1967 ER #5330	HILTI HY-150 POWERS/RAWL POWER-FAST	
	4. NATIONAL DESIGN SPECIFICATION FOR WOOD (2005). 5. LATEST CODE AND SPECIFICATIONS FOR REINFORCED MASONRY NAL:		 APPLY UNLESS SPECIFICALLY SHOWN OR NOTED TYPIC FULLY SHOWN OR NOTED SHALL BE SIMILAR TO DETAIL COMPLY WITH ALL APPLICABLE BUILDING CODES, REGUL 	LS SHOWN FOR SIMILAR CONDITIONS. ALL WORK,		ESR #2508	SIMPSON EPOXY—TIE SET (XP)	
•	 BUILDING CATEGORY II (IBC, TBL 1604.5). IMPORTANCE FACTORS: Ie (SEISMIC) = 1.0, Is (SNOW) = 1.0, Iw (WIND) = 1.0 		WRITING DURING THE BIDDING PERIOD OF ANY THE CO	CONTRACTOR SHALL INFORM THE ENGINEER IN D	SCREPANCIES OR OMMISIONS NOTED ON THE		FOLLOW THE STRICT RECOMMENDATIONS OF THE MANUFACTUR ISTANCE, USE THREADED ANCHOR ROD EPOXIED INTO DRILLE	EER AND THE APPLICABLE ER REPORT. WHERE SPALLING IS D HOLE. CONTRACTOR SHALL HAVE ER REPORT ON—SITE DURING
	3. LOAD COMBINATIONS: BASIC STRENGTH DESIGN (IBC, 1605.2.1). BASIC ALLOWABLE STRESS DESIGN (IBC, 1605.3.1).		DRAWINGS OR IN THE SPECIFICATIONS OR OF ANY VAR CONFORM TO CODES, RULES AND CONCERNED. ANY SL VARIATION NOT REPORTED SHALL BE THE RESPONSIBIL	UCH DISCREPANCY, OMMISION, OR THE ENGINE	I INFORMATION, NEEDED IN ORDER TO ER WILL SEND WRITTEN INSTRUCTIONS TO ALL		D INTO CONCRETE AS DETAILED OR NOTED ON THE CONSTRUCT	TION DOCUMENTS SHALL BE ONE OF
	4. DEFLECTIONS (IBC, TBL 1604.3).				ICAL, ELECTRICAL AND PLUMBING PLANS. ALL OPENINGS AND	ESR #1917 - ESR #2251-	HILTI KWIK-BOLT TZ ITW RAMSET / REDHEAD TRUBOLT	
ROOF.	DESIGN LOADS CAL LOADINGS:		PENETRATIONS SHALL BE LOCATED AND VERIFIED BY A ON DRAWINGS IF IN CONFLICT UNTIL RECEIVING CLARIFIC		ONTRACTOR SHALL NOT PROCEED WITH ANY WORK SHOWN ENINGS, SEE TYPICAL STRUCTURAL DETAILS.	ESR #3260- ESR #1396-	POWERS/RAWL POWER-BOLT WEDGE-ALL	
TYPE 1 = SHINGLES/LINER/METAL TYPE 2 = CLAY TILE TYPE 3 = CONCRETE	DESCRIPTION DEAD LOAD (PSF) LIVE LOAD (PSF) ROOF ROOF TYPE 1 20 20	IBC, TABLE 1607.1	 ALL DIMENSIONS AND ELEVATIONS SHOWN ON STRUCTU ARCHITECT PRIOR TO START OF CONSTRUCTION. DO NOT SCALE DRAWINGS. 	JRAL DRAWINGS SHALL BE VERIFIED WITH ARCHI	TECTURAL DRAWINGS. RESOLVE ALL DISCREPANCIES WITH	INSTALLATION OF EXPANSION BOLTS SHAL HAVE ER REPORT ON—SITE DURING ALL IN		JRER AND THE APPLICABLE ICBO-ER REPORT. CONTRACTOR SHALL
ARAPET)	ROOF TYPE 2 N/A N/A ROOF TYPE 3 N/A N/A N/A N/A N/A 30	IBC, TABLE 1607.1 IBC, TABLE 1607.1 (Pq) GROUND / NON-REDUCIBLE	THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONTRINCT TO THE ATTENTION OF THE ENGINEER B THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONTRINCT THE ENGINEER B	IDITIONS AND ELEVATIONS AT THE JOB SITE DUI BEFORE PROCEEDING WITH ANY WORK INVOLVED.	RING CONSTRUCTION AND BRING ANY	DEFFERED SUBMITTALS: THE SOLLOWING DOS. MANUSAGENESS SEEDS	MENTS CHAIL DE CURMITER AND REMEMER BY THE CUTY RIMIN	DING OFFICIAL PRIOR TO MOTHLATION
	N/A 21 N/A 14	(Pf) FLAT ROOF (Ps) SLOPED ROOF	NO STRUCTURAL CHANGE FROM THE APPROVED PLANS OBTAINED PRIOR TO MAKING SUCH CHANGE. CHANGES	WITHOUT THE WRITTEN APPROVAL SHALL BE TH		THE ARCHITECT AND ENGINEER OF RECOR	MENTS SHALL BE SUBMITED AND REVIEWED BY THE CITY BUILI D SHALL REVIEW THESE SUBMITTALS PRIOR TO SUBMITTAL TO TRUSSES — MUST BE SUBMITTED FOR REVIEW W/ MANUF. ENC	THE CITY BUILDING OFFICIAL :
	N/A 35	PARAPETS/WALLS WIDTH OF PARAPET DRIFT W= 4.73	THE CONDITION SHALL BE REPAIRED OR REPLACED AS THE MECHANICAL CONTRACTOR SHALL COORDINATE INS		E GENERAL CONTRACTOR. REFER		, in the second	
	FLOOR TYPE 1 N/A FLOOR TYPE 2 N/A	IBC, TABLE 1607.1 IBC, TABLE 1607.1	TO MECHANICAL DRAWINGS FOR SUPPORT STRUCTURES THE MECHANICAL CONTRACTOR SHALL FURNISH ALL NE FOR INSTALLATION OF MECHANICAL EQUIPMENT.	S AND INSERTS.				
* FLOORS TYPE 1 = WOOD SHEATHING TYPE 2 = METAL DECK/CONCRETE	FLOOR TYPE 3 N/A TYP. FLOOR N/A	IBC, TABLE 1607.1			•		SHOP DRAWINGS	
TYPE 3 = CONCRETE * INCLUDES COVERINGS	EXIT FACILITIES OFFICE FLOOR BALCONIES N/A N/A	IBC, TABLE 1607.1 IBC, TABLE 1607.1	SOILS REPORT BY: RESOURCE CONCEPTS, INC DRAFT JAN 9, 2015 SOIL PRESSURES (ALL PRESSURE TAKEN FROM SOILS RE	REPORT AS MOST CONSERVATIVE VALUES)		CONFORMANCE WITH THE DESIGN CONCEPT ANI	ITENDED TO HELP THE ENGINEER VERIFY HIS DESIGN CONCEPT D DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE SHOP DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR CONF	WITH THE DESIGN DRAWNGS AND
	DECKS N/A CONCENTRATED N/A		FOOTINGS (SPREAD) DESCRIPTION OF ALLOWABLE SOIL GROUND SLABS	•	2500 PSF 2500 PSF		TECHNIQUES, SAFETY AND COORDINATION OF THE WORK WITH	· ·
** WALLS	STORAGE HEAVY = N/A WALLS	IBC, TABLE 1607.1	PRESSURES (PER SOILS REPORT) CONTINUOUS FOOTINGS		2500 PSF		CHECKED BY THE CONTACTOR PRIOR TO SUBMITTAL. THE SHO WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CI	
TYPE 1 = WOOD/METAL	WALL TYPE 1 EXT. = 16 INT. = 6 EXT. = 70					PLAN LAYOUTS SHOWING LOCATIONS OF ITEMS DOCUMENTS SHALL BE CLOUDED ON SHOP DRA	WHICH SHOOLD HAVE BEEN FOUND BY THE CONTRACTOR'S CI S DETAILED ON THE SHOP DRAWINGS. ANY CHANGES, SUBSTI AWINGS. ANY OF THE CHANGES WHICH ARE NOT CLOUDED C REVIEW UNLESS NOTED ACCORDINGLY. THE SUBMITTED SHOP D	TUTIONS OR DEVIATIONS FROM THE CONTRACT OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT
TYPE 2 = MASONRY TYPE 3 = CONCRETE	WALL TYPE 2 INT. = 58 WALL TYPE 3 EXT. = 120 INT. = 90					RECORD IN A TIMELY MANNER NOT TO EXCEED	TWO WEEKS, PRESUMING ALL NECESSARY SHOP DRAWING SU THE MOST CURRENT CONSTRUCTION DOCUMENTS.	
** FINISHES (I.E. BRICK, STUCCO, GYP.) INCLUDE								
	IND LOADS: 1. BASIC WIND SPEED (3—SECOND GUST)	= 126 MPH	SEISMIC LOADS :			REQUIRED SHOP DRAWING SUBMITTALS CONCRETE REINFORCING (LAYOUT) CONCRETE MIX DESIGN		
T A T A T	 WIND EXPOSURE PRESSURE COEFFICIENTS 	= C (PER BUILDING OFFICIAL)	PLAN STRUCTURAL IRREGULARITIES	/A VERTICAL IRREGULARITIES		PRE-ENGINEERED WOOD TRUSSES (LAYOUT) STRUCTURAL STEEL LAYOUT		
	INTERNAL (GCPi) 4. MAIN LATERAL FORCE RESISTING SYSTEM	= .18	1b - EXTREME TORSIONAL IRREGULARITY		GULARITY - SOFT STORY GULARITY - EXTREME SOFT STORY	MASONRY WALL LAYOUT/REINFORCING		
6	WINDWARD (WORST CASE) LEEWARD (WORST CASE)	= 27.6 PSF = 7.3 PSF	2 - RE-ENTRANT CORNERS	2 - WEIGHT (MASS)	IRREGULARITY			
S CONFE TO C			3 - DIAPHRAGM DISCONTINUITY 4 - OUT-OF-PLAN OFFSETS	3 - VERTICAL GEOM	ETRY IRREGULARITY NTINUITY IN VERTICAL LATERAL FORCE			
N SO			5 - NON-PARALLEL SYSTEMS	RESISTING ELE				
TYPICAL EXTERIOR WALL ZONES			ANALYSIS PROCEDURE: EQUIVALENT STATIC MET	THOD DYNAMIC ANALYSIS				
2A A A	5 COMPONENTS & OLADDING (WALLS)		1. MAPPED SPECTRAL RESPONSE ACCELERATION	Ss = 2.35g (.2 SEC. F	•			
	5. COMPONENTS & CLADDING (WALLS) AT CORNERS FOR DISTANCE OF THE LESSER OF 10% OF HOHELEGHT BUT NOT LESS THAN 4% OF HORIZ. BLDG. DIM. NOF		2. SITE CLASS (BASED ON GEOTECHNICAL DATA	S1 = .808g (1.0 SEC. A) = D	RESPONSE)			
ZONE 3 ZONE 2 ZONE 3	ZONE 4 (MAX)	= -33 PSF - AWAY FROM CORNERS	3. SPECTRAL RESPONSE COEFFICIENTS	SDs = 1.550				
A SONE 1 H	ZONE 5 (MAX) 6. ROOF WIND LOAD UPLIFTS	= -37 PSF - NEAR CORNERS (WITHIN <u>A</u> DISTANCE)	4. SEISMIC DESIGN CATEGORY	SD1 = .808 = E				
N = R1 TO N	ZONE 1 (MAX) ZONE 2 (MAX)	= -29 PSF (UPLIFT) - GROSS = -41 PSF (UPLIFT) - GROSS	5. RESPONSE MODIFICATION FACTOR (R)6. SEISMIC RESPONSE COEFFICIENT [CS/1.4]	= 5 (SPECIAL MASS = .3 (ASD)	ONRY SHEARWALLS)			
ZONE 3 ZONE 2 ZONE 3	ZONE 3 (MAX)	= -65 PSF (UPLIFT) - GROSS	SEIGMIC NEGLONGE COETTOLENT [CO) 1.1]	()				
TYPICAL PLAN OF ROOF ZONES								
ABBREVIATIONS (THIS IS A COMPREHENSIVE LIST OF ABBREVIATION	ONS, SOME OF WHICH MAY NOT APPEAR ON THESE DRAWNO	25.)				SYI	MBOLS	
@ AT A.B ANCHOR BOLT	CLR CLEAR CMU CONCRETE MASONRY UNIT	EL ELEVATION ELEV ELEVATOR		OUTSIDE DIAMETER OUTSIDE FACE	SIM SIMILAR VERT	UNLESS OTHERWISE NOTED VERTICAL	SECTION / ELEVATION \$	STEPPED FOOTING
APA AMERICAN PLYWOOD ASSOCIATION A.S.T.M AMERICAN SOCIETY OF TESTING MATERIALS ARCH ARCHITECTURAL	COL — COLUMN CONC. — CONCRETE CONN. — CONNECTION	E.N EDGE NAILING E.S EDGE SCREW EQ EQUAL	LL LIVE LOAD 0.H	OVERHEAD OPENING	S.J STEEL JOIST WD SL SNOW LOAD WL	WOOD WIND LOAD		CENTER LINE
ASD ALLOWABLE STRESS DESIGN BLDG BUILDING	CONT CONTINUOUS CORR CORRIDOR DBL DOUBLE	EW EACH WAY EXIST EXISTING	LONG LONGITUDINAL P.C LWC LIGHT WEIGHT CONCRETE PLF	PRECAST POUND PER LINEAR FOOT	SPECS SPECIFICATIONS W/O S.S STAINLESS STEEL WT	WITH WITH OUT WEIGHT	FIELD WELD	PLATE ANGLE
BLK. BLOCK BM. BEAM B.N. BOUNDARY NAILING	DTL DETAIL DIA DIAMETER	EXP EXPANSION F.D FLOOR DRAIN FDN FOUNDATION	MAS — MASONRY PNL MAX. — MAXIMUM PSF—	VD PLYWOOD PANEL POUNDS PER SQUARE FOOT	STD STANDARD WWF STL STEEL TEMP TEMPORARY	WELDED WIRE FABRIC	•	SQUARE
B.O BOTTOM OF BTM BOTTOM BRG BEARING	DIM DIMENSION DL DEAD LOAD D.T DOUBLE TEE / DRAIN TILE	FTG — FOOTING FT FEET GALV. GALVANIZE	MIN MINIMUM PSI MISC MISCELLANEOUS R. OR	POUNDS PER SQUARE INCH RAD.— RADIUS	T & B — TOP & BOTTOM T & G — TONGUE AND GROOVE THK THICK/ THICKENED	Ψ .	Ø	DIAMETER
BRK BRICK C CHANNEL CJ. CONTROL JOINT	DWL DOWEL EA EACH EF EACH FACE	GA GAUGE HK HOOK HORIZ HORIZONTAL	M.O MECHANICAL OPENING N NORTH REQ'D	F. — REINFORCING D REQUIRED STUD ANCHOR	T.O TOP ÓF TRANS TRANSVERSE TS TUBE STEEL		MOMENT CONNECTION	<u> </u>
CCJ CONTROL GOINT CCJ CONSTRUCTION CONTROL JOINT	EJ EXPANSION JOINT	HSS — HOLLOW STRUCTURAL SECTION INT — INTERIOR JST — JOIST		D. — SCHEDULE	TYP TYPICAL		SLAB DEPRESSION	JJK Group, Inc. Consulting Structural Engineers
		 						3240 Juan Tabo Bldg. C Albuquerque, New Mexico 87111 tel. 505 296 5706 fax 505 296 1672 www.jjkgroup.com
								The following professional engineering submittal and its contents, including, without limitation, general notes, conditions, details, sections, colculations and code item explanations (collectively, the "Submittal"), is intended for and restricted to the exclusive use and reference of the client to whom this Submittal is addressed ("Client") solely with reference to and in connection with the project hereinater described ("Project"), and is not to be reproduced, copied, disseminated, entered into a computer database or used as part of or in connection with any other document or submittal, or otherwise used in any form or monner or by any person or entity other than Client without the express, prior written permission of JMK Group, Inc. JMK Group, Inc. hereby disclaims any and all responsibility, obligation, and liability of every and nature whatsoever, and howsoever arising, to any person or entity in any way relating to or arising out of any unauthorized use of the Submittal.



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PROJECT NO.: 1107 DRAWN: DATE: 7/23/15

S0.1

SPECIAL INSPECTION NOTES AND TABLES

1704 SPECIAL INSPECTIONS:

1704.1 GENERAL: Where application is made for construction as described in this section, the owner or contractor shall employ one or more approved agencies to perform inspections during construction on the types of work listed under Section 1704. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for the inspection of the particluar type of construction or operation requring special inspection.

1704.1.1 STATEMENT OF SPECIAL INSPECTIONS: The applicant shall submit a statement of special inspections prepared by the registered design professional in responsible charge in accordance with Section 107.1 as a doondition for issuance. This statement shall be in accordance with Section 1705.

1704.1.2 REPORT REQUIREMENT: Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the building official, and to the registered design professional in responsible charge. Reports shall indicate that work inspected was done in conformance to approved construction documents. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the applicant and the building official.

1704.2 INSPECTION OF FABRICATORS: Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator's shop, special inspection of the fabricated items shall be required by this Section and as required elsewhere in this code.

1704.2.1 FABRICATION AND IMPLEMENTATION PROCEDURES: The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to approved construction documents and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.

	completeness and adequacy relative to the code	·	·	
	1704.3 REQUIRED VERIFICATION AND I			IDC
	VERIFICATION AND INSPECTION	CONTINUOUS/ PERIODIC	REFERENCED STANDARD*	IBC REFERENCE
	1. MATERIAL VERIFICATION OF HIGH-S	TRENGTH BOLTS	S, NUTS AND WASHERS:	
	A. Identification markings to conform to ASTM standards specified in the approved Construction Documents.	Р	AISC 360, Section A3.3 and applicable ASTM material standards	
	B. Manufacturer's certificate of compliance required.	Р		
	2. INSPECTION OF HIGH-STRENGTH B	OLTING:		
-	A. Snug—tight joints	Р		
	B. Pretensioned and slip—critical joints using turn—of—nut with matchmarking, twist off bolt or direct tension indicator methods of installation.	Р	AISC 360, Section M2.5	1704.3.3
_	C. pretensioned and slip—critical joints using turn—of—nut without matchmarking or calibrated wrench methods of installation.	С		
	3. MATERIAL VERIFICATION OF STRUC	TURAL STEEL A	ND COLD-FORMED STEEL DECK:	
	A. For structural steel, identification markings to conform to AISC 360.	Р	AISC 360, Section M2.5	
E	B. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	Р	Applicable ASTM material standards	
	C. Manufacturer's certified test reports.	Р	Applicable ASTM material standards	
	4. MATERIAL VERIFICATION OF WELD F	FILLER MATERIAL	_S:	•
	A. Identification markings to conform to AWS specification in the approved construction documents.	Р	AISC 350, Section A3.5 and applicable AWS A5 documents	
-	B. Manufacturer's certificate of compliance required.	Р	AISC 360, Section M2.5	
	5. INSPECTION OF WELDING:			
	A. Structural steel and cold—formed steel deck:			
	Complete and partial joint penetration groove welds.	С		
	2. Multipass fillet welds.	С	AWC D4.4	170474
	3. Single—pass fillet welds > 5/16"	С	AWS D1.1	1704.3.1
	4. Plug and slot welds.	С		
	5. Single−pass fillet welds ≤ 5/16".	P		
1	6. Floor and roof deck welds.	Р	AWS D1.3	
	B. Reinforcing steel:			•
-	Verification of weldability of reinforcing steel other than ASTM A 706.	Р		
	Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls and shear reinforcement.	С	AWS D1.4 ACI 318: Section 3.5.2	
	3. Shear reinforcement.			
	4. Other reinforcing steel.	C P		
	6. INSPECTION OF STEEL FRAME JOIN	T DETAILS FOR	L COMPLANCE	l
	A. Details such as bracing and stiffening.	P	<u></u>	
	B. Member locations.	Р		1704.3.2
-	C. Application of joint details at each connection.	Р		

connection.		
A. Where applicable, see also Se	ection 1707.1, Special inspection for seismic resistance.	

VERIFICATION AND INSPECTION	CONTINUOUS/ PERIODIC	REFERENCED STANDARD*	IBC REFERENC
Inspection of reinforcing steel, including prestressing tendons, and placement.	Р	ACI 318: 3.5, 7.1-7.7	1913.4
Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5b.		AWS D1.4 & ACI 318: 3.5.2	
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.	С	ACI 318: 8.1.3, 21.2.8	1911.5, 1912.1
4. Inspection of anchors installed in hardened concrete.	Р	ACI 318: 3.8.6, 8.1.3, 21.2.8	1912.1
5. Verifying use of required design mix.		ACI 318: Ch. 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	С	ASTM C 172, ASTM C 31, & ACI 318: 5.6, 5.8	1913.10
7. Inspection of concrete and shotcrete placement for proper application techniques.	С	ACI 318: 5.9, 5.10	1913.6, 1913.7 1913.8
8. Inspection for maintenance of specified curing temperature and techniques.	Р	ACI 318: 5.11-5.13	1913.9
Inspection of prestressed concrete: A. Application of prestressing forces.			
B. Grouting of bonded prestressing tendons in the seismic-force resisting system.	C C	ACI 318: 18.20 ACI 318: 18.18.4	
10. Erection of precast concrete members.	Р	ACI 318: Ch. 16	
11. Verification of in—situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs.	P	ACI 318: 6.2	
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	P	ACI 318: 6.1.1	

1704.5.1 LEVEL (1) REQUIRED SPECIAL INSPECTION FOR MASONRY CONSTRUCTION (OCCUPANCY CATEGORY I. II. III)

INSPECTION TASK	CONTINUOUS/		REFERENCE FOR CR	
	PERIODIC	IBC REFERENCE	ACI 530/ASCE 5/ TMS 402*	ACI 530/ASCE 6/ TMS 602*
Compliance with required inspectin provisions of the construction documents and the approved submittals shall be verified.	Р			ART. 1.5
Verification of f'm and f'AAC prior to construction except where specifically exempted by this code.	Р			ART. 1.4B
3. Verification of slump flow and VSI as delivered to the site for self—consolodating grout.	С			ART. 1.5B.1b.3
4. As masonry construction begins, the following shall be verified to ensure	_			
compliance:	P			ART. 2.6A
A. Proportions of site-prepared mortar.	Р			ART. 3.3B
 B. Construction of mortar joints. C. Location of reinforcement, connectors, prestressing tendons and anchorages. 	Р			ART. 3.4,3.6A
D. Prestressing technique.	Р			ART. 3.6B
E. Grade and size of prestressing tendons and anchorages.	P			ART. 2.4B,2.4H
5. During construction the inspection program shall verify:				
A. Size and location of structural elements.	P P			ART. 3.3F
B. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	Р		SEC. 1.2.2(e), 1.16.1	
C. Specified size, grade and type of reinforcement, anchor bolts, prestressing				
tendons and anchorages.	Р		SEC. 1.15	ART. 2.4,3.4
D. Welding of reinforcing bars.	С		SEC. 2.1.9.7.2, 3.3.3.4(b)	•
E. Preparation, construction and protection of masonry during cold weather (temp. below 40 deg. F) or hot weather (temp. above 90 deg. F). F. Application and measurement of	Р	SEC. 2104.3, 2104.4		ART. 1.8C,1.8D
prestressing force.	С			ART. 3.6B
Prior to grouting, the following shall be verified to ensure compliance: A. Grout space is clean.	-			
B. Placement of reinforcement and	Р			ART. 3.2D
connectors and prestressing tendons and anchorages. C. Proportions of site—prepared grout and	Р			ART. 3.4
prestressing grout for bonded tendons. D. Construction of mortar joints.	Р			ART. 2.6B
·	Р			ART. 3.3B
7. Grout placement shall be verified to ensure compliance with code and construction document provisions.	С			ART 3.5
A. Grouting of prestressing bonded tendons.	С			ART. 3.6C
8. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.				3.55
Priorite ditail de apparteur	Р	SEC. 2105.2.2, 2105.3		ART. 1.5

A. The specific	standards	referenced	are	those	listed	l in	Chanter	35	

1704.6 WOOD CONSTRUCTION: Special inspections of the fabricatio and assemblies shall be in accordance with Section 1704.2. Special accordance with this section.		
1704.6.1 HIGH—LOAD DIAPHRAGMS: High—load diaphragms design special inspections as indicated in Section 1704.1. The special insacertain whether it is of the grade and thickness shown on the verify the nominal size of framing members at adjoining panel editastener lines and that the spacing between fasteners in each line	spector shall inspect the vapproved building plans. approved building plans. ages, the nail or staple dia	wood structural panel sheathing to Additionally, the special inspector mu meter and length, the number of
1704.6.2 METAL-PLATE-CONNECTED WOOD TRUSSES SPANNING 6 greater, the special inspector shall verify that the temporary is member restraint/bracing are installed in accordance with the	installation restraint/bracir	ng and the permanent individual trus
1704.7 REQUIRED VERIFICATION AND INSPECTION O	F SOILS	
VERIFICATION AND INSPECTION TASK	CONTINUOUS/ PERIODIC	
Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Р	
Verify excavations are extended to proper depth and have reached proper material.	Р	
Perform classification and testing of compacted fill materials.	Р	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	С	
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly.	Р	
	•	•
1704.8 REQUIRED VERIFICATION AND INSPECTION O	F DRIVEN DEEP FOU	INDATION ELEMENTS
VERIFICATION AND INSPECTION TASK	CONTINUOUS/ PERIODIC	′
Verify element materials, sizes and lengths comply with the requirements.	С	
Determine capacities of test elements and conduct additional load tests, as required.	С	
Observe driving operations and maintain complete accurate records for each element.	С	
Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve	С	

design capacity, record tip and butt elevations and document any damage to foundation element.

