

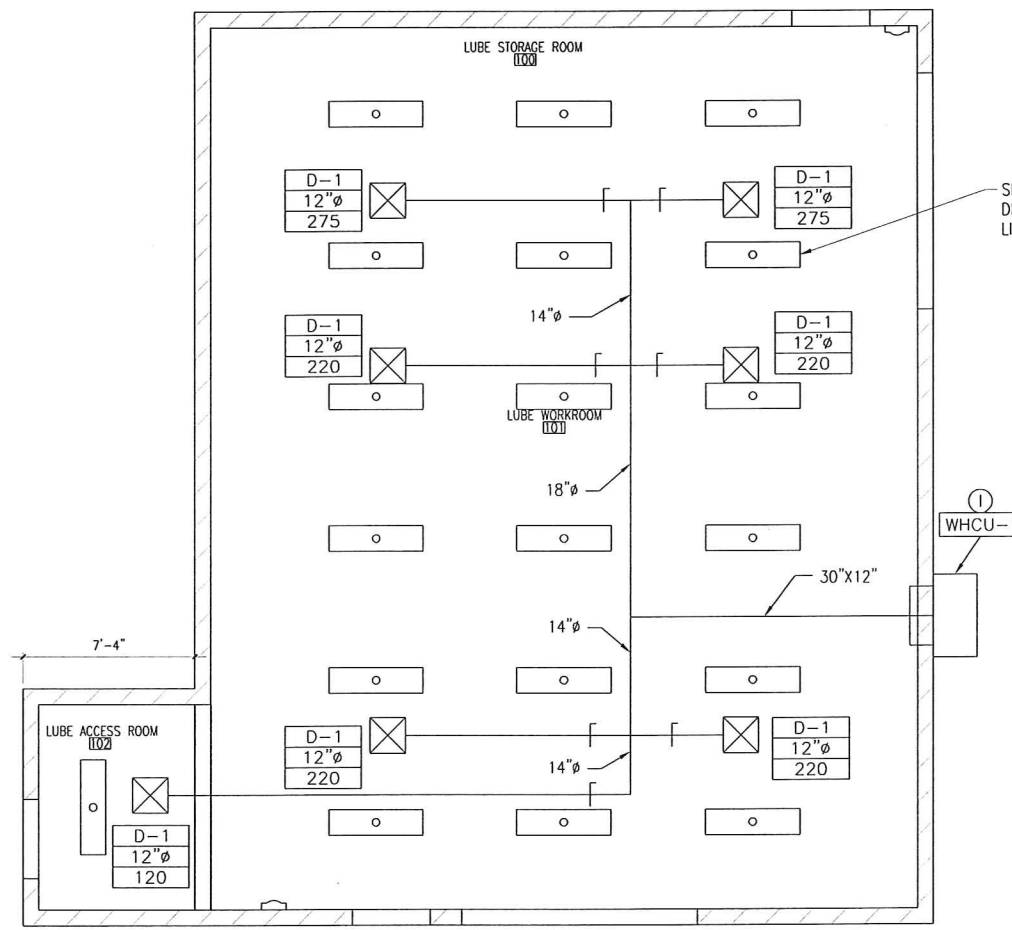
WALL HEATING/COOLING UNIT																			
SYMBOL	BARD MODEL NO.	NOMINAL TONS COOLING	TOTAL AIR FLOW CFM	OUTSIDE AIR CFM	ESP " WG	COOLING CAPACITY				HEAT PUMP		ELECTRICAL					WEIGHT LB.	COMMENTS	
						TOTAL MBH	SENS MBH	EDB F	EWB F	OUTSIDE AIR F	MBH	ENT AIR, F	VOLTS	PH	MCA	MAX FUSE AMPS			EER
WHCU-1	W48HB15XPSX3E	4	1,550	0	0.2	38,000	34,300	75	62	100	18,800	75	208	3	56	60	9	550	1,2,3,4,5,6,7,8

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	

1. COOLING IS BASED ON JOB SITE CONDITIONS, ELEV. 4,300 FT., 100'F OUTDOOR AND 75F, INDOOR TEMPP
2. HEATING LOAD IS BASED ON JOB SITE CONDITIONS, ELEV. 4,300 FT., 5'F OUTDOOR AND 75F, INDOOR TEMPP
3. PROVIDE FIELD DISCONNECT SWITCH
4. WITH HEAT PUMP OPTION FOR HEATING
5. WITH 15 KW HEAT STRIP FOR LOW OUTSIDE TEMPERATURE HEATING
6. WITH RETURN AIR GRILLE 16"x30"
7. WITH TEMPERATURE CONTROLS
8. WITH STAINLESS STEEL COATED COILS

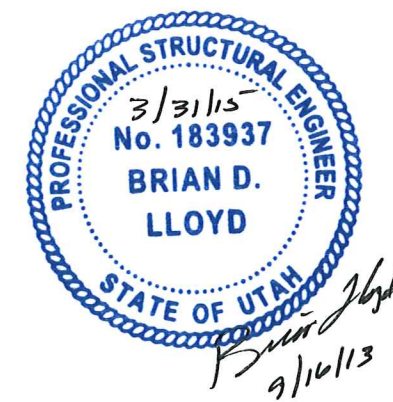
DIFFUSER, REGISTER & GRILLE SCHEDULE						
SYMBOL	MAX CFM	NECK SIZE	TYPE	TITUS MODEL	PATTERN	REMARKS
D-1	300	12"x12", 12"ø	DUCT MOUNT	TOC	FOUR-WAY	

- SYMBOLS**
- EF-1 INDICATED EQUIPMENT SYMBOL
 - X DIFFUSER, REGISTER OR GRILLE SYMBOL
 - X CFM OF AIR FLOW
 - X ← DIFFUSER, REGISTER OR GRILLE SYMBOL
 - X ← BRANCH DUCT SIZE
 - X ← CFM OF AIR FLOW
 - ① KEY NOTE NUMBER
 - Ⓣ THERMOSTAT
 - ⊗ SUPPLY AIR
 - ⊘ RETURN AIR
 - ⊗ EXHAUST
 - BALANCING DAMPER



SEE ELECTRICAL DRAWINGS FOR LIGHTING INFO TYP

- GENERAL NOTES MECHANICAL:**
1. ALL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "INTERNATIONAL MECHANICAL CODE" AND THE UTAH STATE AMENDMENTS.
 2. ALL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "INTERNATIONAL FUEL GAS CODE" AND THE UTAH STATE AMENDMENTS.
 3. ALL WORK SHALL CONFORM TO THE CURRENT ENERGY CODE.
 4. DUCT WORK SHALL CONFORM TO THE LATEST EDITION OF THE "HVAC DUCT CONSTRUCTION STANDARDS" BY SMACNA.
 5. MAXIMUM FLEXIBLE DUCT LENGTH AT EACH DIFFUSER SHALL BE NO GREATER THAN 5'-0".
 6. COORDINATE DUCTWORK ABOVE CEILING AND ALL MECHANICAL EQUIPMENT WITH PLUMBING CONTRACTOR, ELECTRICAL CONTRACTOR AND GENERAL CONTRACTOR. SPACE CONFLICTS SHALL BE RESOLVED PRIOR TO INSTALLATION.
 7. ALL RECTANGULAR ELBOWS GREATER THAN 45 DEGREES AND GREATER REQUIRE TURNING VANES.
 8. ALL SUPPLY BRANCH DUCTS SHALL HAVE A BALANCING DAMPER.
 9. PROVIDE 1" RIGID INSULATION BEHIND THERMOSTAT WHERE THERMOSTAT IS ON OUTSIDE WALL.
 10. HVAC SYSTEM IS TO BE BALANCED.
 11. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
 12. ALL FURNACE & FANCOIL REFRIGERATION CIRCUITS SHALL HAVE TXV VALVES.
 13. ALL DUCT DIMENSIONS INDICATE CLEAR DISTANCE AT THE INSIDE OF THE DUCT.
 14. PROVIDE REQUIRED SEISMIC BRACING PER THE LATEST EDITION OF THE "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS" BY SMACNA.
 15. MECHANICAL CONTRACTOR SHALL AFFIX GREEN STICKER TO GAS APPLIANCES STATED SUCH APPLIANCE HAS BEEN ADJUSTED, RE-CALIBRATED OR RE-JETTED FOR ALTITUDE AT THIS LOCATION AS REQUIRED BY UTAH STATE AMENDMENT.
 16. SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS WITH A DESIGN CAPACITY GREATER THAN 2,000 CFM. UNIT SHALL SHUT DOWN UPON ALARM.



- SUMMARY OF ABBREVIATIONS:**
- ADA: AMERICAN DISABILITIES ACT. SPECIFIED EQUIPMENT MUST COMPLY WITH THE AMERICAN DISABILITIES ACT.
 - CFM: CUBIC FEET PER MINUTE
 - DB: TEMPERATURE DRY BULB IN DEGREES FAHRENHEIT
 - EAT: ENTERING AIR TEMPERATURE
 - EER: ENERGY EFFICIENCY RATIO
 - ESP: EXTERNAL STATIC PRESSURE, (INCHES WATER GAUGE)
 - FLA: FULL LOAD AMPS
 - EWT: ENTERING WATER TEMPERATURE IN DEGREES F
 - GPM: GALLONS PER MINUTE
 - H.E.T.: HIGH EFFICIENCY TAKE-OFF
 - HP: HORSE POWER
 - LAT: LEAVING AIR TEMPERATURE
 - LWT: LEAVING WATER TEMPERATURE IN DEGREES F
 - LB: POUND
 - MBH: THOUSAND BTU/HR
 - MCA: MINIMUM CIRCUIT AMPS
 - MOC: MAXIMUM OVER-CURRENT PROTECTION, AMPS
 - OSA: OUTSIDE AIR
 - PH: PHASE
 - RPM: ROTATIONS PER MINUTE
 - RTU: ROOF TOP UNIT (MAY BE AT GROUND LEVEL.)
 - SEER: SEASONAL ENERGY EFFICIENCY RATIO
 - SENS: SENSIBLE
 - WB: TEMPERATURE WET BULB IN DEGREES FAHRENHEIT
 - WG: INCHES WATER GAUGE
 - WMA: WALL MOUNTED AIR CONDITIONER
 - WPD, FT: WATER PRESSURE DROP IN FEET OF HEAD
- NOTE: NOT ALL ABBREVIATIONS ARE NECESSARILY USED.