5. For steel elements, perform additional inspections in

6. For concrete elements and concrete-filled elements,

perform additional inspections in accordance with Section

7. For specialty elements, perform additional inspections as

determined by the registered design professional in

accordance with Section 1704.3.

responsible charge.

VERIFICATION AND INSPECTION TASK	CONTINUOUS/ PERIODIC
 Observe drilling operations and maintain complete and accurate records for each element. 	С
2. Verify placement locations and plumbness, confirm pier diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end bearing strata capacity. Record concrete or grout volumes.	С
3. For concrete elements, perform additional inspections in accordance with Section 1704.4.	

- 1704.12 SPRAYED FIRE RESISTANT MATERIALS Special inspections for sprayed fire-resistant materals applied to structural elements and decks shall be in accordance with Sections 1704.12.1 through 1704.12.6. Special inspections shall be based on the fire-resistant design as designated in the approved construction documents.
- 1705 SPECIAL INSPECTIONS FOR WIND RESISTANCE:
- 1705.4 WIND RESISTANCE: The statement of special inspections shall include wind requirements for structures constructed in the following areas: 1. In wind Exposure Category B, where the 3-second-gust basic wind speed is 120 miles per hour (mph) (52.8 m/s) or greater.
 - 2. In wind Exposure Category C, where the 3-second-gust basic wind speed is 110 mph (49 m/s) or greater.

1705.4.1 WIND REQUIREMENTS IN THE STATEMENT OF SPECIAL INSPECTIONS: When Section 1705.4 specifies that wind requirements be included, the statement of special inspections shall identify the main windforce—resisting systems and wind—resisting components subject to special inspections as specified in

1705.4.2 DETAILED REQUIREMENTS: The statement of special inspections shall include at least the following

systems and components: 1. Roof cladding and roof framing connections.

5. Windforce—resisting system connections to the foundation.

2. Wall connections to roof and floor diaphragms and framing. 3. Roof and floor diaphragm systems, including collectors, drag struts and boundary elements. 4. Vertical windforce—resisting systems, including braced frames, moment frames and shear walls.

3.2.1(2) shall be installed with

the following:

• 1707 SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE: 1707.1 SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE: Special inspections itemized in Sections 1707.2 through 1707.9, unless exempted by the exceptions of Section 1704.1, 1705.3, or 1705.3.1, are required for

> 1. The seismic—force—resisting systems in structures assigned to Seismic Design Category C, D, E or F, as determined in Section 1613. 2. Designated seismic systems in structures assigned to Seismic Design Category D, E or F. 3. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F that are required in Sections 1707.6 and 1707.7.

1707.2 STRUCTURAL STEEL: Continuous special inspection is required for structural welding in accordance with AISC 341. Exceptions: 1. Special inspections of structural steel in structures assigned to Seismic Design Category C that are not specifically detailed for seismic resistance, with a response modification coefficient, R, of 3 or less, excluding cantilver column systems.

2. For ordinary moment frames, ultrasonic and magnetic particle testing of complete joint penetration groove welds are only required for demand critical welds. 1707.3 STRUCTURAL WOOD: Continuous special inspection is required during field gluing operations of

elements of the seismic-force-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of components within the system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs. Exception: Special inspection is not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the seismic-force-resisting system,

1707.4. COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION: Periodic special inspection is required during welding operations of elements of the seismic-force-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of components within the seismic-force resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. Exception: Special inpsection is not required for cold-formed steel light-frame shear walls, braces, diaphragms, collectors (drag strust) and hold-downs where either of the following apply:

where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

1. The sheathing is gypsum board or fiberboard. 2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches o.c. 1707.5. STORAGE RACKS AND ACCESS FLOORS: Periodic special inspection is required during the anchorage

of access floors and storage racks 8 feet (2438mm) or greater in height in structures assigned to Seismic Design Category D, E or F. 1707.6 ARCHITECTURAL COMPONENTS: Periodic special inspection is required during the erection and fastening

of exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer in structures assigned to Seismic Design Category D, E or F. Exceptions: 1. Special inspection is not required for architectural components in structures 30 feet (9144mm)

2. Special inspection is not required for cladding and veneer weighing 5psf (24.5 n/m²) or less. 3. Special inspection is not required for interior nonbearing walls weighing 15psf (73.5 n/m²) or

1707.8. MECHANICAL AND ELECTRICAL COMPONENTS Special inspection for mechanical and electrical equipment shall be as follows: 1. Periodic special inspection is required during the anchorage of ectrical equipement for emergency or standby power systems in structures assigned to Seismic Design Category C, D, E or F. 2. Periodic special inspection is required during the installation of chorage of other electrical equipement in structures assigned to Seismic Design Category E or F.

3. Periodic special inspection is required during installation of piping systems intended to carry

flammable, combustible or highly toxic contents and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F. 4. Periodic special inspection is required during the installation of HVAC ductwork that will contain hazardous materials in structures assigned to Seismic Design Category C, D, E OR F.

5. Periodic special inspection is required during the installation of vibration isolation systems in structures assigned to Seismic Design Category C, D, E OR F where the construction documents require a nominal clearance of 0.25 inches (6.4mm) or less between the equipment support frame

1707.8. DESIGNATED SEISMIC SYSTEM VERIFICATIONS: The special inspector shall examine designated seismic systems requiring seismic qualification in accordance with Section 1708.4 and verify that the label, anchorage or mounting conforms to the certificate of compliance.

1707.9. SEISMIC ISOLATION SYSTEM: Periodic special inspection is required during the fabrication and installation of isolator units and energy dissipation devices that are part of the seismic isolation system.

NON-DESTRUCTIVE TESTING

ALL COMPLETE PENETRATION GROOVE WELDS CONTAINED IN JOINTS AND SPLICES SHALL BE TESTED 100% EITHER BY ULTRASONIC TESTING OR BY RADIOGRAPHY.

RECOMMENDED MINIMUM (U.O.N.) SAMPLING AND TESTING FREQUENCIES

IT IS RECOMMENDED THAT THE SITE PREPARATION, FOUNDATION CONSTRUCTION AND FLOOR SLAB CONSTRUCTION BE MONITORED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. THE FOLLOWING ARE RECOMMENDED MINIMUM SAMPLING AND TESTING FREQUENCIES.

- AT LEAST ONE MOISTURE-DENSITY (PROCTOR) TEST, ATTERBERG LIMITS TEST AND PERCENT FINER THAN #200 SIEVE TEST SHOULD BE PERFORMED PER EACH SOIL TYPE SUCH AS SUBGRADE AND SELECT FILL. - IN STRUCTURE AREAS, AT LEAST 1 DENSITY AND MOISTURE CONTENT TEST PER 2000 SQUARE FEET OF SURFACE AREA SHOULD BE PERFORMED ON THE SUBGRADE SOILS, AND AT LEAST 1 DENSITY AND MOISTURE CONTENT TEST PER 2000 SQUARE FEET OF SURFACE AREA SHOULD BE PERFORMED FOR EACH COMPACTED 6-INCH THICK LAYER OF FILL. TESTING BACKFILL TRENCHES SHOULD BE AT LEAST 1 DENSITY AND MOISTURE CONTENT TEST PER 100 LINEAR FEET OF TRENCH PER 6-INCH COMPACTED FILL

- A MINIMUM OF AT LEAST FIVE (5) DENSITY AND MOISTURE CONTENT TESTS SHOULD BE PERFORMED IN THE BUILDING AREA ON THE SUBGRADE SOILS, AND A MINIMUM OF AT LEAST FIVE (5) DENSITY AND MOISTURE CONTENT TESTS SHOULD BE PERFORMED PER 6-INCH COMPACTED THICKNESS OF FILL IN THE BUILDING AREA. TESTING OF BACKFILLED TRENCHES SHOULD BE AT LEAST 1 DENSITY AND MOISTURE CONTENT TEST PER 100 LINEAR FEET OF TRENCH PER 6-INCH COMPACTED FILL THICKNESS. - IT IS IMPERATIVE THAT A QUALIFIED FIELD TECHNICIAN BE ON-SITE DURING ALL SOIL PROCESSING AND PLACEMENT.

- AT LEAST 1 SLUMP, AIR CONTENT AND TEMPERATURE TEST SHOULD BE PERFORMED PER 50 CUBIC YARDS OF EACH TYPE OF CONCRETE PLACED EACH DAY INCLUDING WHEN CONCRETE TEST CYLINDERS ARE - AT LEAST 1 SET OF 4 CONCRETE TEST CYLINDERS SHOULD BE MOLDED FOR EACH TYPE OF CONCRETE

PER 50 CUBIC YARDS OR FRACTION THEREOF PLACED IN A DAY. - EACH SET OF CYLINDERS SHOULD BE TESTED FOR COMPRESSIVE STRENGTH WITH 2 OF THE CYLINDERS TESTED AT 7 DAYS AND 2 OF THE CYLINDERS TESTED AT 28 DAYS. - REINFORCING STEEL SHOULD BE CHECKED FOR SIZE OF PLACEMENT PRIOR TO CONCRETE PLACEMENT. - THE DIMENSIONS OF EACH FOUNDATION INCLUDING REINFORCING STEEL SIZE AND PLACEMENT SHOULD

BE CHECKED. - THE BEARING MATERIAL AT EACH FOUNDATION SHOULD BE CHECKED TO VERIFY THAT THE MATERIALS ARE SUITABLE FOR FOUNDATION SUPPORT.

THE ABOVE TYPICAL TESTING FREQUENCIES MAY BE MODIFIED AS

REQUIRED BY THE GEOTECHNICAL ENGINEER OF RECORD.

NOTE:

INDICATES SPECIAL INSPECTION IS REQUIRED.

SPECIAL INSPECTOR MUST SUBMIT REPORTS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.

CONTINUOUS SPECIAL INSPECTION (C):

THE SPECIAL INSPECTOR IS ON SITE AT ALL TIMES WHILE WORK IS IN PROGRESS OBSERVING THE TASK REQUIRING SPECIAL INSPECTION.

PERIODIC SPECIAL INSPECTION (P):

THE SPECIAL INSPECTOR SHALL INSPECT THE WORK ACCORDING TO THE SCHEDULE OUTLINED IN THE PLANS AND SPECIFICATIONS, AND MAKE SURE THAT THE PERIODIC INSPECTION IS ADEQUATE TO SATISFY THE PURPOSE OF A CONTINUOUS INSPECTION ON THE PARTICULAR WORK AND APPROVED BY THE BUILDING OFFICIAL.

Consulting Structural Engineers

3240 Juan Tabo Blda, C Albuquerque, New Mexico 87111 tel. 505 296 5706 fax 505 296 1672 www.jikgroup.com The following professional engineering submittal and its contents, including, without limitation, general notes, conditions, details, sections, calculation and code item explanations (collectively, the "Submittal"), is intended for and restricted to the exclusive use and reference of the client to whom

PROJECT NO.: 1107 DRAWN: DATE: 7/23/15

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CONCRETE

- PROTECT FRESHLY POURED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD AND HOT TEMPERATURES. START CURING AS SOON AS FREE WATER HAS DISAPPEARED FROM THE CONCRETE SURFACE AFTER PLACING AND FINISHING. ALL CURING PROCEDURES TO FOLLOW ACI 308.
- PROTECT CONCRETE FROM DAMAGE AND REDUCED STRENGTH CAUSED BY FROST, FREEZING ACTIONS AND LOW TEMPERATURES IN COMPLIANCE WITH ACI 306.
- PROTECT CONCRETE FROM DAMAGE AND REDUCED STRENGTH CAUSED BY HIGH TEMPERATURES IN COMPLIANCE WITH ACI 305. UNIFORMLY COOL WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT GREATER THAN 90 DEGREES FAHRENHEIT AT POINT OF PLACEMENT.

• REMOVE ALL DEBRIS FROM FORMS BEFORE POURING.

- CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES. USE HOPPERS, CHUTES OR TRUNKS OF VARIOUS LENGTHS SO THAT THE FREE UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED (5) FEET, AND A SUFFICIENT NUMBER SHALL BE USED TO ENSURE THE CONCRETE IS KEPT LEVEL AT ALL TIMES.
- ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING, DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES ETC. SHALL BE SECURELY POSITIONED IN THE FORMS BEFORE PLACING THE
- REFER TO SHEET SO.2A FOR CONTROL/CONSTRUCTION AND ISOLATION
- ALL HARDROCK CONCRETE SHALL BE OF REGULAR WEIGHT OF
- 145 POUNDS PER CUBIC FOOT.
- AGGREGATE SIZE SHALL CONFORM TO ASTM C33.
- CONCRETE GROUT SHALL BE NON-SHRINKING WITH SUFFICIENT WATER TO ALLOW POURING. ULTIMATE COMPRESSIVE STRENGTH (F'c) AT (28) DAYS SHALL BE EQUAL TO 4000 PSI (MIN).
- NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT UNLESS APPROVED BY TESTING AGENCY. CONCRETE SHALL BE PLACED WITHIN 15 MINUTES AFTER DISCHARGE.
- ONE GRADE OF CONCRETE SHALL BE POURED AT THE JOB SITE AT ANY ONE TIME.
- CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL OPENINGS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND EMBEDS REQUIRED WITH MECH., ELC., AND EQUIPMENT MANUFACTURER'S PRIOR TO PLACEMENT.
- NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN
- CURING: PROVIDE 7—DAY MINIMUM CONTINUOUS CURE ON ALL CONCRETE SURFACES AS SPECIFIED.
- ALL CONCRETE TESTS INCLUDING AIR CONTENT, SLUMP, AND TEST CYLINDERS SHALL BE TAKEN AT THE POINT OF DISCHARGE AND FROM THE DISCHARGE END OF PUMP HOSE WHEN CONCRETE IS PUMPED.

ADMIXTURES

TYPE OF ADMIXTURE	<u>DESCRIPTION</u>
Accelerators (ASTM C494)	Accelerating setting and early—strength development.
Air detrainers	Decrease air content.
Air—entraining admixtures (ASTM C260)	Improve durability in freeze—thaw, deicer, sulfate and alkali—reactive environments; Improve workability by introducing air bubbles in concrete.
Alkali—aggregate reactivity inhibitors	Reduce alkali—aggregate reactivity expansion.
Coloring admixtures (ASTM C979)	Colored concrete.
Corrosion inhibitors (ASTM C1582)	Reduce steel corrosion activity in a chloride—laden environment.
Hydration control admixtures	Suspend and reactivate cement hydration with stabilizer and activator.
Retarding admixtures (ASTM C494 and AASHTO M 194, Type B)	Retard setting time.
Shrinkage reducers	Reduce drying shrinkage.
Superplasticizers (ASTM C1017, Type 1)	Increase flowability of concrete; Reduce water—cement ratio.
Water reducer (ASTM C494 and AASHTO M 194, Type A)	Reduce water content at least 5%
Synthetic Micro Fibers	Reduce plastic and crazing cracks

CONCRETE QUALITY (ACI 318-08)

● CEMENT TYPE (ASTM C150)

•	
TYPE OF PORTLAND CEMENT	<u>DESCRIPTION</u>
Туре І	General—purpose for pavements, floors, reinf. conc. buildings, bridges, tanks, reservoirs, pipe, masonry units and pre—cast conc. products.
Type IA (Exterior)	Type I cement w/ air entraining.
Туре ІІ	Used for moderate sulfate attack.
Туре IIA	Type II cement w/ air entraining.
Type III	High early strength (one week or less).
Type IIIA	Type III w/ air entraining.
Type IV	Used where rate/amount of heat generated from hydration must be minimized.
Type V	Used for severe sulfate attack.

• COMPRESSIVE STRENGTH AND WATER-CEMENT RATIO (BY MASS) (ACI 211.1 & 211.3)

(ACI 211.1 & 211.5)			
COMPRESSIVE STRENGTH	* EXPOSURE	<u>WATER-CEME</u>	NT RATIOS
@ 28 DAYS (PSI)	<u>CATEGORY</u>	NON-AIR ENTRAINED	AIR ENTRAINING
7000	F0, S0,	0.33	ı
6000	P0, C0	0.41	0.32
5000		0.48	0.40
4000		0.57	0.48
3000		0.68	0.59
2000		0.82	0.74
4000	P1, S1	0.50	1
4500	F1, F2, F3, S2	0.45	-
5000	C2, S3	0.40	_

■ AIR CONTENT (ACI 211.1) (%)

* EXPOSURE			AGGREGATE SIZE (IN)					
	3/8	1/2	3/4	1	1½	2	3	6
MILD	4.5	4.0	3.5	3.0	2.5	2.0	1.5	1.0
MODERATE (F1)	6.0	5.5	5.0	4.5	4.5	3.5	3.5	3.0
SEVERE (F2 & F3)	7.5	7.0	6.0	6.0	5.5	5.0	4.5	4.0

* EXPOSURE CATEGORY	EXPOSURE CONDITION
F0, S0, P0, C0	Concrete protected from exposure to freezing and thawing, application of deicing chemicals, or aggressive substances.
P1	Concrete intended to have low permeability when exposed to water.
F1, F2, F3	Concrete exposed to freezing and thawing in a moist condition or deicers.
C2	For corrosion protection for reinforced concrete exposed to chlorides from deicing salts, salt water, brackish water, seawater, or spray from these sources.

<u>* SU</u>	ILFATE EXPOSURE CLASS	SULFATE (SO4) IN SOIL, % BY MASS	SULFATE (SO4) IN WATER, PPM		
S0	Negligible	Less than 0.10	Less than 150		
S1	Moderate**	0.10 to 0.20	150 to 1500		
S2	Severe	0.20 to 2.00	1500 to 10,000		
S3	Very Severe	Over 2.00	Over 10,000		

● <u>SLUMP (ACI 211.1)</u>

TYPE OF CONSTRUCTION	<u>Slumf</u>	SLUMP (IN)		
	<u>MAXIMUM</u>	MINIMUM		
Reinforced foundation walls and footings	6	3		
Unreinforced footings, caissons, and sub-structure walls	4	1		
Reinforced slabs, beams, and walls	6	3		
Building columns	6	4		
Pavements	3	1		
Heavy mass construction	3	1		
Bridge decks	4	3		
Sidewalk, driveway, and slabs on ground	5	3		

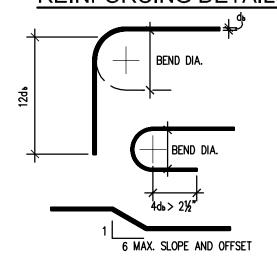
CONCRETE REINFORCING

- FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE."
- ALL REINFORCING STEEL SHALL BE NEW STOCK DEFORMED BARS CONFORMING TO ASTM A615 AS FOLLOWS:
 - #3 BARS..... GRADE 40 #4 & LARGER BARS..... GRADE 60
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- ALL BENDS SHALL BE MADE COLD.
- ALL WALLS AND COLUMNS SHALL BE DOWELED INTO FOOTING WITH BARS OF THE SAME SIZE AND SPACING AS THE BARS ABOVE (U.O.N. ON
- ALL REINFORCING STEEL SHALL BE SECURELY WIRED AND PROPERLY SUPPORTED ABOVE THE GROUND AND AWAY FROM
- PROVIDE CORNER BARS THE SAME SIZE AND SPACING AS THE HORIZ. REINF. AT THE CORNERS AND INTERSECTION OF ALL WALLS, BEAMS AND FOOTINGS (U.O.N. ON PLANS).
- CONTINUOUS FOOTING REINFORCEMENT SHALL HAVE A MINIMUM LAP PER SCHEDULE AND THE SPLICES IN ADJACENT BARS SHALL NOT BE LESS THAN (3) FEET APART.
- ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" ARE TO CENTER OF STEEL. MINIMUM REBAR COVER FOR CONCRETE SHALL BE AS FOLLOWS:

	MIN COVER	TOLERANCES + OR -				
CAST AGAINST PERM. EXPOSED TO EARTH	3"	3/8"				
EXPOSED TO EARTH OR WEA	ATHER	•				
NO. 5 AND SMALLER BARS	1-1/2"	3/8"				
NO. 6 AND LARGER BARS	2"	3/8"				
NOT EXPOSED TO EARTH OR WEATHER SLABS, WALLS, JOISTS:						
NO. 11 AND SMALLER BARS	3/4"	3/8"				
NO. 14 AND NO. 18 BARS	1-1/2"	3/8"				

- TOLERANCES FOR LONGITUDINAL LOCATION OF BENDS AND ENDS OF REINFORCEMENT SHALL BE PLUS OR MINUS (2) INCHES EXCEPT AT DIS- CONTINUOUS ENDS OF MEMBERS WHERE TOLERANCES SHALL BE PLUS OR MINUS 1/2 INCH.
- REINFORCING FOR CONCRETE POURED ON GRADE SHALL BE SUPPORTED BY STEEL CHAIRS.