- KEY NOTES:**
1. WALL HUNG HEATING & COOLING UNIT:
 - PROVIDE CLEARANCES REQUIRED BY MANUFACTURER
 - PROVIDE HEATING/COOLING THERMOSTAT

MECHANICAL HVAC PLAN
SCALE: 1/4" = 1'-0"

ISSUED FOR CONSTRUCTION

NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED	DRAWN BY	DATE
	FRACTIONS: ± 1/16 X = ± .1 XX = ± .05 XXX = ± .010 XXXX = ± .0005	C. TEMBY	7/13/2012
	ANGLES: ± .5	CHECKED BY	DATE
		B. LLOYD	9/11/2013
		ENGINEER	DATE
		J. THOMAS	9/11/2012
		SUPERVISOR	DATE
		MFG ENGINEER	DATE

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LUBRICATIONS BUILDING MECHANICAL PLAN

SIZE DWG NO
D 120213-M-001

SCALE SHEET 1 OF 1

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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	

GENERAL

- The contractor shall verify all dimensions prior to starting construction. the engineer shall be notified of any discrepancies or inconsistencies
- Do not scale the drawings.
- Notes and details on the drawings shall take precedence over these general notes and the typical details.
- See mechanical, plumbing, and electrical drawings for the following:
 - pipes, sleeves, hangers, trenches, openings in flooring, pumps, and valves, etc., except as shown or noted.
 - electrical conduit runs, coxes, outlets in walls and slabs.
 - concrete inserts for electrical, mechanical or plumbing fixtures.
 - size and location of machine or equipment bases, anchor bolts for connection to slabs.
- The contract drawings and specifications represent the finished structure. the method of construction is not indicated.
- The contractor shall provide all measures needed to protect the existing structure during construction. these measures may include, but not limited to, bracing and shoring for hydrostatic, earth, wind, or seismic loads, construction equipment, etc. on-site visits by the engineer shall not be considered an inspection of the above items.
- Notify the structural engineer when drawings by others require penetration of structural members in any way and are not noted in structural drawings.
- All specifications and codes noted shall be the latest approved editions and revisions by the governing agency have jurisdiction over this project.
- Contractor shall inspect the site during clearing and earth work operations for foundations, utilities, etc. If any unknown items are found and alter the structural drawings, the structural engineer shall be notified immediately.
- Construction material is to be spread out evenly when placed on floor or roof framing. The construction and material load shall not exceed the design live load (psf).
- Provide adequate shoring or bracing where structure has not yet obtained final design strength required. The structure shall not be considered stable until all connections are completed walls shall not be considered self supporting and shall be braced until the floor/roof system is completed.
- Provide shop drawings to the structural engineer for review of general compliance only. The shop drawing review shall not relieve the contractor from the responsibility of completing the project according to the contract documents.

Basis of design

- Governing code: International Building Code 2009
- seismic design criteria:
 - seismic use group = II
 - spectral response coefficients: S_{ds} = 0.670g
S_{d1} = 0.384g
 - site class = D
 - seismic design category = D
 - seismic importance factor: I_e = 1
 - Seismic design method Equivalent static force

FOUNDATIONS

- Main structure loads shall be supported on Existing footings with shallow spread footings. No geotechnical report information is provided for this the building will be built following code minimums.
- Footings supported on compacted native soil; allowable soil pressure
 - 1500 psf.
- Remove all topsoil, organic soil, undocumented fill, disturbed native soils, and any other deleterious materials.
- Proof roll ground, remove any soft spots and replace with compacted structural fill.
- Contractor shall field verify that footing elevations and final grades indicated on the plans will provide the minimum frost protection.
- Structural fill shall consist of a well graded maximum aggregate size of 1.75 inches with 70% passing 1/2 inch sieve, 15% passing no. 200 sieve.
- Contractor shall provide for proper drainage of water found from excavations, surface water, seepage, ground water, etc.
- Contractor shall provide proper shoring for structural stability and safety for earth retention of earth banks and existing structures.
- Remove and relocate all utilities, foundations, etc. that interfere with new construction.

CONCRETE

- Materials, unless noted otherwise
 - Normal weight aggregate ASTM C 33
 - Reinforcing steel ASTM 615 Grade 60 (fy=60 ksi) Use Grade 40 (fy= 40 ksi) for Field bent dowels with rebar spacing indicated reduced by 1/3
 - Epoxy Coating ASTM A934
 - Deformed Bar Anchors (DBA) ASTM A 496
 - Headed Stud Anchor (HAS) ASTM A 108
 - Anchor Rods
 - Typical, uno ASTM F 1554, Grade 36 with ASTM A563 Heavy hex nut and Hardened washer
 - Admixtures
 - Air-entrainment admixtures comply with ASTM C 260 (when used)
 - Calcium Chloride shall not be added to the concrete mix.
 - Type V cement complying with ASTM C-150 shall be used for all concrete
 - Maximum water to cement ration shall not be greater than 0.40
 - Silica fume- ASTM C1240 - 10% maximum cementitious content.
 - fly Ash - ASTM C618, Class F - 20% maximum cementitious content.
 - Provide air entraining as recommended by table 4.4.1 of ACI 318
 - No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.
- All concrete mixes are to be designed by qualified testing laboratories with proper dates and approved stamps for the project these structural drawings are designed for.
- Compressive strengths of concrete at 28-day:
 - Footings 4500 psi

Classification F2, S2, P1, C2

Slab on Grade 4500 psi

Classification F2, S2, P1, C2

All Site Cast Concrete 5000 psi

Classification F3, S2, P1, C2

- Only one grade or type of concrete shall be poured on the site at any given time.
- The contractor shall be responsible for design, detailing, care, placement and removal of all formwork and shores.
 - Supporting forms and shoring shall not be removed until structural members have acquired sufficient strength to safely support their own weight and construction load to which they may be subjected. In no case, however, shall forms and shoring be removed in less than 24 hours after concrete placement.

- Reinforcement shall have the following minimum concrete cover:
 - concrete cast against and permanently exposed to earth 3"
 - concrete exposed to earth or weather:
 - No.6 through no.18 bars 3"
 - No.5 bar and smaller, uno 3"
 - concrete not exposed to weather or in contact with ground, uno:
 - Slabs, walls, joists:
 - No. 14 and no. 18 bar 3"
 - No.11 bar and smaller 3"
 - Beams and columns:
 - Ties, stirrups, and spirals 3"
 - slab on grade exposed to earth 2.5" inches from top

- Construction Joints, Control Joints and contraction Joints.
 - Provide a formed or beveled 2 x 4 continuous keyway or intentionally roughen surface to X" amplitude in all horizontal and vertical construction joints including between top of footing and foundation walls, unless noted otherwise.
 - Control joints shall be installed in slabs on grade so the length to width ration of the slab is no more than 12:1. Control joints shall be completed within 12 hours of concrete placement. Control joints may be installed by:
 - Saw cut a depth of 1/4 of slab thickness
 - Tooled joint a depth of 1/8 slab thickness.
 - Install construction or control joints in slabs on grade at a spacing not to exceed 30 times the slab thickness in any direction, unless noted otherwise. Construction joints shall not exceed a distance of 12:5-0" in any direction.

- Construction
 - Securely position all reinforcing bars, anchor bolts, and embed dowels and concrete insert items prior to placing concrete.
 - Concrete to be mechanically consolidated during placement per ACI standards.
 - Mechanical pipes and electrical conduits passing through slab on grade, concrete steel deck, concrete floors and walls do not require sleeves uno on mechanical and electrical drawings. Where sleeves are required, locate sleeves prior to placement of concrete.
 - Do not core openings in concrete without structural engineer's written approval.
 - Do not cut any reinforcing that may interfere with mechanical or electrical drawings.
 - Provide a 3/4 inch chamfer for all protruding corners of concrete beams, columns, walls, pedestals, etc. uno.

- Detailing:
 - Lap splice lengths shall be detailed to comply with ACI 318-08. Splices may be made with mechanical splices capable of 125% tension capacity of the bar being spliced. Mechanical splices shall be the positive connecting type couple and shall meet all International building code requirements. Use "Canted," "Lenten" "Bar-lock" or equal with internal protector. If mechanical splices are used, splices or couplers on adjacent bars shall be staggered a minimum of 24" apart along the longitudinal axis of the reinforcing bar.
 - At joints provide reinforcing dowels to match the member reinforcing, unless noted otherwise.
 - At all discontinuous control or construction joints slab on grade or at reentrant corners, provide 2 - #4 x 48" bars.
 - Provide corner bars at intersecting wall corners to match the horizontal wall reinforcing.
 - All vertical reinforcing shall be doweled to footings, or to the structure below with the same size and spacing as the vertical reinforcing for the element above. Dowels extending into footings shall terminate with 90° standard ACI hook at 4" off the bottom.
 - Horizontal wall reinforcing shall terminate with 90° standard ACI hooks. Horizontal wall reinforcement shall be continuous through all construction or control joints.