REINFORCING DETAILS



STANDARD HOOKS FOR	PRIMARY REINFORCEMENT
BAR SIZE NO.	MINIMUM FINISHED BEND DIAMETER*
3 through 8	6dь
9, 10, 11	8dь

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+ +	db St.)
	BEND DIA.	<i>/</i>
6db for No. 3 through No. 5 12db for No. 6 through No. 8	692	

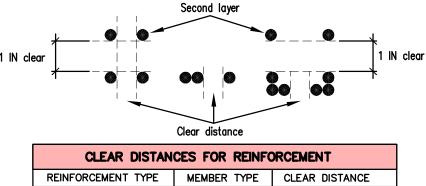
REQUIRED

INDICATES CONCRETE QUALITIES

NOTE:

CONCRETE REINFORCING (CONTINUED)

STANDARD HOOK	S FOF	STIRRU	PS &	TIE REINFORCEMENT			
BAR SIZE NO).	MINIMUM	FINISH	ED BEND DIAMETER*			
3 through 5		4dь					
6 through 8		6dь					
* measured on inside of bar							
STIRRUP SIZE/SF	PACING	- TYPI	CAL (U.O.N.)			
LATERAL TIES	STIR	RUP SIZE		SPACING			
MAIN REINF. (db)							
≤ #10	1	‡ 3	a.	sser of: 16dь			
> #10	1	‡ 4		48 x Stirrup Dia. Least Col./Bm. Dim.			
SPIRAL TIES							
≤ #10	1	‡ 3		v spacina = 3"			



REINFORCEMENT TYPE	MEMBER TYPE	CLEAR DISTANCE		
Deformed	Beams/Walls	* dь ≥ 1 IN		
bars	Columns	** 1.5dь ≥ 1½		
* If d _b < 1 inch use 1 in	ch Otherwise use	dhIN		

** If 1.5db < 1½ inches, use 1½ inches. Otherwise, use 1.5db.

REINFORCING DEVELOPMENT LENGTHS / SPLICES

CONCRETE

• TENSION SPLICE

	L₅ VALUES (IN), CLASS A										
BAR	f _e '(psi)										
SIZE	2000	3000	4000	5000	6000	7000	8000	9000	10000		
#3	27	22	21	21	21	21	21	21	21		
#4	36	29	26	23	21	21	21	21	21		
# 5	45	37	32	29	26	24	23	21	21		
#6	54	44	38	34	31	29	27	26	24		
#7	63	52	45	40	36	34	32	30	28		
#8	72	59	51	46	42	39	36	34	32		
#9	81	67	58	52	47	44	41	38	36		
#10	92	75	65	58	53	49	46	43	41		

					• •	•	-			
#8	72	59	51	46	42	39	36	34	32	
#9	81	67	58	52	47	44	41	38	36	
# 10	92	75	65	58	53	49	46	43	41	
L _s VALUES (IN), CLASS B										
BAR				f _c '	(psi)					
SIZE	2000	3000	4000	5000	6000	7000	8000	9000	10000	
#3	35	29	27	27	27	27	27	27	27	
#4	47	38	33	30	27	27	27	27	27	
# 5	59	48	42	37	34	31	29	28	27	
Ж	70	50	50	45	41	70	75	77	72	

82 67 58 52 47 44 41 39 37

DEVELOPMENT LENGTHS

L L	l.											
	, 1						JES (IN)	L _a VALI				
-	$\neg \neg$	T					(psi)	f _c '				BAR
	<u> </u>	4	10000	9000	8000	7000	6000	5000	4000	3000	2000	SIZE
		$\Gamma \downarrow$	21	21	21	21	21	21	21	22	27	#3
	Ī		21	21	21	21	21	23	26	29	36	#4
		/ 1	21	21	23	24	26	29	32	37	45	# 5
		1 1	24	26	27	29	31	34	38	44	54	#6
_		\ \	28	30	32	34	36	40	45	52	63	# 7
			32	34	36	39	42	46	51	59	72	#8
			36	38	41	44	47	52	58	67	81	#9
STANDARD	ee reinf	_SI	41	43	46	49	53	58	65	75	92	# 10
					·				·	·		·

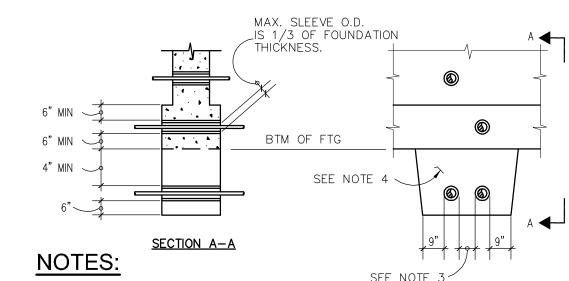
ALL CONCRETE MIX DESIGN SUBMITTALS TO BE

STAMPED BY A REGISTERED PROFESSIONAL

PROVIDER) PRIOR TO REVIEW AND WILL BE

ENGINEER (CONTRACTED BY MATERIAL

REVIEWED W/ THE ABOVE GUIDELINES.



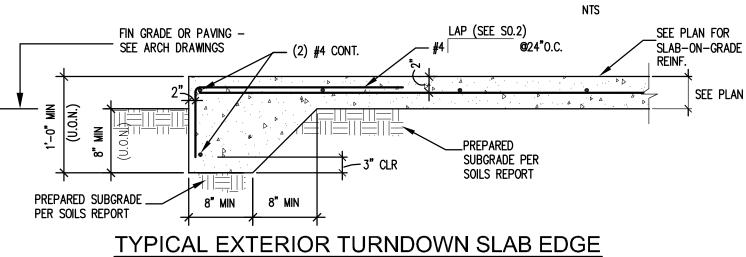
1. DO NOT PASS PIPES UNDER OR THROUGH ISOLATED FOUNDATIONS.

(SEE PLAN WHERE OCCURS)

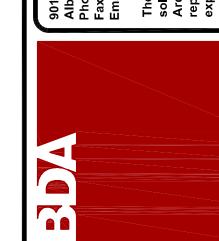
HOOK DETAILS (SO.2)

- 2. PROVIDE SLEEVES FOR ALL PIPES PASSING THROUGH CONCRETE WITH I.D. 2" LARGER THAN 3. CLEARANCE BETWEEN ADJACENT SLEEVES SHALL BE LESS THAN DIA. OF LARGER SLEEVE OR
- 4. FOR PIPES BELOW FOUNDATIONS, EXCAVATE AS SHOWN AND FILL WITH CONCRETE PRIOR TO PLACING FOUNDATIONS.

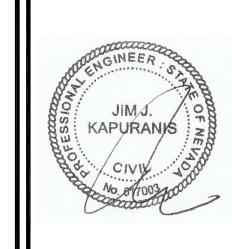
TYPICAL PIPE PENETRATIONS THROUGH FOOTINGS



MISC. CONCRETE DETAILS (CONTINUED)







CONCRETE GENERAL NOTES & DETAILS	REV.# DATE COMMENTS				
ÖN	REV.#				
0		REVISION:	REVISION:	REVISION:	REVISION:

BDA DSGN. REV.

CCAS PROJECT NO.: 1107 DRAWN: DATE: 7/23/15

JJK Group, Inc. Consulting Structural Engineers

3240 Juan Tabo Bldg. C Albuquerque, New Mexico 87111 tel. 505 296 5706 fax 505 296 1672 www.jjkgroup.com

GENERAL

1. SAW-CUT JOINTS AS SOON AS THE SLAB WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR WITHOUT DISTURBING THE FINAL FINISH.

2. THE DEPTH OF SAW-CUT WHEN USING A WET CUT SAW SHALL BE 1/4 THE SLAB THICKNESS. 3. PROVIDE CONSTRUCTION JOINT AT THE END OF CONCRETE PLACEMENT FOR THE DAY. SEE DETAIL A (THIS SHEET).

4. SEE FOUNDATION AND/OR CONTROL JOINT PLAN FOR ADDITIONAL INFORMATION.

5. SEE GENERAL NOTE SHEET SO.2 FOR ADDITIONAL CONCRETE REQUIREMENTS. 6. CONTRACTOR TO FAMILIARIZE HIMSELF WITH SOILS REPORT FOR SUBGRADE PREPARATION.

DESIGN

THE FOLLOWING MINIMUM ALLOWABLE REINFORCING RATIO USED IN THE DESIGN IS AS FOLLOWS:

.1 % FOR WELDED WIRE FABRIC .2 % FOR REINFORCING BARS

THIS MINIMUM REINFORCING RATIO IS FOR SHRINKAGE AND KEEPING RANDOM CRACKING TIGHT. IT ALSO ALLOWS FOR LONGER JOINT SPANS.

CONTROL /CONTRACTION JOINT SPACING WITH MINIMUM REINFORCING IS BASED ON THE FOLLOWING SUBGRADE DRAG FORMULA:

As = FLW / 2 Fs WHERE:

CROSS-SECTION AREA OF STEEL, IN SQUARE INCHES PER LINEAL FOOT OF SLAB WIDTH COEFFICIENT OF SUBGRADE FRICTION. (DESIGNERS USE 1.5 OR 2.0 FOR PAVEMENTS; 1.5 IS

RECOMMENDED FOR CONCRETE FLOORS ON GROUND.) SLAB LENGTH (OR WIDTH IF APPROPRIATE) BETWEEN FREE ENDS, IN FEET.

(A FREE END IS ANY JOINT FREE TO MOVE IN A HORIZONTAL PLANE.)

WEIGHT OF SLAB, IN POUNDS PER SQUARE FOOT. (FOR NORMAL-WEIGHT CONCRETE, DESIGNERS USE 12.5 POUNDS PER INCH OF FLOOR THICKNESS.)

ALLOWABLE WORKING STRESS OF REINFORCEMENT, IN POUNDS PER SQUARE INCH. (THE WORKING STRESS OF STEEL IS USUALLY 0.67 TO 0.75 TIMES THE YIELD STRENGTH OF THE STEEL IN POUNDS PER SQUARE INCH.)

DEFINITIONS

■ ISOLATION JOINTS

ISOLATION JOINTS ARE PLACED WHEREVER COMPLETE SEPARATION BETWEEN THE FLOOR AND ADJOINING CONCRETE IS NEEDED TO ALLOW THEM TO MOVE INDEPENDENTLY WITHOUT DAMAGE. ISOLATION JOINTS PERMIT HORIZONTAL AND VERTICAL MOVEMENT BETWEEN THE ABUTTING FACES OF THE FLOOR SLAB AND OTHER PARTS OF THE BUILDING BECAUSE THERE IS NO KEYWAY, BOND OR MECHANICAL CONSTRUCTION ACROSS THE JOINT.

CONTROL / CONTRACTION JOINTS

CONTROL JOINTS (ALSO CALLED CONTRACTION JOINTS) ACT TO RELIEVE STRESS AND WITH PROPER SPACING (SEE CONTROL JOINT PLAN) THEY ELIMINATE THE CAUSE OF UNCONTROLLED RANDOM CRACKING. THEY ALLOW HORIZONTAL MOVEMENT OF THE SLAB. THE OBJECTIVE IS TO FORM A PLANE OF WEAKNESS IN THE SLAB SO THAT THE CRACK WILL OCCUR ALONG THAT LINE AND NOWHERE ELSE. AS SHOWN ON SECTIONS ON THIS SHEET ALL SLAB REINFORCING MUST BE DISCONTINUOUS THROUGH JOINT. LOAD TRANSFER ACROSS THE CONSTRUCTION JOINT IS PROVIDED BY USE OF DOWELS (A BOND BREAKER IS USED ON ONE END TO ALLOW HORIZONTAL MOVEMENT).

CONSTRUCTION JOINT

CONSTRUCTION JOINTS ARE STOPPING PLACES AND FORM THE EDGE OF EACH DAY'S WORK. THEY FREQUENTLY ALIGN WITH CONTROL / CONTRACTION JOINTS OR ISOLATION JOINTS. WHENEVER CONTINUOUS CONCRETE PLACEMENT WILL BE INTERRUPTED FOR 30 MINUTES OR MORE, A BONDED OR TIED CONSTRUCTION JOINT SHOULD BE FORMED AND DEFORMED REINFORCING BARS ADDED. IF THE CONSTRUCTION JOINT OCCURS WITHIN THE PANEL (I.E. BETWEEN SPECIFIED CONTROL / CONTRACTION JOINTS) ALL REINFORCING MUST CONTINUE THROUGH THE CONSTRUCTION JOINT.

VISIBLE CONDITIONS THAT MAY OCCUR DURING CONSTRUCTION

RANDOM CRACKING

WHEN RANDOM CRACKING OCCURS ON A NEWLY PLACED SLAB, IT IS USUALLY RELATED TO IMPROPER TIMING OF JOINT SAWING. THE PURPOSE OF CUTTING THE SLAB IS TO INDUCE A CRACK BENEATH THE CUT.

CONCRETE NEEDS TO GAIN ADEQUATE STRENGTH BEFORE HAVING JOINTS CUT INTO IT. IDEALLY, THE TENSILE STRENGTH HOLDS THE SLAB TOGETHER. THE SAWCUT NOTCH CREATES A REDUCED SLAB SECTION, WHICH INCREASES TENSILE STRESSING IN THE CONCRETE BELOW THE NOTCH. IN THE REDUCED SECTION, THE TENSILE STRESS IS OF GREATER MAGNITUDE THAN THE CONCRETE TENSILE STRENGTH. THUS A CRACK OCCURS BELOW THE NOTCH. THE CRACK AND SAWCUT COMBINE TO RELIEVE THE STRESSES AND THUS PREVENT UNWANTED RANDOM CRACKING. BUT NEW CONCRETE IS ALWAYS TRYING TO SHRINK. AS THE SAWBLADE CUTS A JOINT IN THE CONCRETE, THE SAWCUT WEAKENS THE CONCRETE SLAB. IF SAWCUTTING IS STARTED WHEN CONTRACTION STRESS (AS A RESULT OF CONCRETE SHRINKAGE) IS GREAT AND TENSILE STRENGTH IS NOT YET ADEQUATE TO RESIST IT. CRACKS CAN JUMP AHEAD OF THE BLADE DURING JOINT CUTTING.

IF COOLING WATER (USED WITH WET SAWING) HITS THE WARM SLAB, IT CAN BE A THERMAL SHOCK THAT ADDS TO THE POTENTIAL FOR RANDOM CRACKING AHEAD OF THE

TO AVERT RANDOM CRACKING, SAWCUT JOINTING MUST BE DONE BEFORE CONCRETE COOLING AND DRYING STARTS, BUT AFTER SOME (TENSILE) STRENGTH HAS DEVELOPED (7 HOURS MAXIMUM AFTER CONCRETE IS POURED). THE NOTCH INSTALLED BY SAWCUTTING SHOULD BE DEEP ENOUGH SO THAT THE CRACK OCCURS BELOW THE SAWCUT (1/4 OF THE SLAB THICKNESS IS SUFFICIENT).

BLEEDING AND SET RETARDING

EXCESSIVE BLEEDING THAT OCCURS AFTER CONCRETE PLACING, STRIKEOFF, AND BULLFLOATING CAN DELAY SUBSEQUENT FINISHING STEPS. IN MOST INSTANCES, THE CAUSE OF EXCESSIVE BLEEDING IS DUE TO ONE OF THE FOLLOWING:

- A WATER-CEMENT RATIO THAT IS TOO HIGH
- POOR AGGREGATE GRADATION
- SLOW SET TIMES AMBIENT CONDITIONS THAT HINDER SURFACE WATER EVAPORATION: LOW TEMPERATURES, HIGH HUMIDITY, OR LACK OF AIR MOVEMENT

BLISTERING IS THE CONVEX RAISING OF THE SURFACE MORTAR LAYER WHILE THE CONCRETE IS STILL PLASTIC. THE BLISTERS ARE ATTRIBUTED TO SEALING THE FLOOR

SURFACE BEFORE ALL THE BLEEDWATER AND AIR HAVE ESCAPED.

SIMILAR TO BLISTERING, DELAMINATION OF SURFACE MORTAR CAN OCCUR DUE TO ENTRAPMENT OF BLEEDWATER AND AIR BELOW THE PREMATURELY SEALED MORTAR SURFACE. DELAMINATIONS AFFECT LARGER SURFACE AREAS THAN BLISTERS, AND ARE VERY DIFFICULT TO DETECT DURING FINISHING. THEY BECOME APPARENT AFTER CONCRETE SURFACE DRYING WHEN THE DELAMINATED AREA IS CRUSHED UNDER TRAFFIC. THE THICKNESS OF DELAMINATED MORTAR RANGES FROM ABOUT 3 MM TO 9 MM (1/8 IN TO 3/8 IN). THE AFFECTED AREA CAN BE ANYWHERE FROM A FEW SQUARE CENTIMETERS (INCHES) TO A FEW SQUARE METERS (YARDS).

IF THE CONCRETE HAS STIFFENED FROM THE TOP DOWN, AS IT OFTEN DOES WHEN WIND SPEEDS ARE HIGHER, THERE IS A TENDENCY TO FINISH THE SLAB TOO SOON, BEFORE BLEEDING IS COMPLETE. FINISHING OPERATIONS PERFORMED WHILE THE UNDERLYING CONCRETE IS STILL SOFT (AND BLEEDING) WILL SEAL THE SLAB SURFACE, POTENTIALLY TRAPPING BLEEDWATER AND LEADING TO DELAMINATIONS.

PLASTIC SHRINKAGE CRACKING

PLASTIC SHRINKAGE CRACKING IS DUE TO CONCRETE AT THE SURFACE DRYING (AND SHRINKING) BEFORE INITIAL SET OF THE CONCRETE OCCURS. PLASTIC SHRINKAGE OCCURS DURING AND AFTER FINISHING, USUALLY WHEN THERE IS RAPID EVAPORATION OF BLEED WATER. THE CONDITIONS THAT LEAD TO RAPID WATER EVAPORATION ARE LOW RELATIVE HUMIDITY, HIGH AIR TEMPERATURES, RAPID AIR MOVEMENT (WIND) ACROSS THE CONCRETE SURFACE, AND ELEVATED CONCRETE TEMPERATURES. UNDER THESE CONDITIONS THE CONCRETE SURFACE CAN CRUST OVER WHILE THE UNDERLYING CONCRETE IS STILL PLASTIC. AS PLASTIC SHRINKAGE CRACKS FORM, THEY START AT THE SURFACE AND MAY EXTEND SOME DEPTH INTO THE UNHARDENED CONCRETE. FLOATING THE CONCRETE SLAB CAN REPAIR PLASTIC SHRINKAGE CRACKS, BUT ONLY IF DONE IMMEDIATELY AS THE CRACKS OCCUR.

CRAZE CRACKS ARE FINE RANDOM CRACKS OR FISSURES IN A CONCRETE SURFACE. ON CONCRETE FLATWORK, THEY USUALLY EXTEND LESS THAN 3 MM (1/4 IN) BELOW THE SURFACE. THE CRACKS OCCUR WITHIN THE PASTE-RICH SURFACE MORTAR AND GENERALLY PASS THROUGH THE PASTE AND NOT THROUGH AGGREGATE PARTICLES. IT IS TYPICAL FOR THE CRACKS TO FORM A MAP PATTERN. THE NARROW CRACKS ARE SO FINE THAT THEY ARE DIFFICULT TO SEE. IN MANY INSTANCES, THEY ARE ONLY VISIBLE DURING THE DRYING PHASE OF A WETTED SURFACE OR WHEN A TRANSLUCENT COATING IS INSTALLED. CRAZE CRACKS ARE ATTRIBUTED TO INADEQUATE CURING THAT LEADS TO CONCRETE SURFACE DRYING AND COOLING BEFORE THE MORTAR HAS GAINED SUFFICIENT STRENGTH. THESE ARE COSMETIC BLEMISHES THAT GENERALLY HAVE NO EFFECT ON THE SERVICEABILITY OR DURABILITY OF THE FLOOR.

WHEN THE EDGES AND CORNERS OF A FLOOR SLAB ON GROUND DISH UPWARD IN THE ABSENCE OF ANY LOADS OTHER THAN GRAVITY, THE SLAB IS SAID TO BE CURLING. IT IS USUALLY ATTRIBUTED TO DIFFERENCES IN MOISTURE CONTENT OR TEMPERATURE FROM TOP TO BOTTOM WITHIN THE SLAB. THESE TEMPERATURE AND MOISTURE GRADIENTS DEVELOP BETWEEN THE TOP AND BOTTOM SURFACES AS THE CONCRETE IN A FLOOR SLAB HARDENS. THE SLAB WILL CURL UP IF THE TOP IS TRYING AND COOLING (SHORTENING) WHILE THE BOTTOM REMAINS MOIST AND WARM. UNDER OPPOSITE CONDITIONS, THE SLAB SHOULD THEORETICALLY CURL DOWN. DOWNWARD CURL AS SUCH, HOWEVER, DOES NO OCCUR DUE TO SUBBASE RESTRAINT.

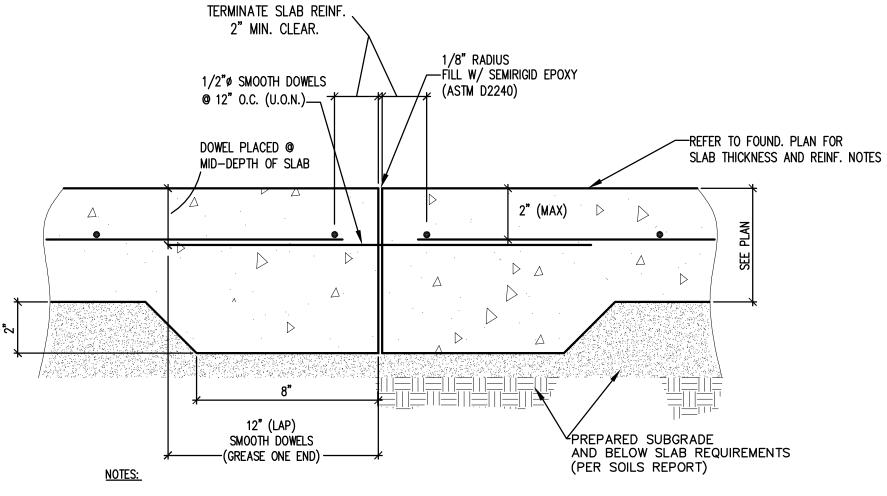
A POPOUT IS A CONICAL FRAGMENT THAT BREAKS OUT OF A CONCRETE SURFACE, LEAVING A HOLE. THE HOLE VARIES IN SIZE FROM 5 MM TO 50 MM (1/4 IN TO 2 IN), THOUGH LARGER POPOUTS ARE POSSIBLE. USUALLY, A FRACTURED AGGREGATE PARTICLE IS LOCATED AT THE BOTTOM OF THE HOLE. THE MATCHING PIÉCE OF THE FRACTURED PARTICLE ADHERES TO THE POINT OF THE POPOUT CONE. POPOUTS ARE CONSIDERED A COSMETIC DETRACTION AND GENERALLY DO NOT AFFECT THE SERVICE LIFE OF THE CONCRETE.

*CONTROL JOINTS - TYP. ISÓLATION JOINTS — TYP. - SEE 3/S0.2A 12'-0" (MAX) - U.O.N. * CONTROL JOINTS - TYP. \$0.2A TYPICAL BLOCK-OUT (WHERE OCCURS) TYPICAL PANEL SEE 4

* CONSTRUCTION JOINT LOCATION MAY ALSO OCCUR @ SAME LOCATION

√TYPICAL JOINT LAYOUT PLAN

(REFER TO CONTROL JOINT PLAN FOR ACTUAL LOCATIONS)



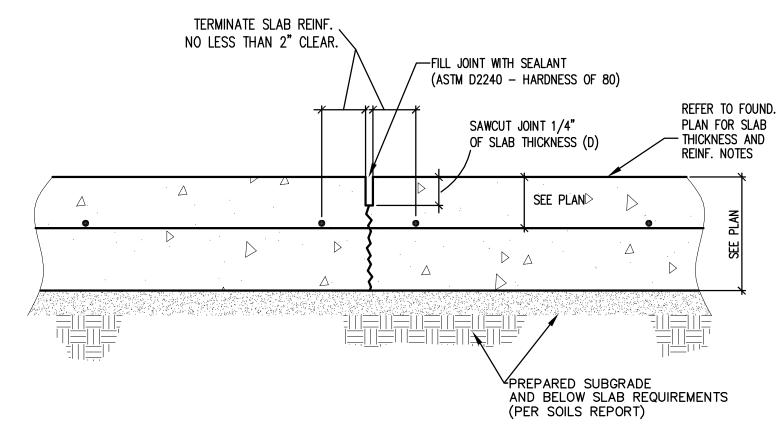
1. CONSTRUCTION JOINTS TO MATCH CONTROL JOINT LOCATIONS. IF NOT POSSIBLE AND LOCATED IN

PANEL AREA, CONTINUE ALL REINFORCING THRU JOINT. 2. REFER TO DEFINITIONS (THIS SHEET).

CONSTRUCTION JOINT SECTION

(TO OCCUR @ CONTROL JOINT LOCATION)

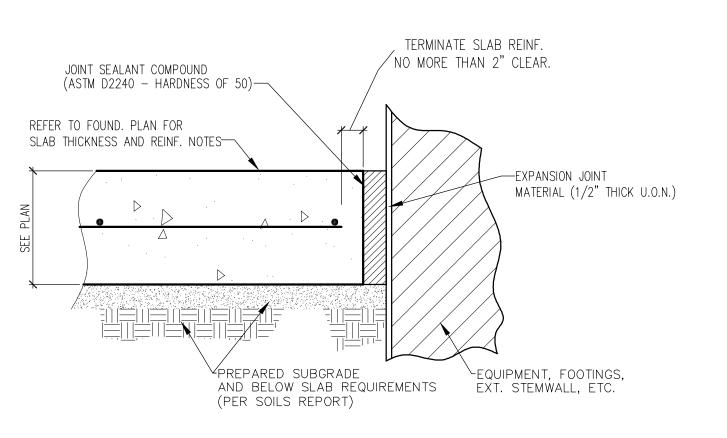
THE CONCRETE SLAB-ON-GRADE FOR THIS PROJECT IS A NON-LOAD BEARING ELEMENT AND THE ONLY DESIGN PARAMETERS USED IS FOR JOINT SPACING AND MINIMUM SHRINKAGE REINFORCEMENT. ALL CONCENTRATED OR UNIFORM LOADS IMPOSED ON THE SLAB-ON-GRADE HAVE DESIGNED FOOTINGS FOR THESE SITUATIONS.



1. SAWCUT JOINT MUST OCCUR WITHIN 7 HOURS OF CONCRETE POUR. 2. NOT USED.

3. SPACING OF JOINTS TO BE 12'-0" O.C. MAX EACH WAY (U.O.N.) ON PLAN. 4. REFER TO CONTROL JOINT PLAN OR FOUNDATION PLAN FOR JOINT LOCATIONS. 5. REFER TO DEFINITIONS (THIS SHEET)

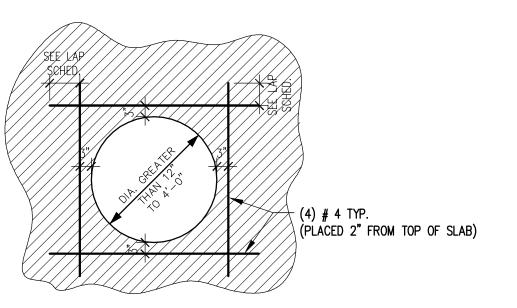
CONTROL / CONTRACTION JOINT SECTION



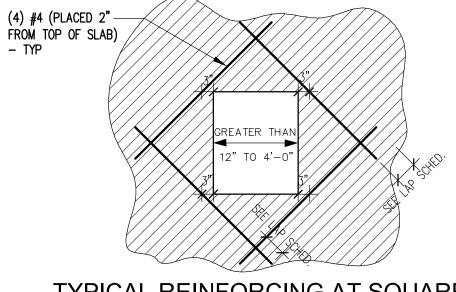
NOTES:

1. EXPANSION JOINT MATERIAL TO BE MINIMUM 1/2" THICK (U.O.N.). 2. REFER TO DEFINITIONS (THIS SHEET).

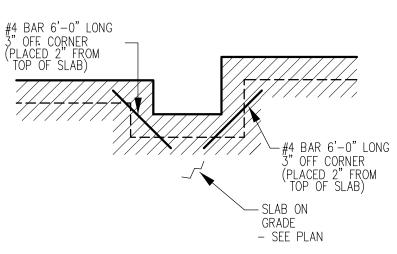
ISOLATION / EXPANSION JOINT SECTION



TYPICAL REINFORCING AT ROUND OPENINGS



TYPICAL REINFORCING AT SQUARE 4A OR RECTANGULAR OPENINGS © 2 AT CONCRETE SLAB-ON - GRADE NTS



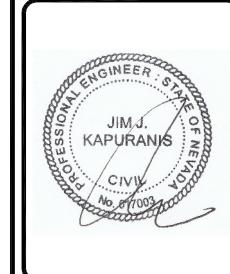
5 TYPICAL REINFORCING © RE-ENTRANT CORNERS NTS



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CCAS PROJECT NO.: 1107 DRAWN:

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7/23/15

TIMBER

- EACH PIECE OF STRUCTURAL LUMBER, SHEATHING AND TIMBER SHALL BE MARKED WITH THE GRADE BY SUCH COMPETENT AND RELIABLE ORGANIZATION WHOSE REGULAR BUSINESS IS TO ESTABLISH LUMBER GRADES.
- ALL LUMBER, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE, SHALL BE MILL SIZED AND SURFACED ON (4) SIDES. ALL SHALL BE STRAIGHT STOCK, FREE FROM WARP OR CUP, AND SINGLE LENGTH PIECES. SPLICES WILL NOT BE PERMITTED EXCEPT WHERE SPECIFICALLY SO DETAILED OR AS DIRECTED BY THE ENGINEER.
- ROUGH HARDWARE, JOIST HANGERS, STRAPS, HOLDOWNS, ETC. SHALL BE MANUFACTURED BY "SIMPSON" COMPANY OR APPROVED EQUAL. THE MAXIMUM SIZE AND NUMBER OF FASTENERS SPECIFIED BY THE MANUFACTURER SHALL BE USED UNLESS NOTED OTHERWISE.
- BLOCKING AND FIRESTOPPING TO BE INSTALLED AS REQUIRED TO SUPPORT ALL ITEMS OF FINISH SUCH AS BULKHEADS AND BUCKS. PROVIDE FIREBLOCKING TO CUT OFF ALL CONCEALED DRAFT OPENINGS, BOTH VERTICAL AND HORIZONTAL, BETWEEN CEILING AND FLOOR AREAS (AS REQUIRED BY BUILDING OFFICAL AND ARCHITECT).
- BOLTS (IF APPLICABLE) SHALL BE INSTALLED IN HOLES BORED WITH A BIT 1/16" LARGER THAN THE DIAMETER OF THE BOLT. BOLTS AND NUTS SEATING ON WOOD SHALL HAVE CUT STEEL WASHERS UNDER HEADS AND NUTS. NUTS SHALL BE PULLED TIGHT AND AGAIN CHECKED AND TIGHTENED JUST PRIOR TO ENCLOSING BOLTED MEMBERS. COUNTER BORE FOR BOLTED HEADS OR NUTS ONLY WHERE SO INDICATED ON THE DRAWINGS AND THEN TO SUFFICIENT DEPTH TO HOUSE THE BOLT HEAD OR NUT AND WASHER. CUT OFF EXCESSIVE BOLT PROJECTION WHERE NECESSARY. NICK THREADS TO PREVENT LOOSENING.
- LAG SCREWS (IF APPLICABLE) SHALL BE SCREWED AND NOT DRIVEN INTO PLACE. LAG SCREWS FASTÈNING ONE WOÓD MEMBER TO ANOTHER SHALL HAVE A PENETRATION INTO FAR MEMBER OF NOT LESS THAN (2/3) OF THE LENGTH OF THE LAG SCREW MEASURED UNDER THE HEAD U.O.N. IN PLACING LAG SCREWS IN WOOD, A HOLE SHALL FIRST BE BORED OF THE SAME DIAMETER AND DEPTH OF THE SHANK OF THE SCREW. AFTER WHICH THE HOLE SHALL BE CONTINUED TO A DEPTH EQUAL TO THE LENGTH OF THE LAG SCREW WITH A DIAMETER EQUAL TO THE DIAMETER OF THE SCREW AT THE ROOT OF THE THREAD.
- COMMON NAILS SHOULD BE USED WHEN NAILING IS SPECIFIED ON THESE PLANS (U.O.N.), SUCH AS AT SHEARWALLS AND DIAPHRAGMS. ALL OTHER NAILING MAY BE OF THE "BOX OR SINKER" TYPE.
- SHEATHING GRADE SHALL BE CD—X WITH EXTERIOR GLUE P.S. 1—83, U.O.N. ON PLANS:

DESCRIPTION	REQUIREMENTS
DESCRIPTION	NEQUILENTO
ROOF SHEATHING	5/8" APA RATED T&G ROOF PLYWOOD SHEATHING. NAIL W/ 10d @ 6" O.C. BOUNDARY/EDGES AND 12" O.C. FIELD. (U.O.N. ON SHEARWALL SCHEDULE) SPAN INDEX = 48/24
WALL SHEATHING	1/2" APA RATED WALL PLYWOOD SHEATHING. NAIL W/ 10d @ 4" O.C. BOUNDARY/EDGES AND 12" O.C. FIELD. (U.O.N. ON SHEARWALL SCHEDULE)
	7/16" WAFERBOARD AND ORIENTED STRAND BOARD CONFORMING TO NER-108 AND PRODUCT STANDARD 2-92, AND WITH THE SAME EXPOSURE DURABILITY CLASSIFICATION, NOMINAL THICKNESS AND SPAN/INDEX RATIO MAY BE SUBSTITUTED FOR PLYWOOD %%JUONLY%%U IF APPROVED BY THE STRUCTURAL ENGINEER.

NOTES:

-THE NAIL EDGE DISTANCE FOR 3" NOMINAL (2-1/2" ACTUAL) WIDE MEMBERS ON WHICH SHEETS ARE SPLICED SHALL BE 3/4" MIN.

-THE NAIL EDGE DISTANCE FOR 2" NOMINAL (1-1/2" ACTUAL) WIDE MEMBERS ON WHICH SHEETS ARE SPLICED SHALL BE 3/8" MIN. CARE SHALL BE MADE NOT TO SPLIT THE

-NAILS MAY BE SLANT DRIVEN TO MAINTAIN MINIMUM EDGE DISTANCE.

- ALL ROUGH CARPENTRY WILL PRODUCE JOINTS TRUE AND TIGHT AND WELL NAILED WITH MEMBERS ASSEMBLED IN ACCORDANCE WITH THE DRAWINGS AND ALL PERTINENT BUILDING CODES. THE SHIMMING OF SILLS, JOISTS SHORT STUDS, TRIMMERS, HEADERS OR OTHER FRAMING MEMBERS SHALL NOT BE PERMITTED. ALL WALLS AND PARTITIONS SHALL BE STRAIGHT, PLUMB AND ACCURATELY LOCATED. CAREFULLY SELECT ALL STRUCTURAL MEMBERS. INDIVIDUAL PIECES SHALL BE SELECTED SO THAT KNOTS AND OBVIOUS MINOR DEFECTS WILL NOT INTERFERE WITH THE PLACING OF BOLTS, OR PROPER NAILING OR THE MAKING OF SOUND CONNECTIONS. LUMBER MAY BE REJECTED BY THE ENGINEER FOR EXCESSIVE WARP, TWIST, BOW OR CROOK, MILDEW, FUNGUS OR MOLD AS WELL AS FOR IMPROPER GRADE MARKINGS, DEFECTS WHICH WILL RENDER A PIECE UNABLE TO SERVE ITS INTENDED FUNCTION SHALL BE DISCARDED.
- UNLESS OTHERWISE NOTED ON PLANS, LUMBER SHALL BE AT LEAST OF THE GRADES SHOWN IN THE TABLE BELOW. ALL LUMBER SHALL BE SURFACED AND FREE OF HEART CENTER. LUMBER SHALL MEET SPIECES AND COMMERCIAL GRADE AS INDICATED ON THE PLANS AND THE DESIGN VALUES FOR VISUALLY GRADED LUMBER IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATION BY THE NATIONAL FOREST PRODUCTS ASSOCIATION, WHICHEVER IS GREATER. BASED VALUES SHOWN MAY BE ADJUSTED IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATION. "DF" INDICATES DOUGLAS-FIR-LARCH, "HF" INDICATES HEM-FIR, "SPF" INDICATES SPRUCE-PINE-FIR.

TIMBER (CONT'D)

MINIMUM LUMBER GRADES					(PER NDS 2001 ED.)				
TYPE	PRIMARY	SIZES	MINIMUM	BASE VALUES					
	USE	(IN)	GRADE	(PSI)					
		2x		Fb	Fv	*E	Fc//	Fc(perp)	
	STUDS		DF #2	700	180	1.4	850	625	
SAWN LUMBER	JOISTS	2" & WIDER	DF #2	900	180	1.6	1350	625	
	BEAMS	5"x5" & LARGER	DF #2	875	170	1.3	600	625	
	POSTS	5"x5" & LARGER	DF #2	750	170	1.3	700	625	
MICRO-LAMS	BEAMS	ANY	LAM	2400	275	1.8	2400	500	
PSL	BEAMS	ANY	LAM	2900	285	2.0	2900	750	
	•	•		•	•	-	•	•	

*1.0X10^6 (PSI)

- "GANG-NAIL" PRE-ENGINEERED TRUSSES ARE TO BE CONSTRUCTED WITH METAL PLATE CONNECTORS AND DESIGNED AND MANUFACTURED BY OTHERS. DESIGN, CONSTRUCTION, AND INSTALLATION SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION AND OF THE TRUSS PLATE INSTITUTE. PROVIDE ALL REQUIRED BLOCKING AND BRACING REQUIRED BY THE MANUFACTURER FOR CONSTRUCTION AND ERECTION IN ADDITION TO BLOCKING SHOWN ON THE STRUCTURAL DETAILS. MEMBERS OF A COMPLETED TRUSS ARE NEVER TO BE NOTCHED OR CUT. THE THE TRUSS MANUFACTURER SHALL PROVIDE DESIGN CALCULATIONS AND SHOP DRAWINGS SIGNED AND SEALED BY A STRUCTURAL ENGINEER (CONTRACTED BY TRUSS MANUFACTURER) FOR REVIEW PRIOR TO FABRICATION. THE DESIGN SHALL ACCOUNT FOR ALL UNIFORM LOADS AND EQUIPMENT LOADS. CONTACT THE STRUCTURAL ENGINEER FOR UNIFORM LOADING AND REQUIREMENTS IF REQUIRED.
- TRUSS SHOP DRAWINGS SHALL SHOW THE TRUSS DESIGN LOADS, SIZE AND GRADE OF THE CHORDS AND WEBS, LOCATIONS OF THE JOINTS AND CONNECTIONS, SIZE AND TYPE OF METAL PLATES AND ALL BRACING AND BLOCKING REQUIREMENTS.
- ROOF AND FLOOR TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING CRITERIA:
 - ➤ SEE DESIGN LOADS SHEET SO.1 FOR VERTICAL LOADS ➤ STRESS INCREASE FOR DURATION OF LOAD - ROOF (15%)
- LOCATION OF TRUSS BRACING REQUIRED BY THE PLANS OR TRUSS MANUFACTURER'S DESIGN SHALL BE INDICATED ON EACH TRUSS BY PAINT MARKING.
- WHERE PARALLAM "PSL" MEMBERS ARE INDICATED ON THE PLANS AND SCHEDULES THEY SHALL BE MANUFACTURED BY TRUSS-JOIST MACMILLAN (NER-482 & ICBO ER-4979), OR BE AN APPROVED EQUAL PRODUCT. MEMBERS SHOWN ON THE PLANS AND SCHEDULES ARE DETERMINED FROM MANUFACTURER SUPPLIED INFORMATION AND SHOULD BE REVIEWED FOR COMPLIANCE BY THE MANUFACTURER'S CIVIL OR STRUCTURAL ENGINEER. LOADING INFORMATION MAY BE PROVIDED UPON REQUEST. NOTCHES, HOLES OR CUTS SHOWN IN THE TYPICAL DETAILS ARE ALLOWED WITHOUT ADDITIONAL APPROVAL; ALL OTHER MEMBER MODIFICATIONS ARE TO BE APPROVED BY THE STRUCTURAL ENGINEER.
- PLYWOOD WEB JOISTS NOTED "TJI" ARE TO BE MANUFACTURED BY TRUSS-JOIST MACMILLAN (NER-200 & ICBO ER-4354) OR APPROVED EQUAL. PROVIDE BLOCKING, WEB STIFFENERS, AND BRACING OVER THE SPAN PER THESE STRUCTURAL DRAWINGS AND ALL MANUFACTURER'S RECOMMENDATIONS. TOP AND BOTTOM FLANGES OF JOISTS ARE NEVER TO BE CUT AND ALL HOLES THROUGH THE JOIST WEB ARE TO BE SPECIFICALLY APPROVED BY STRUCURAL ENGINEER.

FASTENING	G SCHEDULE	
CONNECTION	FASTENING ^{a,m}	LOCATION
1. JOIST TO SILL GIRDER	3-8d common 3-3"x0.131" nails 3-3" 14 gage staples	toenail
2. BRIDGING TO JOIST	2-8d common 2-3"x0.131" nails 2-3" 14 gage staples	toenail each end
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST	2-8d common	face nail
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST	3-8d common	face nail
5. 2" SUBFLOOR TO JOIST OR GIRDER	2-16d common	blind and face na
6. SOLE PLATE TO JOIST OF BLOCKING	16d at 16" o.c. 3"x0.131" nails at 8" o.c. 3" 14 gage staples at 12" o.c.	typical face nail
SOLE PLATE TO JOIST OR BLOCKING AT BRACED WALL PANEL	3-16d at 16" 4-3"x 0.131"nails at 16" 4-3" 14 gage staples per 16"	braced wall panels
7. TOP PLATE TO STUD	2—16d common 3—3"x0.131"nails 3—3" 14 gage staples	end nail
8. STUD TO SOLE PLATE	4-8d common 4-3"x0.131" nails 3-3" 14 gage staples	toenail
	2—16d common 3—3"x0.131"nails 3—3" 14 gage staples	end nail
9. DOUBLE STUDS	16d at 24" o.c. 3"x0.131" nails at 8" o.c. 3" 14 gage staples at 8" o.c.	face nail
10. DOUBLE TOP PLATES	16d at 16" o.c. 3"x0.131" nails at 12" o.c. 3" 14 gage staples at 12" o.c.	typical face nail
DOUBLE TOP PLATES	8-16d common 12-3"x0.131"nails 12-3" 14 gage staple typ. face nail	lap splice
11. BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3-8d common 3-3"x0.131" nails 3-3" 14 gage staples	toenail
12. RIM JOIST TO TOP PLATE	8d at 6" (152mm) o.c. 3"x0.131" nail at 6" o.c. 3" 14 gage staple at 6" o.c.	toenail
13. TOP PLATES, LAPS AND INTERSECTIONS	2—16d common 3—3"x0.131"nails 3—3" 14 gage staples	face nail
14. CONTINUOUS HEADER, TWO PIECES	16d common	16" o.c. along edo
15. CEILING JOISTS TO PLATE	3-8d common 5-3"x0.131"nails 5-3" 14 gage staples	toenail
16. CONTINUOUS HEADER TO STUD	4-8d common 3-16d common minimum	toenail
7. CEILING JOISTS, LAPS OVER PARTITIONS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	4-3"x0.131"nails 4-3" 14 gage staples	face nail
18. CEILING JOISTS TO PARALLEL RAFTERS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3-16d common minimum 4-3"x0.131"nails 4-3" 14 gage staples 3-8d common	face nail
19. RAFTER TO PLATE (SEE SECTION 2308.10.1, TABLE 2308.10.1)	3-8a common 3-3"x0.131"nails 3-3" 14 gage staples 2-8d common	toenail
20. 1" DIAGONAL BRACE TO EACH STUD AND PLATE	2-3"x0.131"nails 2-3" 14 gage staples face nail	face nail
21. 1"X8" SHEATHING TO EACH BEARING WALL	2-8d common 3-8d common	face nail
22. WIDER THAN 1"X8" SHEATHING TO EACH BEARING 23. BUILT-UP CORNER STUDS	3-8d common	24" o.c.
	3"x0.131"nails 3" 14 gage staples	16" o.c. 16" o.c.
24. BUILT-UP GIRDER AND BEAMS	20d common 32" o.c. 3"x0.131" nails at 24" o.c. 3" 14 gage staples at 24" o.c.	face nail at top of bottom staggered opposite sides
	2-20d common 3-3"x0.131"nails 3-3" 14 gage staples	face nail at ends each splice
25. 2" PLANKS	16d common	at each bearing
26. COLLAR TIE TO RAFTER	3-10D common 4-3"x0.131"nails 4-3" 14 gage staples face nail	face nail
27. JACK RAFTER TO HIP	3-10d common 4-3"x0.131" nails 4-3" 14 gage staples	toenail
20. 2005 24555 70. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2-16d common 3-3"x0.131"nails 3-3" 14 gage staples	face nail
28. ROOF RAFTER TO 2-BY RIDGE BEAM	2-16d common 3-3"x0.131" nails 3-3" 14 gage staples	toenail
	2-16d common 3-3"x0.131"nails 3-3" 14 gage staples	face nail
29. JOIST TO BAND JOIST	3-16D common 5-3"x0.131"nails 5-3" 14 gage staples	face nail
30. LEDGER STRIP	3-16D common 4-3"x0.131"nails	face nail

4-3" 14 gage staples

FASTENING SCHEDULE							
CONNECTION	FASTENING ^{a,m}	LOCATION					
31. WOOD STRUCTURAL PANELS AND PARTICLEBOARD, SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING):	1/2" and less 6d ^{c,1} 2¾"x0.113" nai 1¾"16 gage ° 8d ^d or 6d ^e 2¾"x0.113" nai 2" 16 gage P 8d ^c						
SINGLE FLOOR (COMBINATION SUBFLOOR-UNDERLAYMENT TO FRAMING):	1½" TO 1½" 10d dor 8d e ¾" and less 6d e ½" to 1" 8d e 1½" to 1½" 10d dor 8d e						
32. PANEL SIDING (TO FRAMING)	1/2" or less 6d ^f %" 8d ^f						
33. FIBERBOARD SHEATHING: ⁹	No. 11 gage re nail h 6d common n No. 16 gage se nail h 8d common n No. 16 gage re nail h 8d common n No. 16 gage se	ail staple ⁱ oofing ail					
34. INTERIOR PANELING	14" 4d ^j 36" 6d ^k						

FOOT NOTES:

- a. COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED. b. NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEARWALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE
- COMMON, BOX OR CASING. c. COMMON OR DEFORMED SHANK.
- d. COMMON. e. DEFORMED SHANK.
- CORROSION-RESISTANT SIDING OR CASING NAIL.
- FASTENERS SPACES 3 INCHES ON CENTER AT EXTERIOR EDGES AND 6 INCHES O.C. AT INTERMEDIATE SUPPORTS. h. CORROSION-RESISTANT ROOFING NAILS WITH 7/16-INCH-DIAMETER HEAD AND 1 1/2-INCH LENGTH FOR 1/2-INCH SHEATHING AND 1 3/4-INCH LENGTH FOR 25/32-INCH SHEATHING.
- CORROSION-RESITANT STAPLES WITH NOMINAL 7/16-INCH CROWN AND 1 1/8-INCH LENGTH FOR 1/2-INCH SHEATHING AND 1 1/2-INCH LENGTH FOR 25/32-INCH SHEATHING. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
- CASING OR FINISH NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS. PANEL SUPPORTS AT 24 INCHES. CASING OR FINISH NAILS SPACED AT 6 INCHES ON PANEL EDGES, 12 INCHES AT
- INTERMEDIATE SUPPORTS. FOR ROOF SHEATHING APPLICATIONS, 8d NAILS ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
- m. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF $\frac{7}{6}$ INCH n. FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE
- o. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL
- SHEATHING AND 3 INCHES ON CENTER AT EDGES, 6 INCHES AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING. p. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.