POST INSTALLED ANCHORS

- Epoxy Anchors
 - For concrete, the epoxy shall be
 - HIT RE-500 SD (ICC-ESR-2322) by Hilti Corporation
 - HIT HY 150 MAX-SD (ICC- ESR- 3013) by Hilti Corporation
 - Powers PE 1000+ (ICC-ESR-2583) by Powers Fasteners Inc.
 - SET-XP (ICC-ERS-2508) by Simpson Strong Tie.
 - Follow all of the manufacturer's recommendations and ICC-ESR procedures for installation of epoxy anchors.
 - Alternate epoxy anchor systems may be used if ICC-ESR report approved for use in cracked concrete is submitted to the engineer prior to use.
- Mechanical Anchors
 - For Concrete mechanical anchors shall be:
 - Hilti Kwik Bolt TZ-CS (ICC-ESR-1917)
 - Simpson Strong-Bolt (ICC-ESR-1771)
 - Powers Power-Stud SD1 (ICC-ESR-2818)
 - Follow all of the manufacturer's recommendations and ICC-ESR procedures for installation of epoxy anchors.
 - Alternate epoxy anchor systems may be used if ICC-ESR report approved for use in cracked concrete is submitted to the engineer prior to use.
- Screw Anchors
 - For Concrete
 - Simpson Titen HD (ICC-ESR-2713)
 - Powers Wedge-Bolt (ICC-ESR-2526)

- Hilti HUS-EZ (ICC-ESR-3027)
 - Follow all of the manufacturer's recommendations and ICC-ESR procedures for installation of epoxy anchors.
 - Alternate epoxy anchor systems may be used if ICC-ESR report approved for use in cracked concrete is submitted to the engineer prior to use.
- Powder Actuated fasteners
 - For fasteners driven into concrete
 - Hilti X-U Universal Knurled Shank (ICC-ESR-2269)
 - Simpson PDP or PHN (ICC-ESR-2138)
 - Powers 8mm Head Spiral CSI Drive Pin (ICC-ESR-1995)

MASONRY

- Compressive strength of masonry Fm=1500 psi can be determined by the Unit strength method or Prism test method in accordance with ASTM C1314. For Unit strength method minimum material properties are:
 - Concrete Masonry Units (CMU): lightweight Grade N, Type 1 (minimum unit strength of 1900 psi)
 - Mortar: Use type "S"
 - GROUT shall attain a minimum compressive strength of 2000 psi at 28 days.
 - Reinforcing steel ASTM 615 Grade 60 (fy=60 ksi) Epoxy coated ASTM A934.
 - Deformed Bar Anchor (DBA) ASTM A496
 - Headed Stud Anchor (HAS) ASTM A108
 - Anchor Rods ASTM F436
 - All fasteners including nails, shall be hot-dipped zinc coated galvanized, stainless steel, silicon bronze, or copper.
- Minimum coverage for reinforcing bars shall be 1 bar diameter but not less than 1/2", and 1-1/2" when masonry is exposed to soil.
- All units shall be laid with full face shell bedding; head joints shall be fully bedded not less than the thickness of the face shell.
- All masonry shall be constructed with running bond unless noted otherwise.
- All cells containing reinforcement, embeds, DBAs, anchor bolts, etc. shall be grouted solid. Mechanical vibrator shall be used during grout placement.
- Lift heights shall be limited to 4'-0" typically. High lift grouting can be used with approval of engineer of record.
- Grout all cells below grade
- Control joint spacing shall be maximum of 40'-0"
- Tooled joint and joint pockets solid after installation of beams and joists.
- All embeds shall be flush with wal.
- Do not weld reinforcing bars or substitute reinforcing bars for DBAs.

STRUCTURAL STEEL

- all structural steel shall be designed, detailed, constructed and placed in conformance with the latest addition of the AISC "steel construction manual" and the AISC 303 "code of standard practice for steel buildings and bridges".
- Structural steel shall conform to the following ASTM designations uno:

Shape	standard	yield (fy)
Roller wide flange sections	ASTM A992, gr.50	50 ksi
Square Tube Steel	ASTM A500 gr.B	50 ksi
Other steel shapes and plates	ASTM A36	36 ksi
High strength bolts	ASTM A325	---
Common bolts	ASTM 307, gr.A	---
Anchor rods	ASTM F1554, gr.36	36 ksi
Cables	ASTM 1023 Improved Plow Steel	---

*for all other shapes/components not noted see AISC tables 2-3, 2-4, 2-5
- the structural steel fabricator and steel deck fabricator shall provide shop drawings to the engineers for general compliance review prior to fabrication.

Anchor rod dia. (in.)	max whole dia. (in.)	min washer dia. (in.)	min washer thickness (in.)
3/4	1-5/16	2	1/4
7/8	1-9/16	2-1/2	5/16
1	1-13/16	3	3/8
1-1/4	2-1/16	3	1/2
1-1/2	2-5/16	3-1/2	1/2
1-3/4	2-3/4	4	5/8
2	3-1/4	5	3/4
2-1/2	3-3/4	5-1/2	7/8