FASTENING SCHEDULE							
CONNECTION	FAS	LOCATION					
1. WOOD STRUCTURAL PANELS AND PARTICLEBOARD, SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING):	1/2" and less 19%2" to 34" 1%" to 1"	6d ^{c,1} 2¾"x0.113" nail ⁿ 1¾"16 gage ^o 8d ^d or 6d ^e 2¾"x0.113" nail ^p 2" 16 gage ^p 8d ^c					
SINGLE FLOOR (COMBINATION SUBFLOOR-UNDERLAYMENT TO FRAMING):	1½" TO 1¼" ¾" and less ½" to 1" 1½" to 1¼"	10d ^d or 8d ^e 6d ^e 8d ^e 10d ^d or 8d ^e					
2. PANEL SIDING (TO FRAMING)	1/2" or less 5%"	6d ^f 8d ^f					
3. FIBERBOARD SHEATHING: ⁹	½" 25/32"	No. 11 gage roofing nail h 6d common nail No. 16 gage staple i No. 11 gage roofing nail h 8d common nail No. 16 gage staple i					
4. INTERIOR PANELING	1/4" 3/8"	4d ^j 6d ^k					

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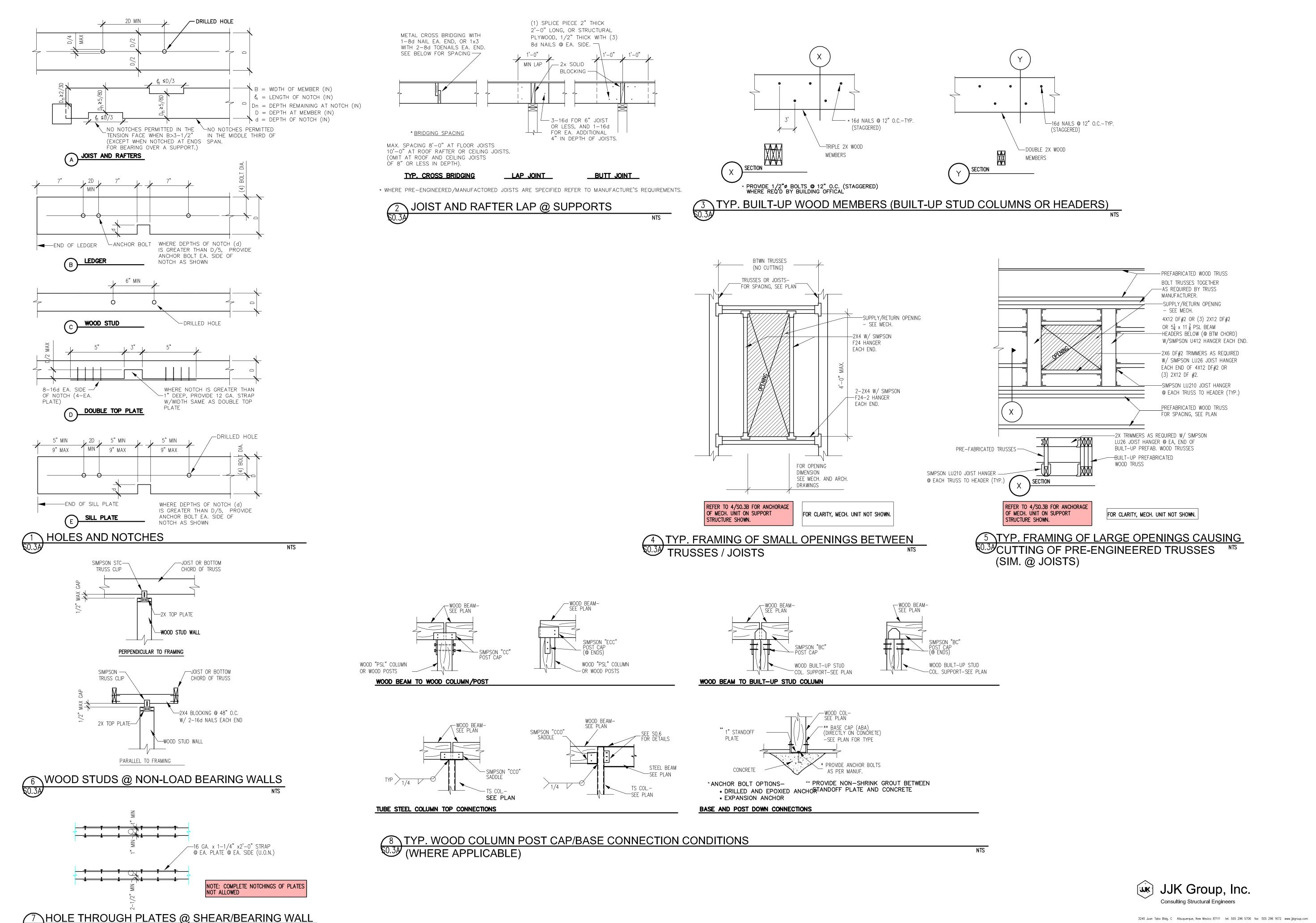
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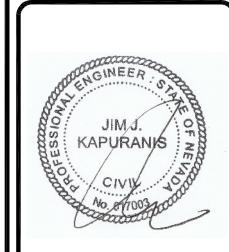


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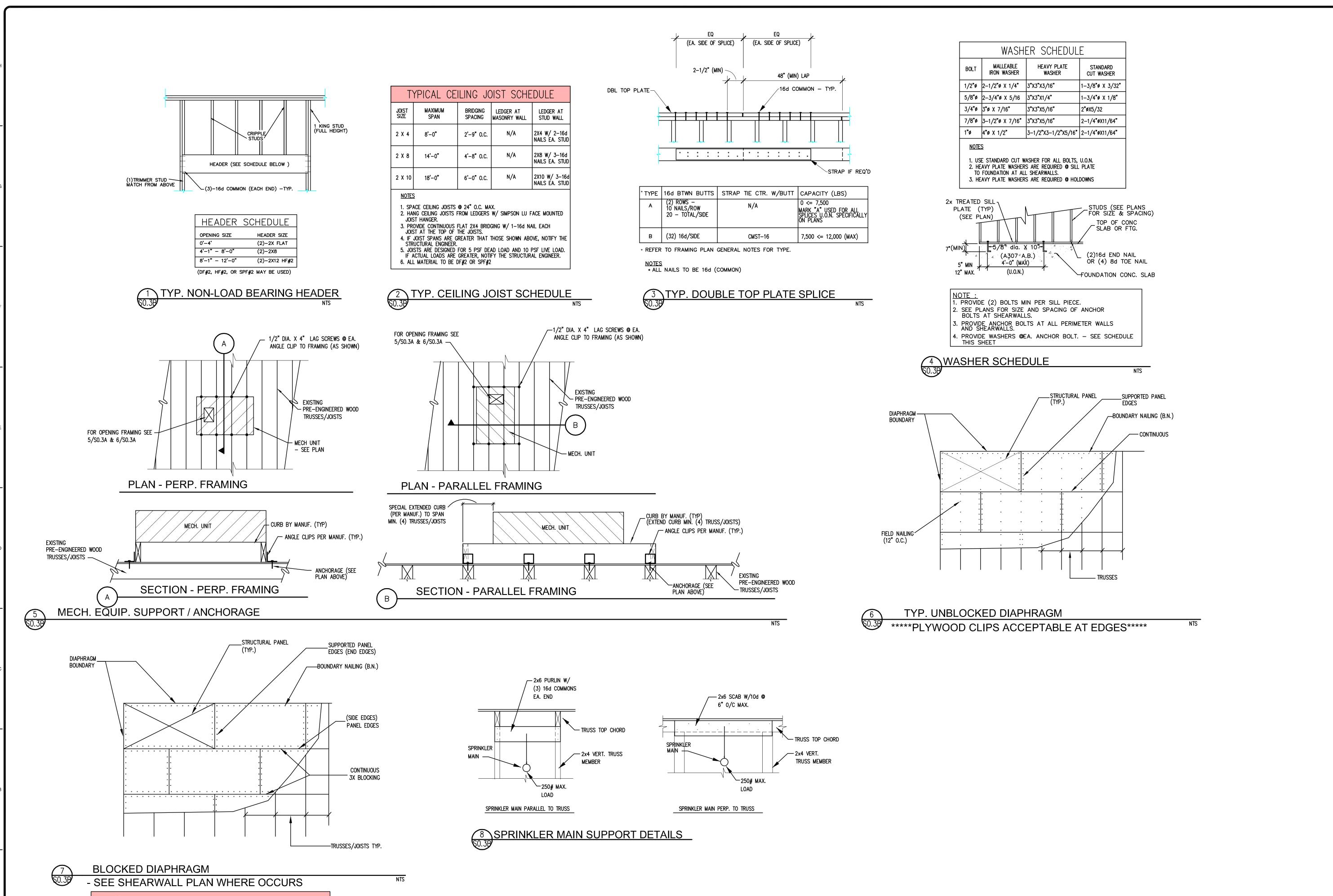
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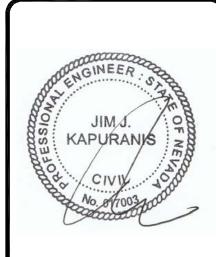
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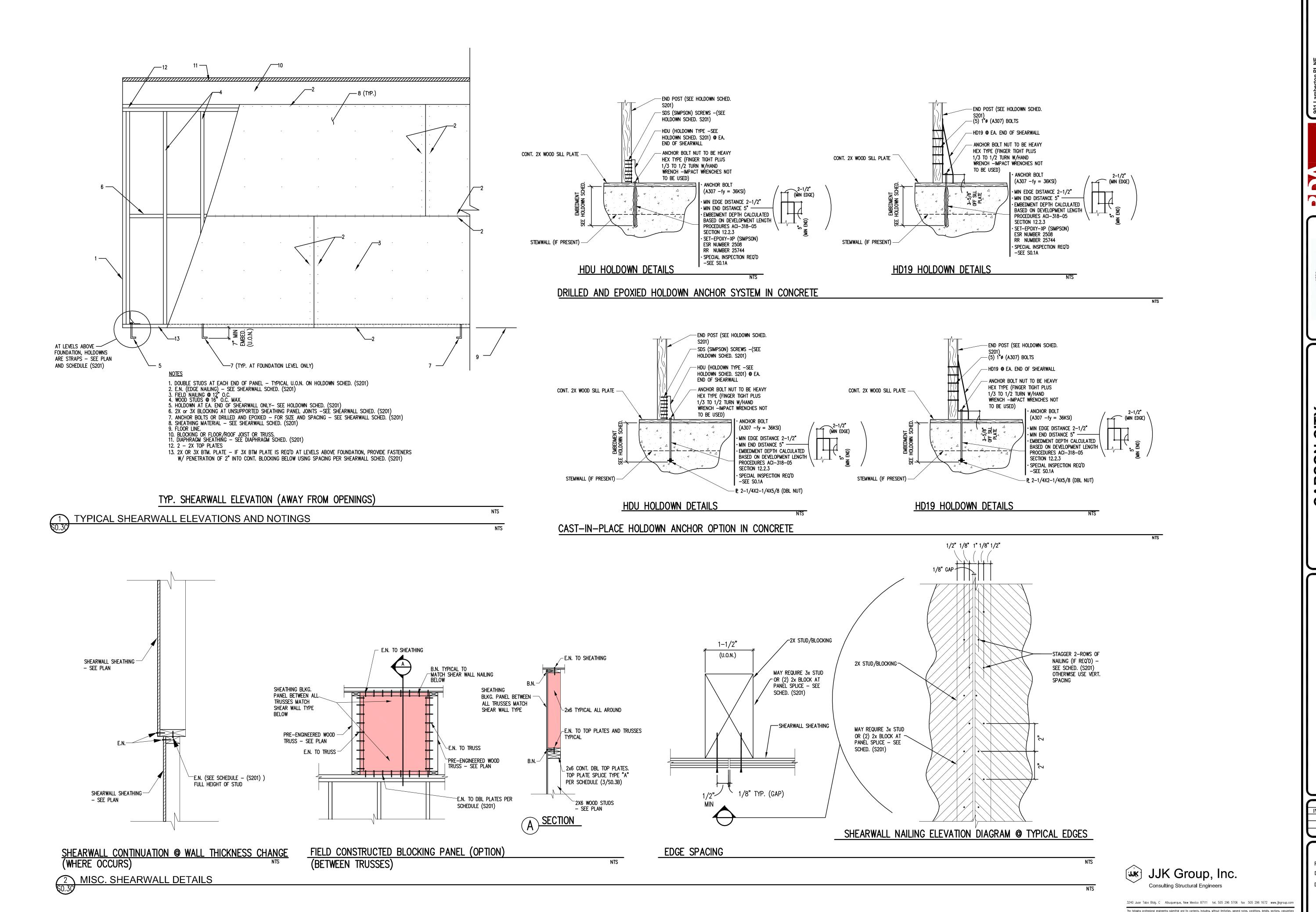
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WOOD SHEARWALL
GENERAL NOTES

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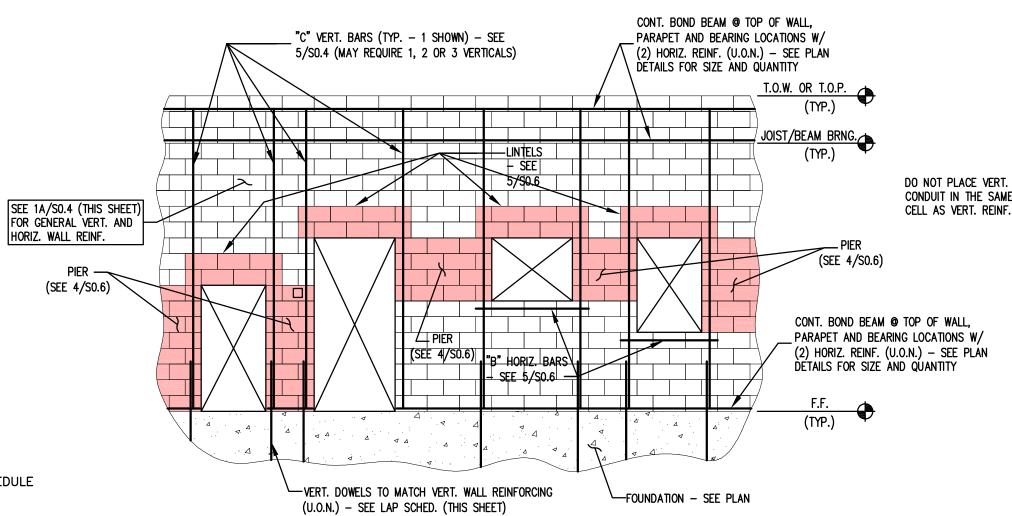
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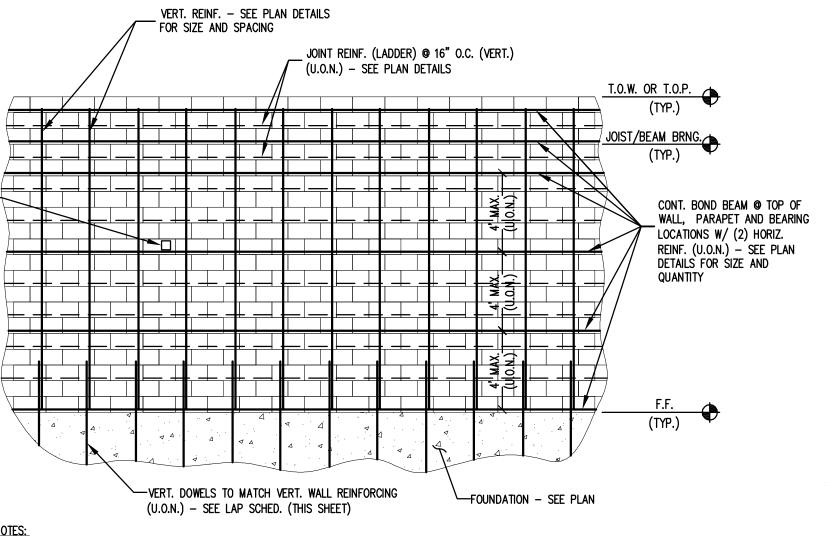
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MASONRY

- CONCRETE MASONRY UNITS SHALL BE HOLLOW, SUITABLE FOR BEARING WALL CONSTRUCTION. ALL BLOCKS SHALL CONFORM TO GRADE "N" UNITS GIVEN IN ASTM C90 LATEST EDITION. AND IN ADDITION SHALL HAVE A LINEAR SHRINKAGE OF .065% MAXIMUM FROM SATURATED TO THE OVEN DRY CONDITION. MASONRY UNITS SHALL HAVE CURED FOR NOT LESS THAN (28) DAYS WHEN PLACED IN THE STRUCTURE. PROVIDE ALL BOND BEAM UNITS, LINTELS, ETC., AS NOTED ON PLANS.
- DO NOT USE CHIPPED OR CRACKED BLOCKS. IF ANY SUCH BLOCKS ARE DISCOVERED IN ANY FINISHING WALL, THEY SHALL BE PROMPTLY REMOVED AND REPLACED WITH NEW BLOCKS TO THE APPROVAL OF THE STRUCTURAL ENGINEER.
- THE USE OF ADMIXTURES SHALL NOT BE PERMITTED IN MORTAR OR GROUT UNLESS SUSTAINING DATA HAS BEEN SUBMITTED TO AND REVIEWED BY THE ENGINEER. THE USE OF ADMIXTURES IN MORTAR SHALL NOT BE PERMITTED WITHOUT REDUCING THE LIME CONTENT. THE USE OF UNCONTROLLED FINE CLAY, DIRT AND OTHER DELETERIOUS MATERIALS IS PROHIBITED.
- AGGREGATES, SANDS FOR MORTAR SHALL CONFORM TO ASTM C144 EXCEPT THAT NOT LESS THAN 3% OF THE SAND SHALL PASS THE NUMBER 100 SIEVE. SAND AND PEA GRAVEL FOR GROUT SHALL CONFORM TO ASTM C404, TABLE 1, COURSE AGGREGATE, EXCEPT WHEN OTHER GRADINGS ARE SPECIFICALLY APPROVED BY THE ENGINEER.
- QUICKLIME SHALL CONFORM TO ASTM C5. • MASONRY REBAR LAP LENGTHS SHALL BE PER LAP SCHEDULE
- UNLESS NOTED OTHERWISE ON THESE PLANS. • FOR PROPER MIXING PLACE THE SAND, CEMENT AND WATER IN THE MIXER IN THAT ORDER FOR EACH BATCH OF MORTAR OR GROUT AND MIX FOR A PERIOD OF AT LEAST (2) MINUTES. ADD THE LIME AND CONTINUE MIXING FOR AS LONG AS NEEDED TO SECURE A UNIFORM MASS BUT NOT IN NO CASE LESS THAN (10) MINUTES. USE MIXERS TO SECURE A UNIFORM CAPACITY. BATCHES REQUIRING FRACTIONAL SACKS WILL NOT BE PERMITTED UNLESS CEMENT IS WEIGHED FOR EACH SUCH BATCH. RETEMPER MORTAR ONLY BY ADDING WATER INTO A BATCH MADE WITH THE MORTAR AND THEN CAREFULLY WORKING THE WATER INTO THE MORTAR. RETEMPERING THE MORTAR BY DASHING WATER OVER THE MORTAR SHALL NOT BE PERMITTED. ANY MORTAR OR GROUT WHICH IS UNUSED WITHIN (1) HOUR OF THE INITIAL MIXING SHALL BE REMOVED FROM THE WORK. MORTAR SHALL BE MIXED AND MAINTAINED ON THE BOARDS TO A SLUMP OF (2-5/4") TO PLUS OR MINUS (1/4").
- WATER USED FOR MORTAR AND GROUT SHALL BE CLEAN AND FREE FROM DELETERIOUS AMOUNTS OF ACID, SALTS, ALKALI AND ORGANIC MATERIALS.
- WHEN GROUTING IS STOPPED FOR A PERIOD OF (1) HOUR OR LONGER, FORM HORIZONTAL CONSTRUCTION JOINTS BY STOPPING THE GROUT POUR (1-1/2")MINIMUM BELOW THE UPPER MOST UNIT.
- ALL MASONRY SHALL BE BUILT TO PRESERVE THE UNOBSTRUCTED VERTICAL CONTINUITY OF THE CELLS TO BE FILLED. THE VERTICAL ALIGNMENT SHALL BE SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED VERTICAL FLUE MEASURING NOT LESS THAN (3) INCHES, EXCEPT WHERE OPEN END UNITS ARE USED.
- REMOVE CONCRETE SCUM AND GROUT STAINS ON THE WALL IMMEDIATELY. AFTER THE WALL IS CONSTRUCTED. DO NOT SATURATE WITH WATER FOR CURING OR ANY OTHER PURPOSE. CHECK ALL JOINTS FOR TIGHTNESS AND, WHERE CRACKS ARE VISIBLE, CHIP OUT THE MORTAR, TUCK POINT AND TOOL TO MATCH ADJACENT JOINTING.
- GROUT FILL FOR CELLS SHALL CONSIST OF ONE PART PORTLAND CEMENT TO NOT MORE THAN (3) PARTS SAND, TO (2) PARTS PEA GRAVEL. (3/8") MAX. SIZE COURSE AGGREGATE. GROUT FILL USING COURSER AGGREGATE MAY BE USED IF THE MIX IS PROPERLY DESIGNED AND APPROVED BY THE ENGINEER. THE MAXIMUM SIZE OF AGGREGATE USED SHALL NOT EXCEED (1/3) THE LEAST LATERAL DIMENSION OF THE CELL TO BE FILLED. GROUT SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT (28) DAYS.
- ASSUMED COMPRESSIVE STRENGTH F'm SHALL BE 1500 PSI UNLESS OTHERWISE NOTED ON THESE PLANS. ULTIMATE COMPRESSIVE STRENGTH BASED ON THE AVERAGE OF (3) UNITS SHALL BE NOT LESS THAN 2000 PSI.
- SPECIAL INSPECTION SHALL NOT BE REQUIRED UNLESS SPECIFICALLY NOTED ON THESE PLANS.
- MASONRY LINTELS SHALL BE SOLID GROUTED FOR THE REQUIRED DEPTH. HORIZONTAL REINFORCING SHALL EXTEND (24") BEYOND THE OPENING ON EACH SIDE.
- MAXIMUM HEIGHT OF ANY GROUT POUR SHALL NOT BE GREATER THAN (4') UNLESS PROPER HIGH-LIFT METHODS ARE USED.
- MORTAR SHALL CONFORM TO ASTM C1329, TYPE S WITH A COMPRESSIVE STRENGTH OF 1800 (MIN SLUMP OF 9") PSI AT 28 DAYS UNLESS NOTED OTHERWISE. TYPE M WITH MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS SHALL BE USED WHERE MASONRY IS BELOW GRADE OR IN CONTACT WITH EARTH. THE MIX SHALL BE REVIEWED BY THE ENGINEER WHEN SPECIAL INSPECTION IS REQUIRED.
- PLACE MORTAR IN HORIZONTAL JOINTS, COMPLETELY COVER THE FACE SHELLS OF THE UNITS WITH MORTAR. SOLID FILL ALL HEAD JOINTS. LAY ALL MASONRY WITH COMMON OR RUNNING BOND. HOLD RAKING TO A MINIMUM.
- CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C150, TYPE I OR TYPE II AND SHOULD BE ENTIRELY OF ONE MANUFACTURER.
- BOND BEAM HORIZONTAL REINFORCEMENT SHALL BE SOLIDLY ENCASED IN GROUT. WIRE MESH SHALL BE USED IN EACH CELL BELOW EACH BOND BEAM TO PREVENT THE FLOW OF GROUT INTO UNGROUTED CELLS.
- GROUT ALL CELLS CONTAINING VERTICAL REINFORCEMENT, ANCHOR BOLTS OR EMBEDDED ITEMS. PROVIDE (2") MINIMUM COVER TO EMBEDDED ITEMS.
- ALL VERTICAL WALL REINFOREMENT SHALL HAVE DOWELS EQUAL IN SIZE EMBEDDED INTO FOOTING UNLESS NOTED OTHERWISE IN THESE PLANS.
- REINFORCING COVER SHALL BE (2") MINIMUM THROUGHOUT. POSITIONING DEVICES SHALL BE USED TO INSURE THE CORRECT PLACEMENT OF THE REINFORCEMENT.