- Welding:
 - Welding shall be performed by a AWS certified welder
 - Use E-70 XX welding rods uno. E60 XX shall be used to weld metal deck to structural steel
 - Welded joints shall conform to the prequalified joint details as indicated in the structural welding code (AWS d1.1) by the American welding society. Welds shall be made using a filler metal having 70 ksi minimum tensile strength. Filler metal shall have a minimum charpy v-notch toughness of 20 ft-lbs. at 0 degrees Fahrenheit, uno. SMAW or FCAW processes are acceptable provided all power, current, and feed rates are set in accordance with the manufacturer's recommendations.
 - Weld lengths called for on plans are the net effective length required. Weld sizes not indicated on plans shall be for steel members >1/4" Minimum weld size shall be 1/16" less than thinnest member being welded and for members < 1/4" shall be the size of the thinnest member being welded.
 - anchor studs, shear studs, and deformed anchors shall comply to the following:
 - manufactured by nelson stud welding co. or equal
 - Headed studs (shear and anchor) shall be made of material conforming to ASTM A108.
 - Deformed anchors shall be made of material conforming to ASTM A496.
 - Studs and anchors to be welded per manufacturer's recommendations.
- End connections for diagonal bracing are to be designed for axial loads shown on the drawings. Where no axial load is given, the end connection will be designed for a minimum of 50 percent of the effective capacity of the member in tension with a minimum of two bolts per connection. Welded connections will be welded to achieve the axial forces shown or the 50 percent capacity of the member.

- Provide full-depth web stiffener plates at each side of all beams at bearing points. Stiffener plates thicknesses are tested below web stiffener plates with fillet weld both sides all around.

Flange Width	Stiffener thickness	Weld Size
< 8 X"	X"	3/16"
8 X" - 12 X"	3/8"	X"
12 X" - 16 X"	1/2"	5/16"
16 X" - 20 X"	5/8"	3/8"
- Painting:
 - All steel shall be painted according to owners requirements.

WOOD

- Materials
 - Fasteners
 - Standard common nails shall be used for all framing anchors, post caps hold downs column bases, etc. Standard Nail Properties are as listed UNO in the drawings:

Nail size	Shank Diameter	Min. Penetration into support member
8d	0.131"	1.5"
10d	0.148"	1.63"
16d	0.162"	1.75"
 - Fastener sizes other than those listed shall be submitted for engineers approval prior to use.
 - All fasteners including nails, shall be hot-dipped zinc coated galvanized, stainless steel, silicon bronze, or copper.
 - All bolts shall be ASTM A36 with ASTM A563 heavy hex nut with ASTM F436 Hardened washer or engineer approved equivalent, UNO.
 - Framing
 - All framing lumber shall be #2 Douglas Fir-Larch or Better, UNO.
 - Sheathing
 - Wood Sheathing shall meet the minimum standard given by the APA PRP-108 Performance Standard and Policies for Structural use Panels with the minimum thickness and span rating UNO

40/20	Roof (19/32" thick)
- All wood connected to concrete, Masonry or soil shall be pressure treated or redwood.
- All framing anchors, post caps, hold downs and column bases, etc. Shall be provided by Simpson Strong-Tie or engineer approved equivalent. Follow all manufacturers recommendations and requirements for proper installation.

PRE-FABRICATED METAL PLATE WOOD TRUSSES

- Pre-fabricated metal plate wood trusses shall be designed, signed, and sealed by a Professional Engineer registered in the same state as the project location. They shall be designed to support the concentrated and uniform loads as indicated in the framing plans. The wood truss designer shall consider unbalanced snow load on all roof slopes greater than 2.5 degrees (1:12) or less than 70 degrees.
- Design wood trusses bearing attachments for uplift. Assume a max of 8 psf for dead load for this calculation.
- Do not include a stress increase for snow loads.
- All trusses shall be designed for a 500 lbs tension/compression load in the bottom chord of the truss.
- All steel connector plates shall be hot dipped galvanized.
- Submit shop drawings to the engineer of record for approval prior to fabrication. Submit the ICC reports for all components used in fabrication, Design Loads, Assumptions, truss fabrication drawings and complete calculations.
- No defects i.e. knots, skips, wanes shall exist at connection locations.
- Trusses shall meet the stability requirements and comply with publications and recommendations issued by the Truss Plate Institute.

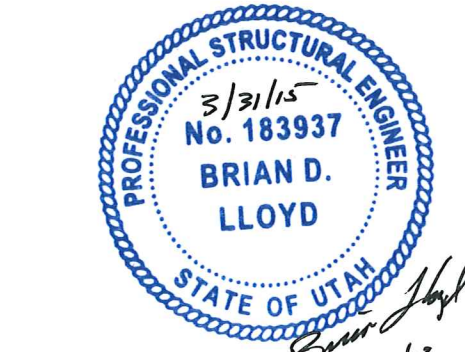
SPECIAL INSPECTION AND QUALITY ASSURANCE

- Special inspection and quality assurance, as required by sections 1704 thru 1709 of the IBC, shall be provided by and independent agency employed by the owner unless waived by the building official. The Contractor shall coordinate and cooperate with the required inspections. Testing and inspection reports shall be sent within 24 hours of the test to the Engineer, building official and contractor for review. Special inspection during fabrication is not required if the fabricator is registered and approved to perform work without a special inspector. Items requiring special inspection are:
- Soils per IBC 1704.7
 - Prior to placement of structural fill, special inspector shall verify that the site has been prepared in accordance with the soils report.
 - Special inspector shall determine at the time of the placement that the placement and compaction of the structural fill complies with the soils report.
 - Special inspector shall verify that compacted fill material's dry density complies with the soils report.
 - At least one test for every 40 feet of continuous footings minimum 2 test.
 - One test for every lift at each spot footing.
 - For Helical piers
 - Perform special inspection continuously during installation of helical pile foundations. The information recorded shall include installation equipment used, pile dimensions, tip elevations, final depth, final installation torque and other pertinent installation data as per contract documents and geotechnical report.