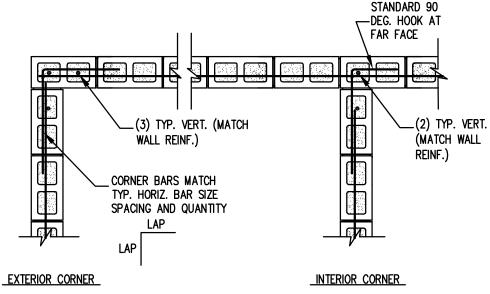


1. LAP VERTICAL REINFORCING WITH WALL DOWELS AND ALL OTHER VERT. BARS PER 6/S0.6 (SCHED.). 2. STAGGER SPLICES IN ADJACENT HORIZONTAL BARS IN THE SAME COURSE BY 24". 3. PROVIDE DOWEL BARS IN FOUNDATION TO MATCH ALL VERTICAL REINFORCING (U.O.N.).



1. LAP VERTICAL REINFORCING WITH WALL DOWELS AND ALL OTHER VERT. BARS PER 6/S0.6 (SCHED.). 2. STAGGER SPLICES IN ADJACENT HORIZONTAL BARS IN THE SAME COURSE BY 24". 3. PROVIDE DOWEL BARS IN FOUNDATION TO MATCH ALL VERTICAL REINFORCING (U.O.N.). 4. FOR ADDED REINFORCING AT WALL INTERSECTIONS AND CORNERS, SEE DETAIL 2/SO.6.

TAN TYPICAL MASONRY WALL REINFORCEMENT AWAY FROM OPENINGS



1. LAP = 48 BAR DIAMETERS OR 24 MINIMUM (U.O.N.). 2. PROVIDE A STANDARD 90 DEG. HOOK EACH END ON ANY HORIZONTAL BAR BETWEEN OPENINGS. CONTROL JOINTS. OR CORNER BARS LESS THAN 6'-0" IN LENGTH. 3. PROVIDE CORNER BARS FOR ALL BOND BEAM AND LINTEL REINFORCING.

2 CMU WALL CORNERS

_ TYP. CMU WALL

(SEE NOTE 4)

VERTICAL REINFORCING

TYP. WALL HORIZONTAL

LENGTH AS "A" BARS —

HORIZONTAL REINFORCING

"A" BARS SEE SCHEDULE

BAR AT TOP OF

STIRRUP, SAME AS

-BOND BREAKER TAPE -STOP HORIZONTAL REINFORCING AT JOINT, EXCEPT CONTINUE HORIZONTAL BARS AT ALL ROOF AND FLOOR

LAYOUT (MAX 24' O.C. & 12' FROM CORNERS)

LEVELS THRU JOINT PROVIDE TYP. VERTICAL REINFORCING (MATCH WALL STEEL) IN 3 PREFABRICATED -SEE ARCH. ELEVATIONS FOR CONTROL JOINT

TYPICAL CMU CONTROL JOINT

L_sVALUES (IN)

SIZE 1000 1500 2000 2500 3000 3500

L_a VALUES (IN)

25 | 24 | 24 | 24 | 24 | 24

36 | 36 | 36 | 36 | 36

54 | 54 | 54 | 54 | 54 | 54

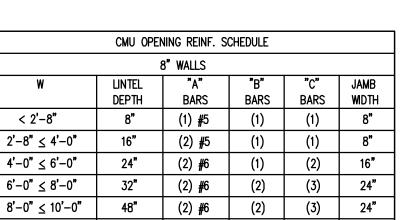
63 63 63 63 63

45 | 45 | 45 | 45 | 45 | 45

• TENSION & COMPRESSION SPLICE

INTERIOR PLAN "C" VERT. BARS PER 5/S0.6 — - TYP. EA. END OF SHEAR PIER ∕—#4 PIER HORIZ. SHEAR REINF. FULL HEIGHT OF PIER @ 16" O.C. (U.O.N.) (PIER LENGTH > 48", HORIZ. SHEAR REINF. NOT "C" VERT. BARS PER 5/SOREQ'D) - TYP. EA. END OF SHEAR PIER — - SEE 2/S0.6 (SIM.) PIER LENGTH (48" MAX.) CORNER PLAN NOTES: 1. GROUT PIERS FULL WALL HEIGHT. 2. WHERE PIERS ARE CENTERED BELOW BEAM BEARING, REDUCE TIE SPACING TO 8".

_ GROUT ALL CELLS WITHIN SHADED BOUNDARY AREA "A" BARS IN LINTEL BLOCK - SEE NOTE 3 - 24" MIN. BRNG. $_$ "B" bars in bond "C" BARS EACH SIDE BEAM — SEE NOTE 3 - SEE NOTE 2 (ONE CENTERED PIER IN 8" WALLS)



48" (2) #6 (2) (3) 24"

1. USE BAR QUANTITIES AND SIZES GIVEN IN LINTEL SCHEDULE UNLESS OTHERWISE NOTED ON THE DRAWINGS. 2. EXTEND "C" BARS 48 BAR DIAMETERS OR 24" MINIMUM BEYOND TOP AND BOTTOM OF OPENING EXCEPT THAT WHEN "H" OR "W" EXCEEDS 24". "C" BARS SHALL EXTEND FULL HEIGHT. WHERE THERE IS LESS THAN 8" BETWEEN ADJACENT OPENINGS, EXTEND REINFORCING CONTINUOUS TO 32" BEYOND FURTHEST OPENING. 3. "A" AND "B" BARS SHALL EXTEND 48 BAR DIAMETERS OR 24" MINIMUM EACH SIDE OF THE OPENINGS.

4. FOR BAR SIZES, MATCH TYPICAL WALL REINFORCING AS SHOWN ON THE BUILDING WALL SECTIONS, U.O.N.

√5 CMU OPENING REINFORCING

NERAL ETAILS || <u>(</u>5 SONR TES AI M N O

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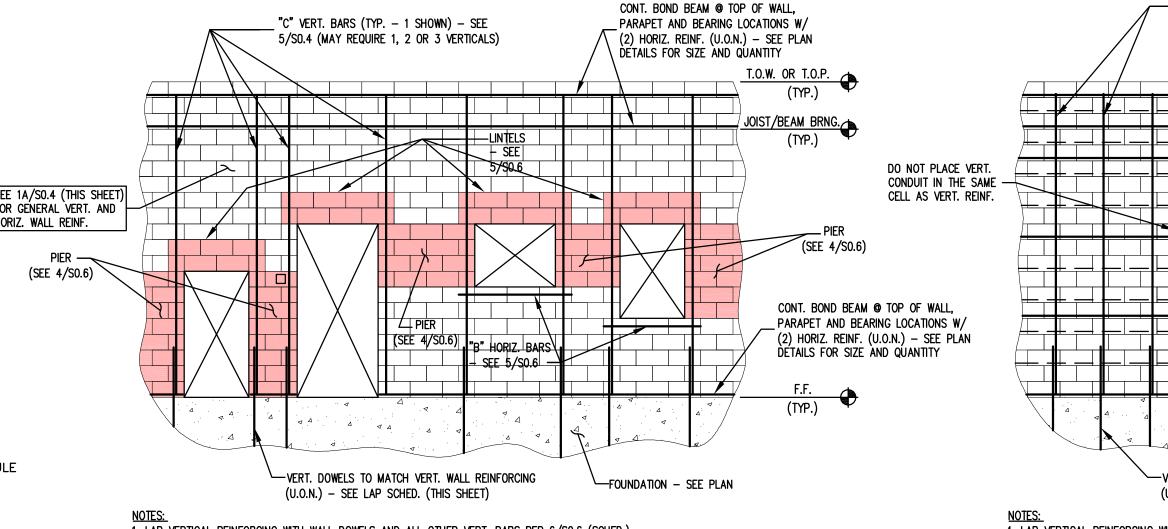
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4. FOR ADDED REINFORCING AT WALL INTERSECTIONS AND CORNERS, SEE DETAIL 2/SO.6. 5. GROUT EACH SIDE OF OPENING AS NOTED - SEE TYPICAL OPENING REINFORCING DETAIL 5/SO.6. REQUIRED MASONRY WALL REINFORCEMENT AT OPENINGS

PIER LENGTH (48" MAX.)

4 CMU WALL PIER BETWEEN OPENINGS TYPICAL VERTICAL REINF. NOT SHOWN - SEE 1A/S0.6

• TENSION & COMPRESSION DEVELOPMENT SIZE 1000 1500 2000 2500 3000 3500 25 | 20 | 17 | 16 | 14 | 13 31 | 25 | 22 | 20 | 18 | 16

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 46
 42
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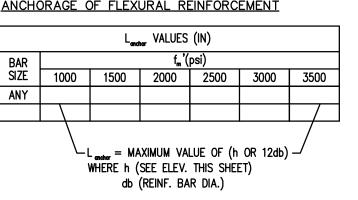
 112
 91
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 71
 64
 60
 COLUMN/PILASTER RETAINING WALL

TENSION DÉVELOPMEN

COMPRESSIÓN DEVELOPMENT

LINTEL & JAMB REINFORCEMENT

• ANCHORAGE OF FLEXURAL REINFORCEMENT



(6) REINFORCING DEVELOPMENT LENGTHS / SPLICES (WHERE APPLICABLE)

(3) BLOCKS 2'-0" TYPICAL BOND BEAM REINFORCING - SEE TYPIC¦AL BOND BEAM R#INFORC¦NG — SEE PLAN

RAKE - MAINTAIN

7 BOND BEAM STEP DETAIL

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STRUCTURAL STEEL

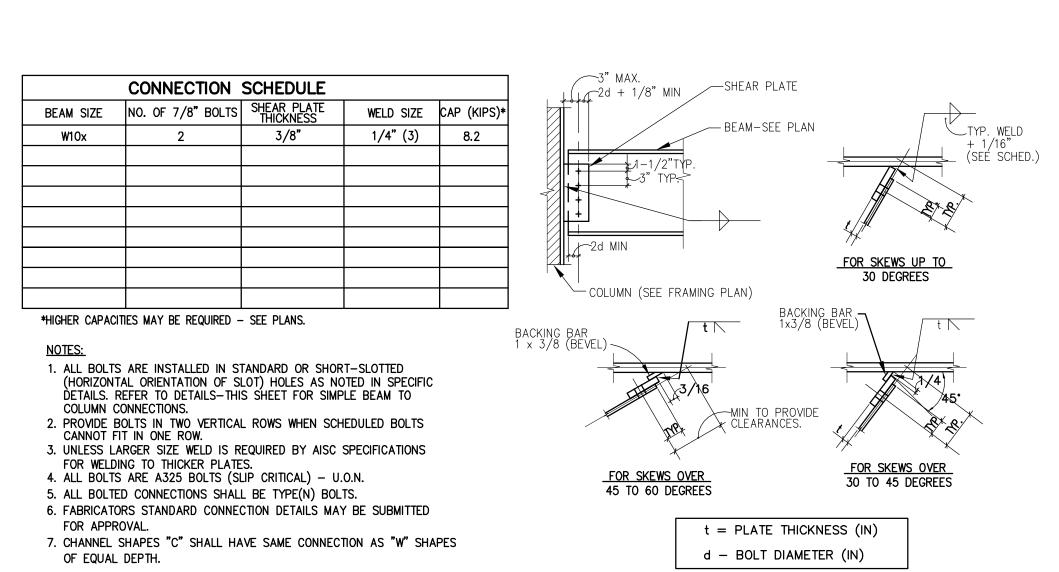
- STRUCTURAL STEEL SHALL BE SHOP FABRICATED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" LATEST EDITION, WELDING SHALL COMPLY WITH AWS 1.1 "STRUCTURAL STEEL WELDING".
- CONTRACTOR TO VERIFY ALL MEASUREMENTS AT JOB SITE.
- PROVIDE ALL LUGS, CLIPS, ANGLES AND MISCELLANEOUS FASTENERS
- NECESSARY FOR THE COMPLETE ASSEMBLY AND INSTALLATION. • DO ALL GROUTING OF BASE PLATES AND SIMILAR ITEMS WITH
- NON-SHRINK GROUT. • PROTECT ALL DISSIMILAR METALS FROM GALVANIC CORROSION.
- PROVIDE WASHERS ON ALL HEADS AND NUTS BEARING ON WOOD. DRAW ALL NUTS TIGHT AND UPSET THREADS OF PERMANENT CONNECTIONS TO PREVENT LOOSENING. USE BEVELED WASHERS WHERE BEARING IS ON SLOPED SURFACES.
- THOROUGHLY CLEAN ALL MILL SCALE, RUST, DIRT, GREASE AND OTHER FOREIGN MATTER FROM FERROUS METAL PRIOR TO PAINTING.
- AFTER MATERIAL HAS BEEN PROPERLY CLEANED AND TREATED, APPLY PRIME COAT OF PAINT TO ALL SURFACES EXCEPT THOSE ENCASED IN CONCRETE OR MASONRY. APPLY ALL PAINT AS PER MANUFACTURER'S DIRECTIONS. SPOT PAINT ALL ABRASIONS AND FIELD CONNECTIONS AFTER ASSEMBLY. SHOP COAT SHALL BE DRY PRIOR TO SHIPMENT TO JOB SITE.
- REFER TO SHEET SO.1 FOR ALL "ER" REQUIRED REPORTS.
- WELDING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AWS CODE P1.1. WELDS SHALL BE MADE ONLY BY OPERATORS EXPERIENCED IN PERFORMING THE TYPE OF WORK INDICATED. WELDS NORMALLY EXPOSED TO VIEW IN THE FINISHED WORK SHALL BE UNIFORMLY MADE AND GROUND SMOOTH. WHERE WELDING IS DONE IN PROXIMITY TO GLASS OR FINISHED SURFACES, SUCH SURFACES SHALL BE PROTECTED FROM DAMAGE DUE TO WELD SPARKS, SPATTER OR TRAMP METAL
- INDIVIDUAL WELDERS FOR STRUCTURAL METAL WORK SHALL BE QUALIFIED FOR THE WELDS BEING PERFORMED.
- WELDING ELECTRODES TO BE E70 SERIES UNLESS OTHERWISE NOTED.
- ALL STRUCTURAL MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE A.I.S.C SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.
- ASTM MATERIAL REQUIREMENTS:
- ASTM A-992 GRADE 50 FOR ALL WIDE FLANGE W SECTIONS AND T SECTIONS
- ASTM A−36 FOR C, MC, BARS, ANGLES, AND PLATES.
- → ASTM A-53 GRADE B OR A-501 FOR STEEL PIPES - ASTM A-500 GRADE B, FY=46 KSI FOR TS/HSS TUBE STEEL FOR
- SIZES UP TO 5/8" THICK. - ASTM A-501 GRADE B, FY=36 KSI FOR TS/HSS TUBE STEEL FOR
- OTHERS UP TO 1" THICK.
- ASTM A−307 PLAIN BOLTS.
- ASTM F-1554 GRADE 36, A-307 OR A-36 PLAIN ANCHOR BOLTS. - ASTM A-325-N HIGH STRENGTH BOLTS; TESTED BY A CALIBRATED WRENCH UNLESS LOAD INDICATOR BOLTS ARE USED. HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO "SNUG TIGHT" CONDITION PER AISC, UNLESS SPECIFICALLY CALLED OUT TO BE "TORQUED AND TESTED" ON PLANS BY A CALIBRATED TORQUE WRENCH.
- CLEARLY IDENTIFY EACH PIECE OF STRUCTURAL STEEL WITH A PIECE MARK
- AND THE CORRESPONDING STRUCTURAL ASTM GRADE AND YIELD STRESS. • SEE MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT SUPPORT FRAMING AND SPREADERS. SEE MECHANICAL & ARCHITECTURAL DRAWINGS FOR EXACT QUANTITY, SIZE, LOCATIONS, AND WEIGHT OF MECHANICAL UNITS.

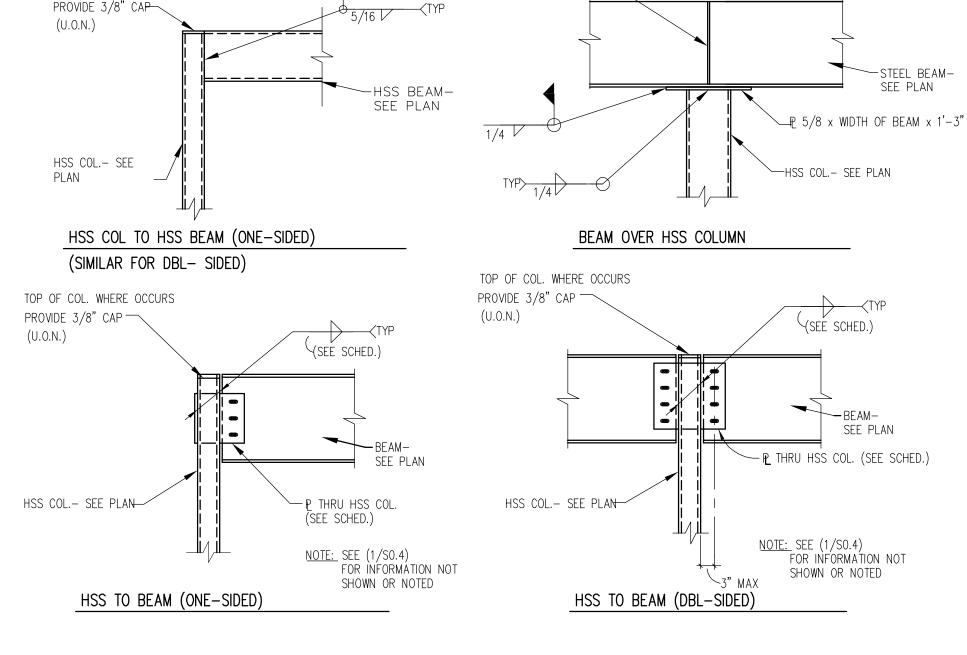
STRUCTURAL METAL DECK

- THE MANUFACTURING, DETAILING, AND ERECTION OF METAL DECKS SHALL BE IN ACCORDANCE WITH THE "STEEL DECK INSTITUTE SPECIFICATIONS," LATEST EDITION.
- ALL METAL DECK SHALL BE FABRICATED FROM STEEL HAVING A MINIMUM YIELD STRENGTH OF 33,000 PSI.
- REFER TO PLANS AND DETAILS FOR DECK SIZE.
- •PROVIDE DETAILED AND CHECKED SHOPE DRAWINGS INDICATING LOCATION, GAGE, AND SIZE OF EACH PIECE OF DECKING AND RELATED DECKING ACCESSORY. THE DRAWINGS SHALL CLEARLY SHOW WELDING DETAILS TO STRUCTURAL FRAMING ELEMENTS, SIDE LAP CONNECTION DEDTAILS, DECK OPENINGS, EDGE CLOSURES, AND WHERE REQUIRED, SUPPLEMENTARY DECK AND/OR CLOSURE REINFORCING.
- ALL DECKING SHALL BE WELDED TO STRUCTURAL STEEL BY QUALIFIED WELDERS USING PRE-QUALIFIED PROCEDURES. THE TECHNICAL SPECIFICATIONS ESTABLISH A PROCEDURE FOR PRE QUALIFICATION OF THE PLUG WELDING OF THE STEEL DECKING TO THE STRUCTURAL STEEL FOR THE PARTICULAR GAGES USED. PRIOR TO THE START OF ERECTION OF THE STEEL DECK, EACH WELDER SHALL BE QUALIFIED USING THIS PROCEDURE AS WITNESSED BY THE OWNER'S STRUCTURAL STEEL TESTING LABORATORY.
- THE METAL DECK SHALL BE DESIGNED TO BE UNSHORED AND CONTINUOUS OVER A MINIMUM OF THREE (3) SPANS IN THE DIRECTION INDICATED. METAL DECKING FOR SINGLE AND DOUBLE SPANS, IF REQUIRED, SHALL ALSO SATISFY THE SPECIFIED LOAD AND DEFLECTION REQUIREMENTS.
- THE DECK SHALL BE DESIGNED FOR AN ASSUMED SUITABLE CONSTRUCTION LIVE LOAD. THE ASSUMED CONSTRUCTION LIVE LOAD SHALL NOT BE LESS THAN 20 PSF. HOWEVER, CONTRACTOR SHALL FOLLOW ALL APPLICABLE CITY, LOCAL, STEEL DECK INSTITUTE, AND AISI REQUIREMENTS FOR TEMPORARY CONSTRUCTION LOADINGS.
- DO NOT HANG LOADS FROM METAL DECK. HANG ALL DUCTWORK, PIPING, ETC. DIRECTLY FROM STRUCTURAL STEEL FRAMING OR SUPPLEMENTARY MEMBERS. ALL HANGING LOAD DETAILS SHALL BE SUBMITTED FOR REVIEW. LATERAL ROOF LOADS SHALL BE TRANSFERREED THROUGH DIAPHRAGM ACTION PROVIDED BY THE METAL ROOF DECK.
- PROVIDE CONTINUOUS SHEET METAL CLOSURES AT ALL SLAB OPENINGS AND SLAB EDGES AND CONTINUOUS DECK CLOSURES AT ALL DECK ENDS.
- ALL METAL DECK SHALL BE WELDED TO THE SUPPORTING STEEL PER SCHEDULE (THIS SHEET). PUDDLE WELDS AT 12 INCHES ON CENTER (6" O.C. AT PERIMETER). THE USE OF WELDING WASHERS FOR ALL METAL DECK WELDING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE WELDED SIDE LAP FASTENERS AT 36" MAXIMUM ON CENTER OR #10 TEK SCREW SIDE LAP FASTENERS AT A MINIMUM OF 2 PER SPAN, UNLESS OTHERWISE NOTED. REFER TO ATTACHMENT PATTERN SCHEDULE THIS SHEET.
- •PROVIDE, AS REQUIRED, ALL RIDGE AND VALLEY PLATES, COLUMN CLOSURES, CANT STRIPS, SUMP PLATES AT PIPING PENETRATIONS, AND RECESSED SUMP PANS AT ROOF DRAINS. PROVIDE SUPPLEMENTAL FRAMING, INCLUDING REINFORCING PLATES, AT OPENINGS AS REQUIRED FOR SUPPORT OF THE METAL DECK. COORDINATE ALL OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

COMPOSITE METAL DECK

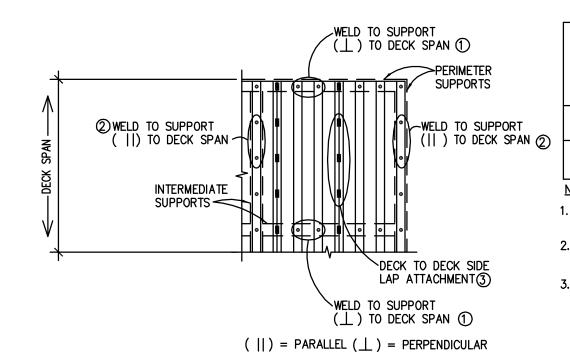
- ALL SLAB COMPOSITE METAL DECK SHALL HAVE WIDE RIBS SUITABLE FOR SHEAR STUD PLACEMENT WHERE STUDS ARE REQUIRED. THE CONFIGURATION OF THEMETAL DECK SHALL BE SUCH AS TO DEVELOP THE FULL SHEAR VALUE OF THE STUD FOR THE PARTICULAR WEIGHTS OF THE CONCRETE AS LISTED IN THE AISC SPECIFICATIONS, LATEST EDITION. THE CONTRACTOR SHALL PROVIDE VERIFICATION OF THE STUD VALUES FOR THE SPECIFIC DECK TYPE AND STUD SPACING AND PROVIDE ADDITIONAL STUDS AS REQUIRED FOR SPECIFIC DECK TYPES UTILIZED.
- ●PROVIDE 3/4" DIA. x 3-1/2" HEADED STUDS AS DESIGNATED ON STEEL MEMBERS WHICH SUPPORT METAL DECK SLABS. OMIT STUDS WHERE NOT SHOWN ON PLANS.
- THE CONTRACTOR SHALL PROVIDE CHECKED SHOP DRAWINGS INDICATING EXACT LAYOUT OF STUDS FOR EACH BEAM, SPAN, AND DECK LAYOUT.
- •SHEAR STUDS SHALL BE WELDED THROUGH THE METAL DECK BY PRE-QUALIFIED METHODS. IF THROUGH-DECK WELDING IS UNFEASIBLE, THE STUDS SHALL BE INSTALLED IN PRE-PUNCHED HOLES IN THE DECK.