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ISSUED FOR CONSTRUCTION

NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED	DRAWN BY	DATE
	FRACTIONS: ± 1/16 X ± ±.1 .XX ± ±.05 .XXX ± ±.010 .XXXX ± ±.0005	C. TEMBY CHECKED BY B. LLOYD ENGINEER J. JORGENSEN SUPERVISOR MFG ENGINEER	4/8/2013 9/11/2013 9/11/2013
	ANGLES: ±.5		
			DATE



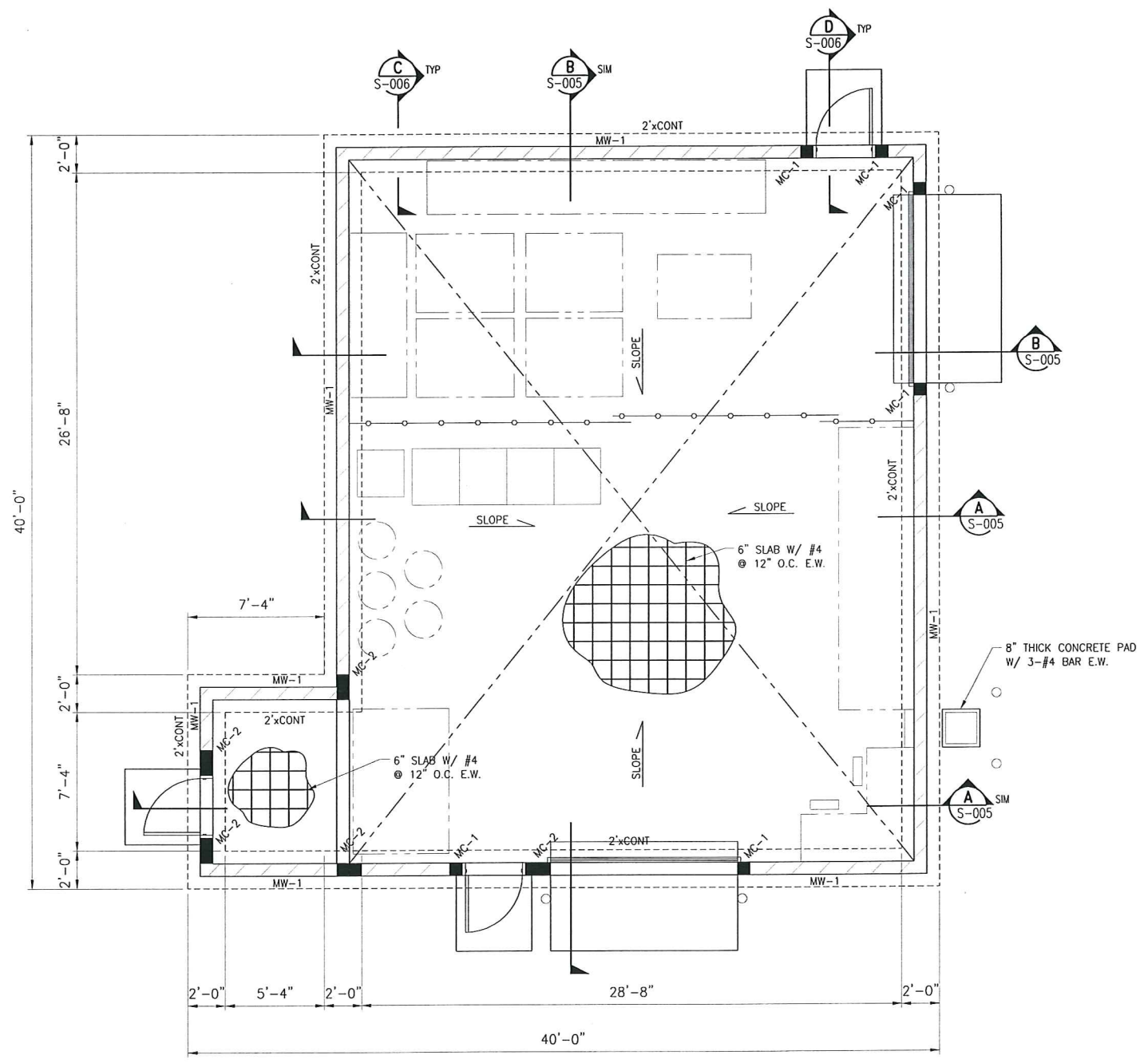
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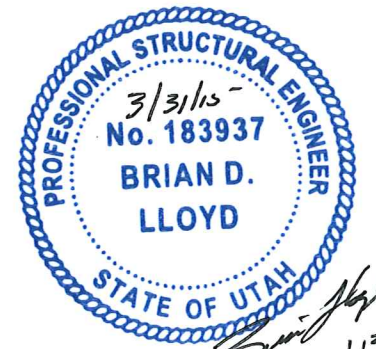
LUBRICATIONS BUILDING
GENERAL STRUCTURAL NOTES