P 1/2" STIFFENER PLATE EA. SIDE-

2 TYPICAL SIMPLE SHEAR CONNECTIONS (WHERE APPLICABLE)



CONNECTION SCHEDULE AND REQUIREMENTS

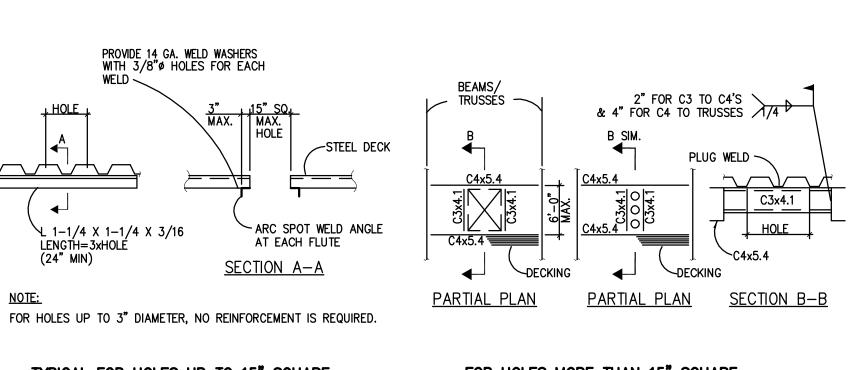
(WHERE APPLICABLE - SEE PLANS)

ECK TYPE	ATTACHMENT PAT			DIAPHRAGM DE	DECK	DECK DEPTH	GAUGE	CONFIGURATION	I mIN	Sx min	Fy
ECK TYPE	TO SUPPORT PERPENDICULAR TO DECK RIBS ①	TO SUPPORT PARALLEL TO DECK RIBS ②	DECK TO DECK SIDE LAPS ③	SHEAR	TYPE	(INCHES)	GAUGE	CONTIGURATION	(IN ⁴ / FT)	(IN ³ / FT)	(KSI)
3N	5/8"PUDDLE WELD AT ALL FLUTES	5/8" PUDDLE WELD @ 10" O.C.	(5) FASTENERS PER SPAN #10 TEK	471 LB/FT ON 6'-0" SPAN	В	1-1/2" 18	18	1-1/2 +	.292	.327	33
1.5B	5/8"PUDDLE WELD AT ALL FLUTES	5/8" PUDDLE WELD @ 10" O.C.	(7) FASTENERS PER SPAN #10 TEK	455 LB/FT ON 6'-0" SPAN				36" + 1 34			

1. DIAPHRAGM SHEAR IS IBC ALLOWABLE DIAPHRAGM SHEAR FOR DECK INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS.

2. THE DETAILS SHOWN ON THIS SHEET SHALL BE INCORPORATED INTO THE PROJECT AT ALL LOCATIONS WHERE METAL DECK IS USED, WHETHER SPECIFICALLY CALLED OUT OR NOT.

3. DECK SHALL BE WELDED TO ALL BEAMS AND SUPPORTS.



FOR HOLES MORE THAN 15" SQUARE TYPICAL FOR HOLES UP TO 15" SQUARE (LESS THAN 2'-6")

L4x4x3/8 CLIP $L^{5}x5x3/8^{\circ}x0^{\circ}-5^{\circ}$ (TYP) TYPICAL ROOF OPENING FOR

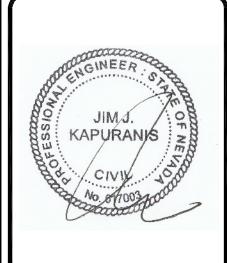
OPENINGS LARGER THAN 2'-6"

METAL DECK DETAILS

JJK Group, Inc. Consulting Structural Engineers

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CCAS PROJECT NO.: 1107 DRAWN: 7/23/15

OF

EARTHWORK NOTES

• CRITERIA:

ALL INFORMATION BELOW IS A SUMMARY PROVIDED BY THE GEOTECHNICAL ENGINEER RESOURCE CONCEPTS, INC DRAFT SOILS REPORT BY: JAN 9, 2015

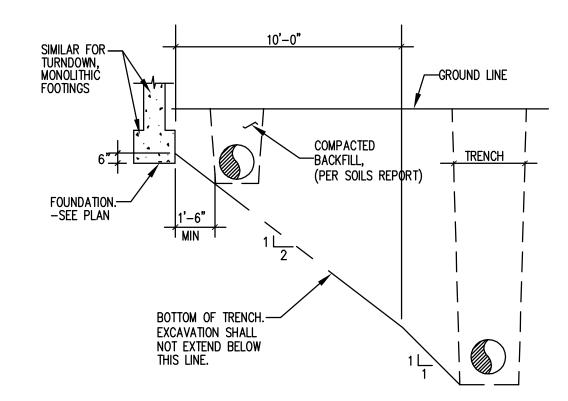
THE FOLLOWING INFORMATION BELOW BY JJK GROUP, INC. DOES NOT RELIEVE THE CONTRACTOR FROM REVIEWING THE SOILS REPORT AND FOLLOWING ALL REQUIRED SUBGRADE PREPARATIONS.

• GENERAL:

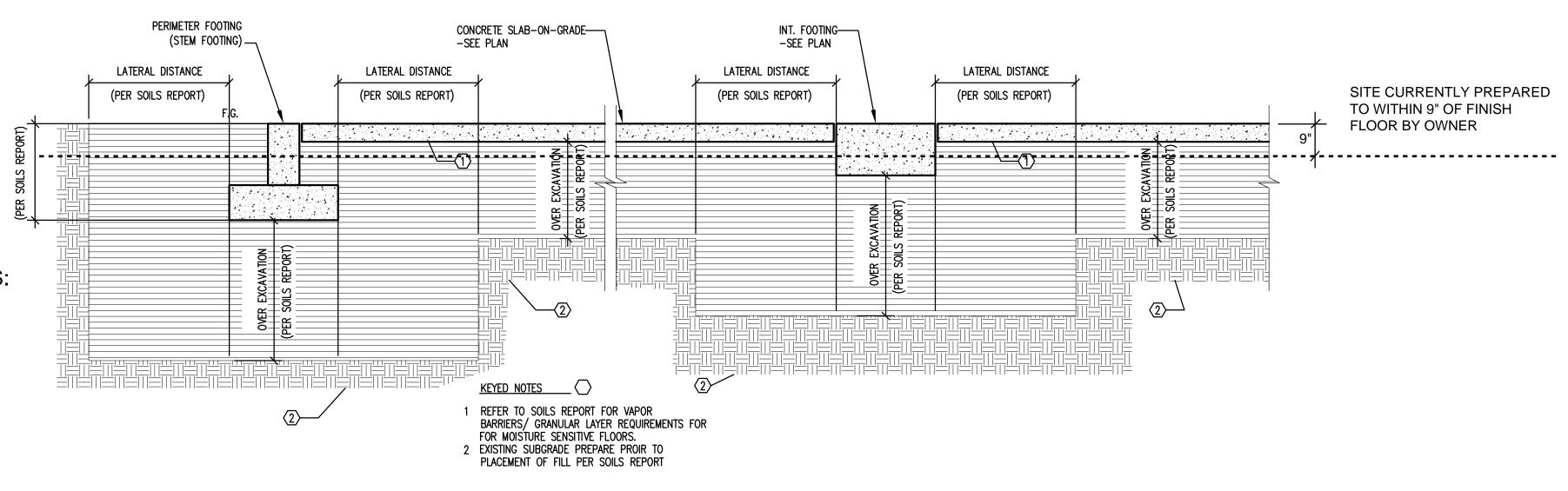
- THE GEOTECHNICAL ENGINEER SHALL ACT AS THE OWNER'S REPRESENTATIVE AND SHALL MAKE OBSERVATIONS AND TESTS AS CONSIDERED NECESSARY FOR QUALITY CONTROL. WHERE FOUNDATIONS OR OTHER CRITICAL ELEMENTS ARE TO BE SUPPORTED ON ENGINEERED FILL, CONTINUOUS OBSERVATIONS AND TESTS OF GRADING OPERATIONS SHALL BE MADE BY THE GEOTECHNICAL ENGINEER. ALL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH PROCEDURES SET FORTH IN THE CURRENT BOOK OF STANDARDS OF THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM).
- FILL OR BACKFILL, CONSISTING OF SOIL APPROVED BY THE GEOTECHNICAL ENGINEER, SHALL BE PLACED IN CONTROLLED COMPACTED LAYERS WITH APPROVED COMPACTION EQUIPMENT. CONTROLLED COMPACTED LAYERS WITH APPROVED COMPACTION EQUIPMENT. ALL COMPACTION SHALL BE TO A MINIMUM OF 95 PERCENT (U.O.N. IN SOILS REPORT) OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D-1557 A TEST METHOD. SOILS MOISTURE CONTENT DURING COMPACTION SHALL BE AT OPTIMUM MOISTURE CONTENT PLUS OR MINUS 2% (U.O.N. IN SOILS REPORT).
- TESTS FOR DEGREE OF COMPACTION SHALL BE DETERMINED BY THE ASTM D-1556 OR ASTM D-2922 TEST METHODS. OBSERVATION AND FIELD TESTS SHALL BE CARRIED ON DURING FILL AND BACKFILL PLACEMENT BY THE GEOTECHNICAL ENGINEER TO ASSIST THE CONTRACTOR IN OBTAINING THE REQUIRED DEGREE OF COMPACTION. IF LESS THAN 95 (U.O.N. IN SOILS REPORT) PERCENT IS INDICATED, ADDITIONAL COMPACTION EFFORT SHALL BE MADE WITH ADJUSTMENT OF THE MOISTURE CONTENT AS REQUIRED COMPACTION IS OBTAINED.
- WHEREVER, IN THE OPINION OF THE GEOTECHNICAL ENGINEER, AN UNSTABLE CONDITION IS BEING CREATED, EITHER BY CUTTING OR FILLING, THE WORK SHALL NOT PROCEED IN THAT AREA UNTIL AN INVESTIGATION HAS BEEN MADE AND THE GRADING PLAN REVISED.

• GENERAL DRAINAGE, MAINTENANCE AND PRECAUTIONS:

- PRECAUTIONS SHALL BE TAKEN DURING AND AFTER CONSTRUCTION TO MINIMIZE SATURATION OF THE FOUNDATION SOILS. POSITIVE DRAINAGE SHALL BE ESTABLISHED AWAY FROM THE EXTERIOR WALLS OF THE STRUCTURE (FOUR PERCENT GRADIENT WITHIN TEN FEET OF THE STRUCTURE). ALL UTILITY TRENCHES LEADING INTO THE BUILDING SHALL BE BACKFILLED WITH COMPACTED FILL. SPECIAL CARE SHALL BE TAKEN DURING INSTALLATION OF WATER LINES TO REDUCE THE POSSIBILITY OF FUTURE SUBSURFACE SATURATION.
- DEPRESSIONS AND EXCAVATIONS SHOULD BE BACKFILLED WITH COMPACTED, NON-SWELLING, RELATIVELY-IMPERVIOUS SOILS SUCH AS CLAYEY SANDS.
- GUTTERS AND DOWN SPOUTS SHOULD BE INSTALLED TO CONTROL ROOF DRAINAGE. DOWNSPOUTS SHOULD DISCHARGE A MINIMUM OF TEN FEET AWAY FROM STRUCTURES. AREA DRAINS MAY BE INSTALLED AROUND STRUCTURES TO IMPROVE DRAINAGE. DISCHARGE PIPES SHOULD SLOPE A MINIMUM OF 1/8 TH INCH VERTICAL PER FOOT OF HORIZONTAL PIPE. DRAINAGE SEWERS AND DISCHARGE CHANNELS SHOULD BE KEPT FREE
- EXPANSION JOINTS WITHIN EXTERIOR CONCRETE FLATWORK SHOULD BE FILLED WITH A FLEXIBLE JOINT SEALER TO MINIMIZE WATER INFILTRATION.
- SOME MINOR CRACKING OF NEW CONCRETE FOUNDATIONS. CONCRETE FLATWORK, AND INTERIOR DRY WALL IS NORMAL THIS IS A RESULT OF CONCRETE SHRINKAGE AS IT CURES, "SETTLING IN" OF THE NEW STRUCTURE, DRYING OF TIMBERS USED IN CONSTRUCTION, ETC. NORMALLY THE MAJORITY OF THIS MOVEMENT SHOULD CEASE WITHIN THE FIRST YEAR FOLLOWING CONSTRUCTION. HOWEVER, DEPENDING ON THE STRUCTURE AND SITE CONDITIONS, MOVEMENT MAY CONTINUE AT A SLOW RATE FOR SEVERAL YEARS.
- ROOF GUTTERS AND DOWNSPOUTS SHOULD BE UTILIZED. DOWN SPOUTS SHOULD DISCHARGE DOWN SLOPE AND WELL AWAY FROM THE STRUCTURES. SPLASH BLOCKS SHOULD BE UTILIZED BELOW DOWN SPOUTS. SURFACE WATER SHOULD RUN OFF RAPIDLY.
- LANDSCAPING ADJACENT TO STRUCTURES SHOULD BE DESIGNED AND CONSTRUCTED TO MINIMIZE THE POTENTIAL FOR WETTING OF SOILS SUPPORTING THE PROPOSED FACILITIES. IT IS NOT RECOMMENDED THAT LANDSCAPING REQUIRING IRRIGATION BE INSTALLED CLOSER THAN FIVE FEET OF STRUCTURES. TREES AND SHRUBS SHOULD BE HAND WATERED OR WATERED USING CONTROLLED DRIP IRRIGATION. IF DRIP IRRIGATION IS USED, EMITTERS SHOULD DISCHARGE NO MORE THAN ONE GALLON PER HOUR. WATERING SHOULD BE CAREFULLY CONTROLLED TO PREVENT OVER WATERING. GRASSED AREAS ADJACENT TO STRUCTURES SHOULD BE SLOPED SO THAT EXCESS IRRIGATION WATER WILL RUN OFF PROMPTLY. SPRINKLER LINES AND DRIP IRRIGATION MAINS SHOULD BE LOCATED A MINIMUM OF FIVE FEET AWAY FROM FOUNDATIONS. MOWING STRIPS, PLANTERS AND SIDEWALKS SHOULD NOT "DAM" WATER ADJACENT TO STRUCTURES.



GENERAL TRENCH REQUIREMENTS PARALLEL TO FOUNDATION



EARTHWORK REQUIREMENTS

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lacktriangle THE ABOVE EARTHWORK INFORMATION IS BASED ON THE SOILS REPORT PROVIDED. THIS <u>DOES</u> NOT RELIEVE THE CONTRACTOR FROM THE COMPLETE REVIEW OF THE SOILS REPORT AND ALL REQUIREMENTS/RECOMMENDATIONS OF SUCH REPORT MUST BE FOLLOWED.

REFER TO CIVIL DRAWINGS FOR ADDITIONAL SUBGRADE PREPARATION

REVIEWS BDA DSGN. REV. BDA TECH REV. CCAS PROJECT NO.: 1107 DRAWN:

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GENERAL DETAILS

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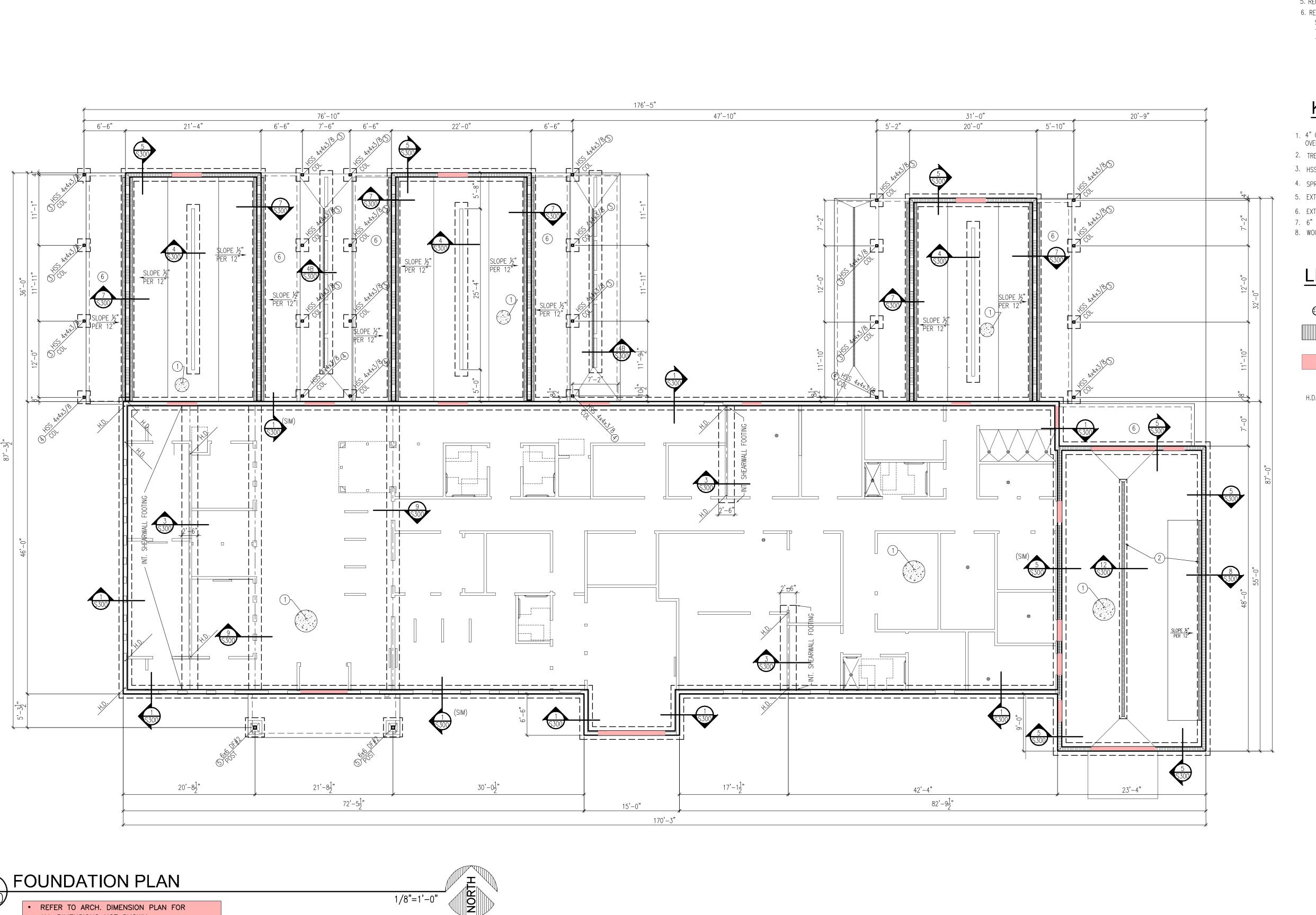
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GENERAL NOTES:

- 1. REFER TO GENERAL NOTES SHEETS FOR ALL REQUIREMENTS.
- 2. AT NON-BEARING PARTITION WALLS PROVIDE 0.145" DIAMETER SHOT-PINS OF SUFFICENT LENGTH FOR 1-3/8" PENETRATION INTO CONCRETE SPACED AT NO MORE THAN 16" O.C. FROM SILL PLATE INTO SLAB AT BASE LEVEL.
- 3. REFER TO MECH./ELEC. FOR ALL INSERTS AND DRAIN LOCATIONS.
- 4. REFER TO ARCH. FOR LOCATION OF FLOOR RECESSES.
- 5. REFER TO CIVIL PLANS FOR FOOTING STEP LOCATIONS 6. REFERENCE TYPICAL DETAILS ON SHEET SO.2 AS FOLLOWS:
- STANDARD HOOKS/BAR BENDS
- TYPICAL REINFORCING LAP SPLICE SCHEDULE TYPICAL ANCHOR BOLT EMBEDMENT SCHEDULE REINFORCEMENT MINIMUM COVER/TOLERANCES

KEYED NOTES:

- 4" CONC. SLAB-ON-GRADE W/ #4 @ 18" O.C. E.W. @ MID-DEPTH OVER PREPARED SUBGRADE PER SOILS REPORT.
- 2. TRENCH DRAIN -SEE MECH & 12/S300
- 3. HSS COL TO FOOTING -SEE 10/S300
- 4. SPREAD FOOTING INTEGRAL W/ FOOTING -SEE 3A/S300
- 5. EXTERIOR WOOD COL -SEE 11/S300
- 6. EXTERIOR CONC. SLAB ON GRADE W/ TURNDOWN -SEE SO.2

LEGEND

DRAIN LOCATIONS - SEE ARCH. & MECH.



-SEE 2/S300 FOR CONC. STEM

7. 6" CMU LOW WALL -SEE 4A/S300 8. WOOD COL ON STEM (IN WALL) PROVIDE SIMPSON "ABA" POST BASE

DEPRESSED STEM @ DOOR OPENINGS

-SEE 7/S300 FOR BLOCK STEM

HOLDOWN SEE SHEARWALL SCHED AND PLAN S201

FOUNDATION

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PROJECT NO.: 1107

DRAWN: DATE:

ALL DIMENSIONS NOT SHOWN. COORDINATE ALL ARCHITECTURAL DIMENSIONS/SLAB ELEVATIONS PRIOR TO ANY EXCAVATIONS. **DO NOT SCALE DRAWINGS.**

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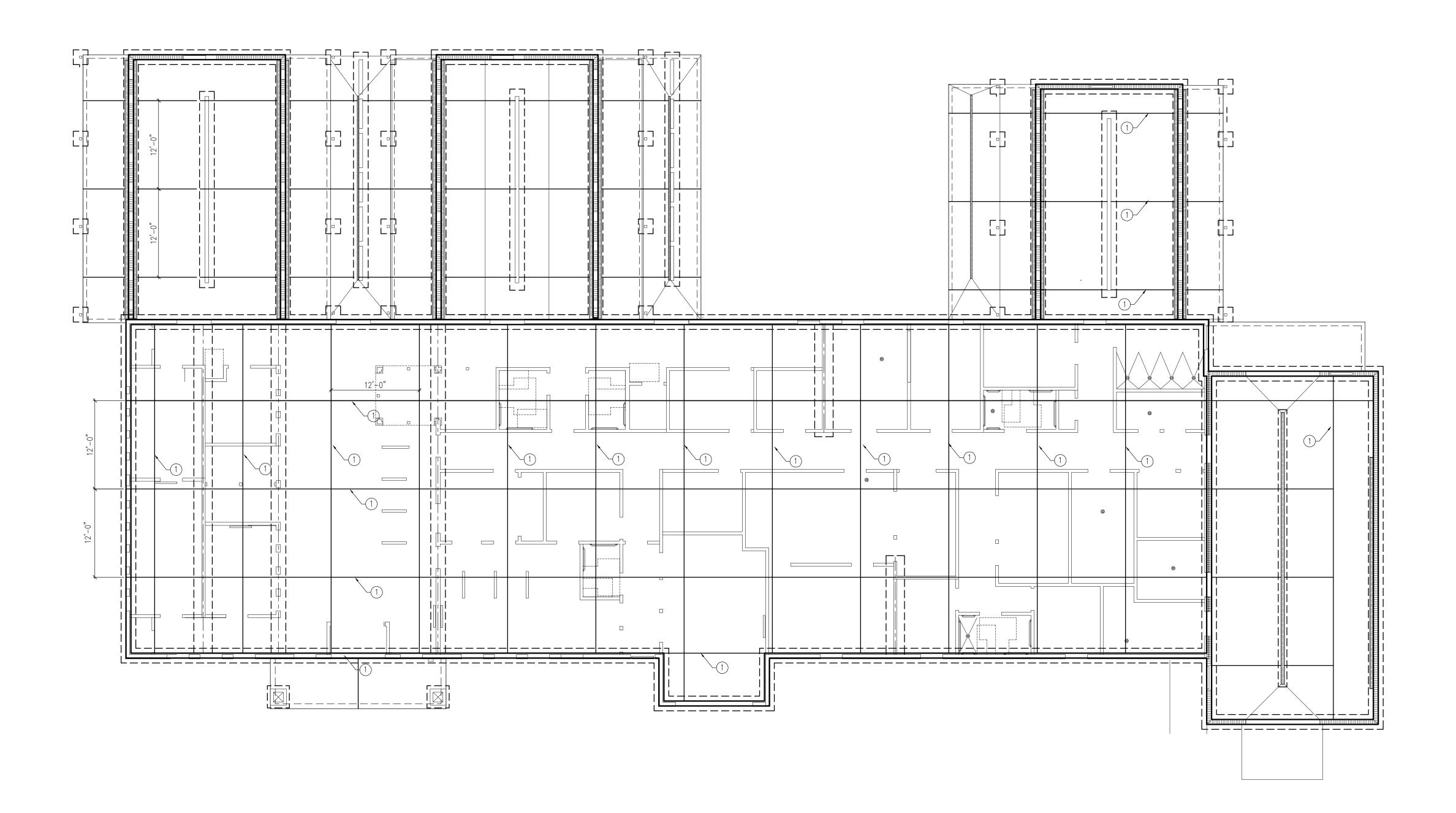
Consulting Structural Engineers

1. REFER TO GENERAL NOTES SHEETS FOR ALL REQUIREMENTS.

2. REFERENCE DETAILS ON SHEET SO.2A AS FOLLOWS: TYPICAL JOINT LAYOUT DETAILS CONTROL/CONTRACTION JOINT DETAILS ISOLATION/EXPANSION JOINT DETAILS CONSTRUCTION JOINT DETAILS TYPICAL REINFORCEMENT AT RE-ENTRANT CORNERS TYPICAL REINFORCING AROUND SLAB-ON-GRADE OPENINGS

KEYED NOTES:

1. CONTROL JOINT - SEE SO.2A FOR DETAILS.



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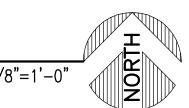
FOUNDATION CONTROL
JOINT PLAN

BDA DSGN. REV. BDA TECH REV.

CCAS PROJECT NO.: 1107 DRAWN:

DATE: 7/23/15

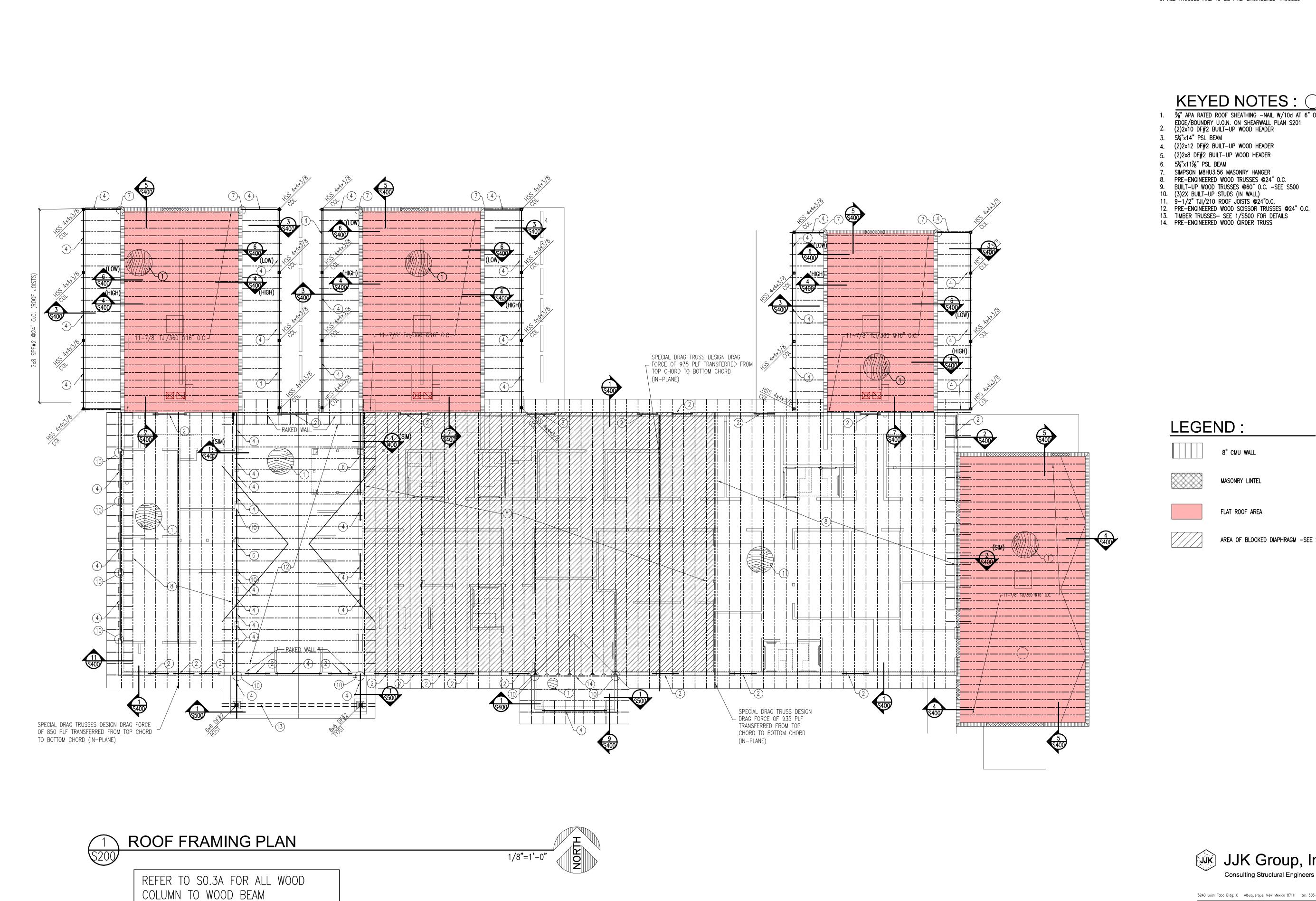
1 FOUNDATION CONTROL JOINT PLAN



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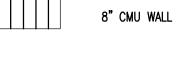
GENERAL NOTES:

- 1. REFER TO GENERAL NOTES SHEETS FOR ALL REQUIREMENTS.
- 2. REFER TO ARCH. FOR ALL BEARING HEIGHTS.
- 3. CONNECTION HARDWARE TO BE SIMPSON U.O.N..
- 4. REFER TO SHEET SO.3A FOR WOOD COLUMN POST CAP BASE CONNECTIONS. 5. ALL TRUSSES ARE TO BE PRE-ENGINEERED TRUSSES

KEYED NOTES: (

- 1. %" APA RATED ROOF SHEATHING —NAIL W/10d AT 6" O.C. EDGE/BOUNDRY U.O.N. ON SHEARWALL PLAN S201
 2. (2)2x10 DF#2 BUILT—UP WOOD HEADER
- 3. 51/4"x14" PSL BEAM
- 4. (2)2x12 DF#2 BUILT-UP WOOD HEADER 5. (2)2x8 DF#2 BUILT-UP WOOD HEADER
- 6. 5¼"x11%" PSL BEAM

LEGEND:



FLAT ROOF AREA

AREA OF BLOCKED DIAPHRAGM -SEE S201

KAPURANIS

AMING ROOF

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PROJECT NO.: 1107

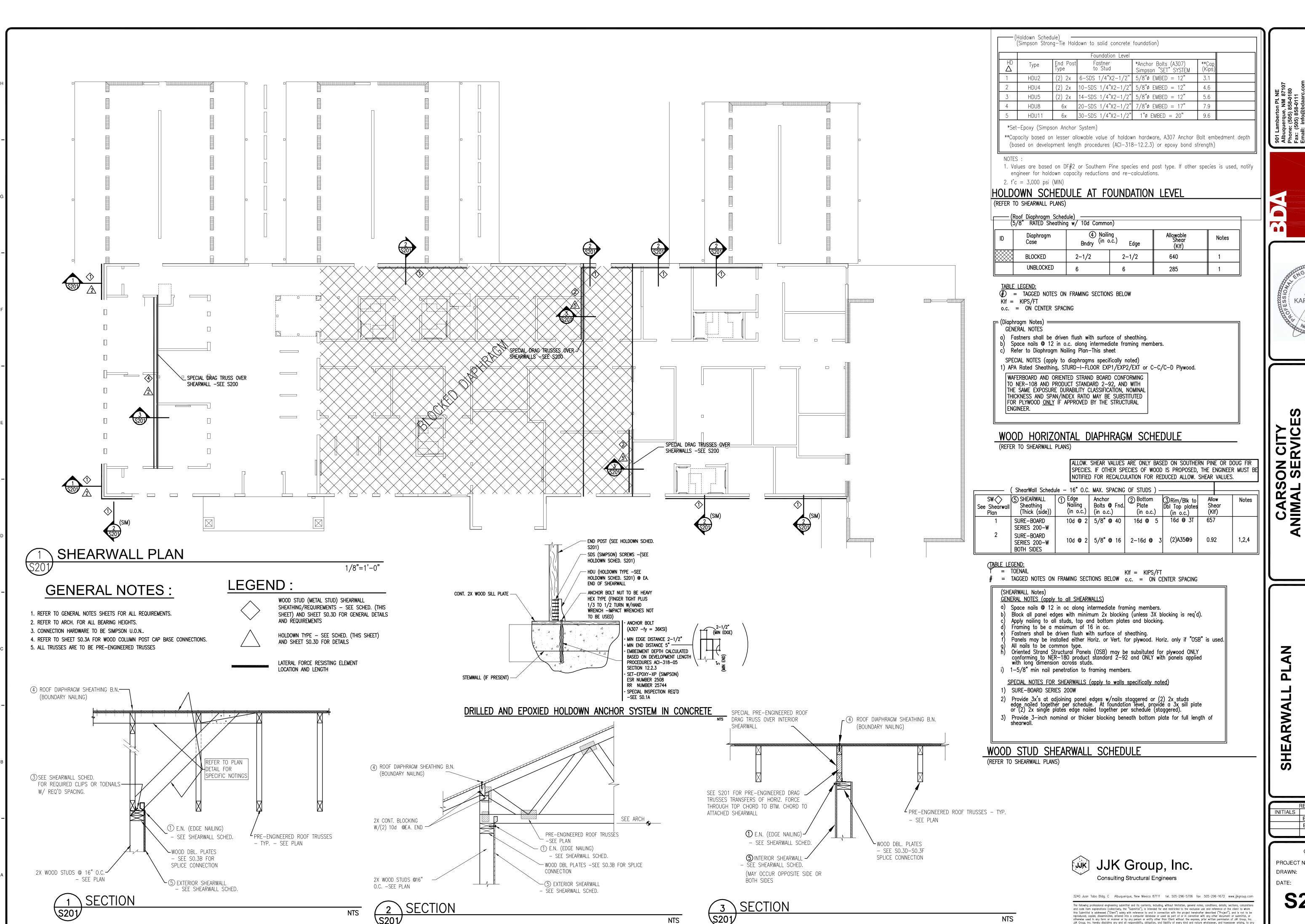
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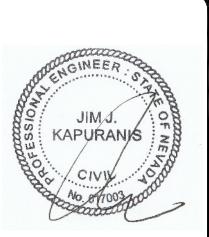
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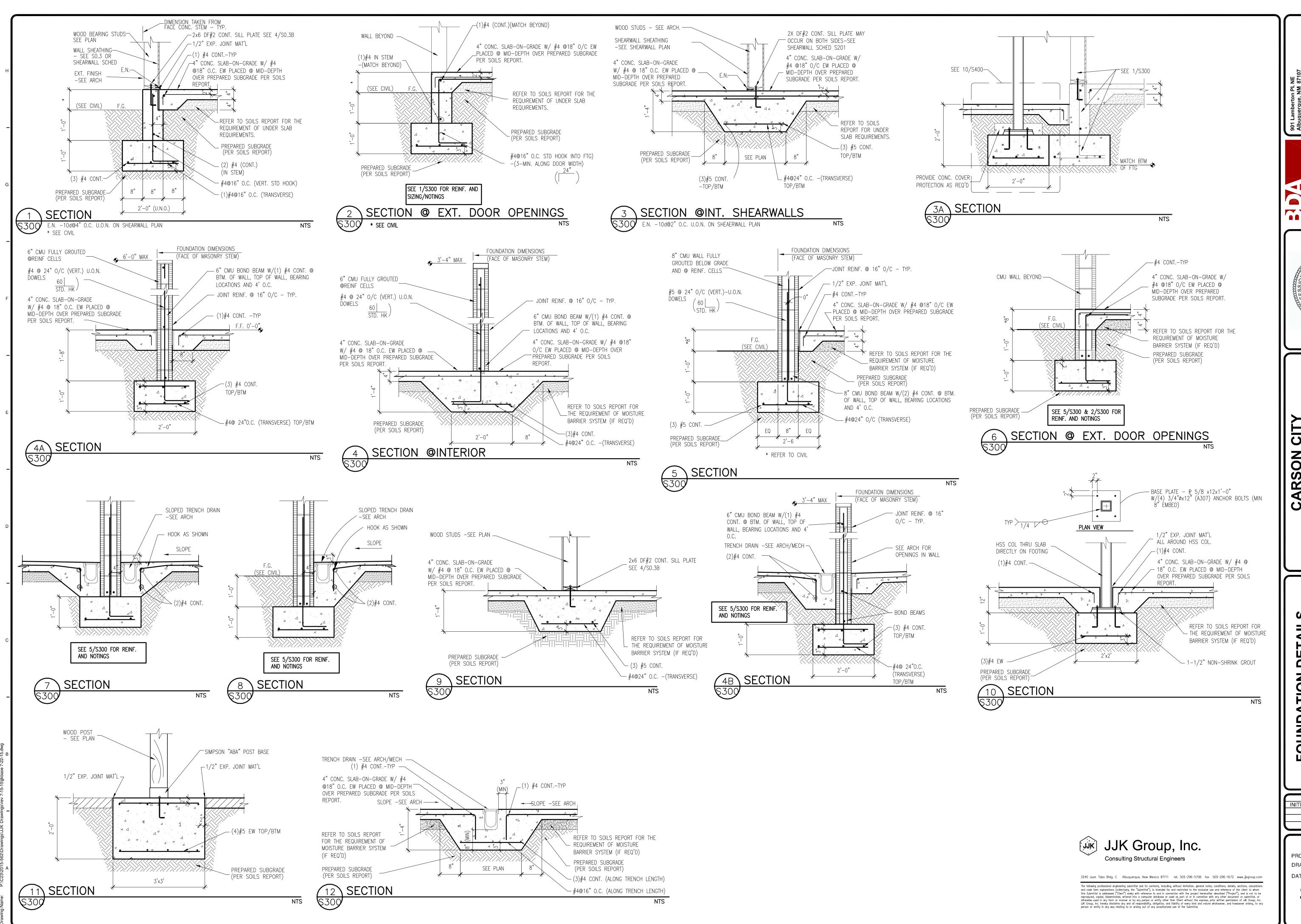
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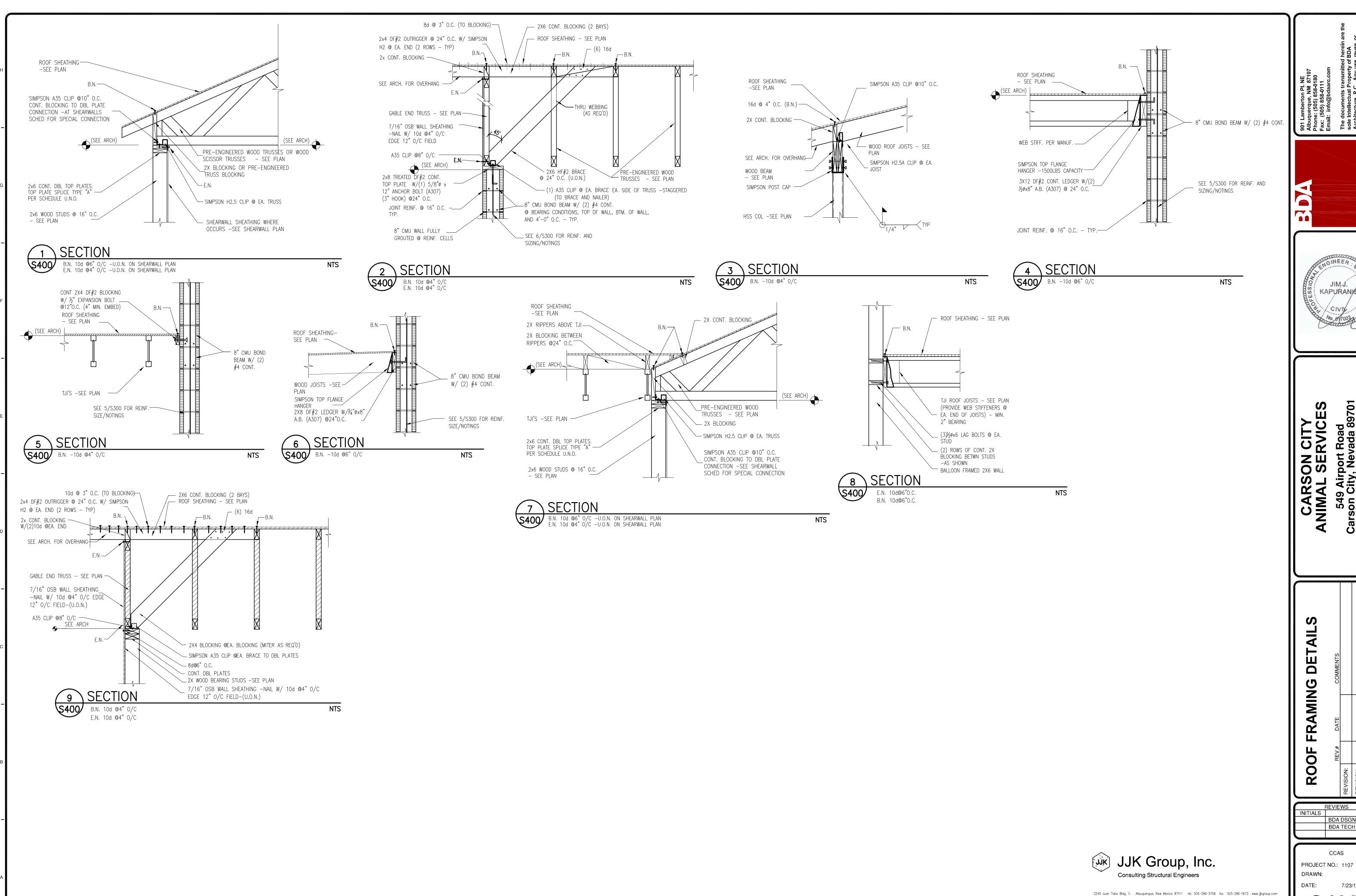
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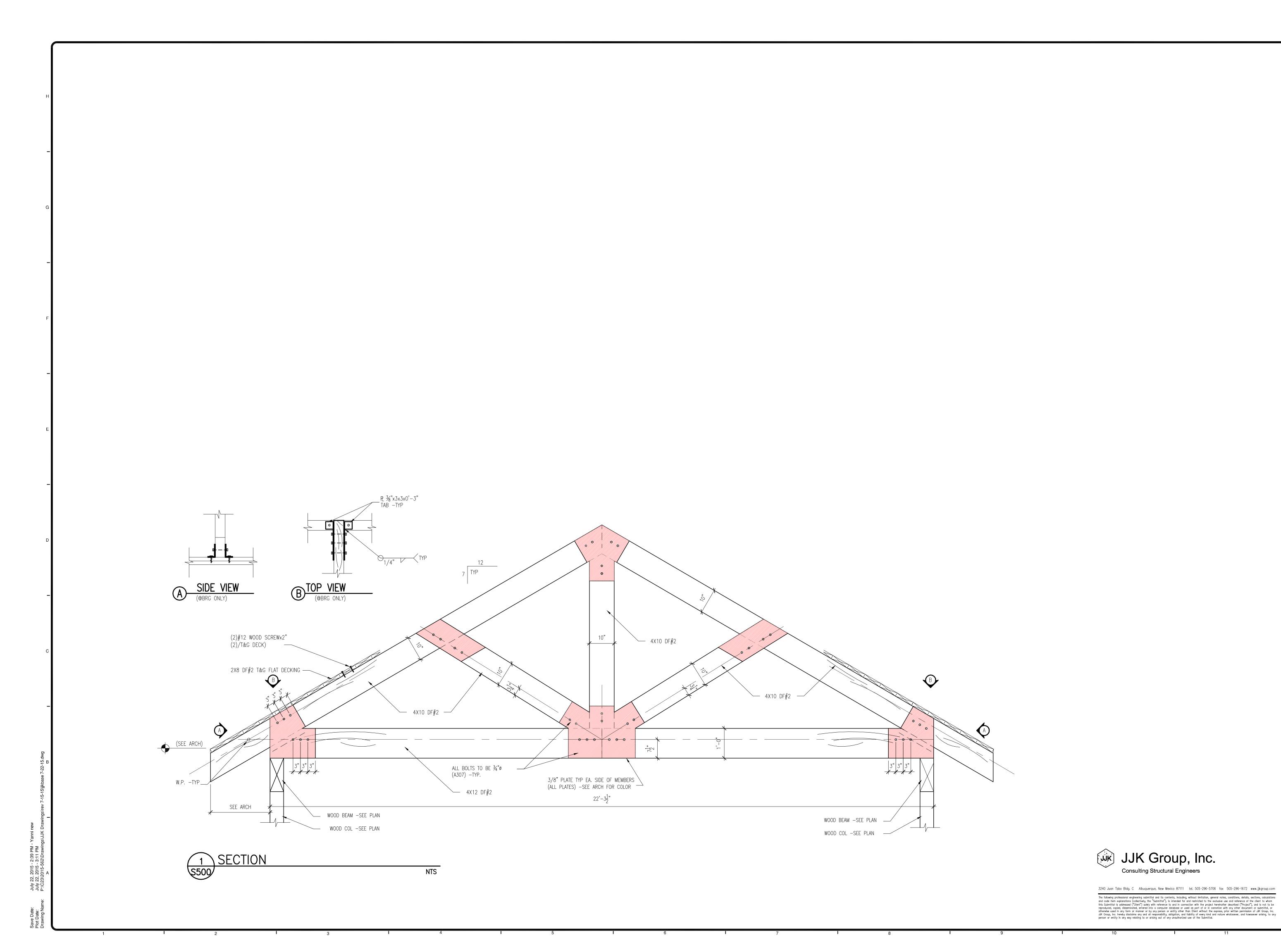
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DETAIL **TRUSS TIMBER**

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