SIZE	DWG NO	REV
D	120213-S-001	0
SCALE	AS NOTED	SHEET 1 OF 1

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	



PLAN VIEW
SCALE: 3/32"=1'-0"



ISSUED FOR CONSTRUCTION

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PH (501) 731-3100 FX (501) 731-4531

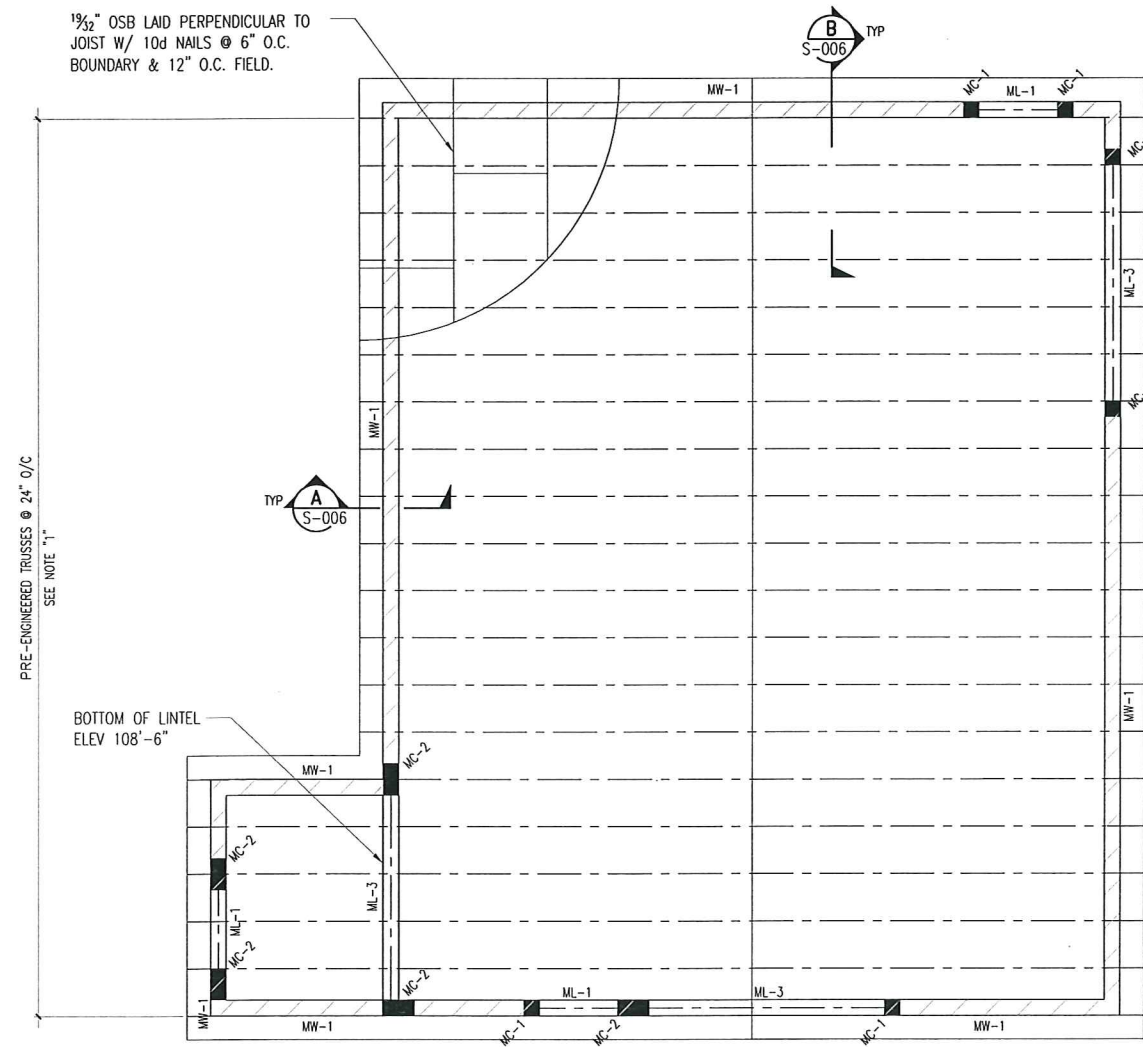
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	FRACTIONS: ± 1/16	C. TEMBY	5/22/2012
	.X = ± .1	CHECKED BY	DATE
	.XX = ± .05	B. LLOYD	9/11/2013
	.XXX = ± .010	ENGINEER	DATE
	.XXXX = ± .0005	J. JORGENSEN	9/11/2013
	ANGLES: ± .5	SUPERVISOR	DATE
		MFG ENGINEER	DATE

TITLE
LUBRICATIONS BUILDING FOOTING & FOUNDATION PLAN

SIZE	DWG NO	REV
D	120213-S-002	0
SCALE	SHEET 1 OF 1	

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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	



ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



NOTES:
1. TRUSS CONNECTION PLATES TO BE 304 STAINLESS STEEL.

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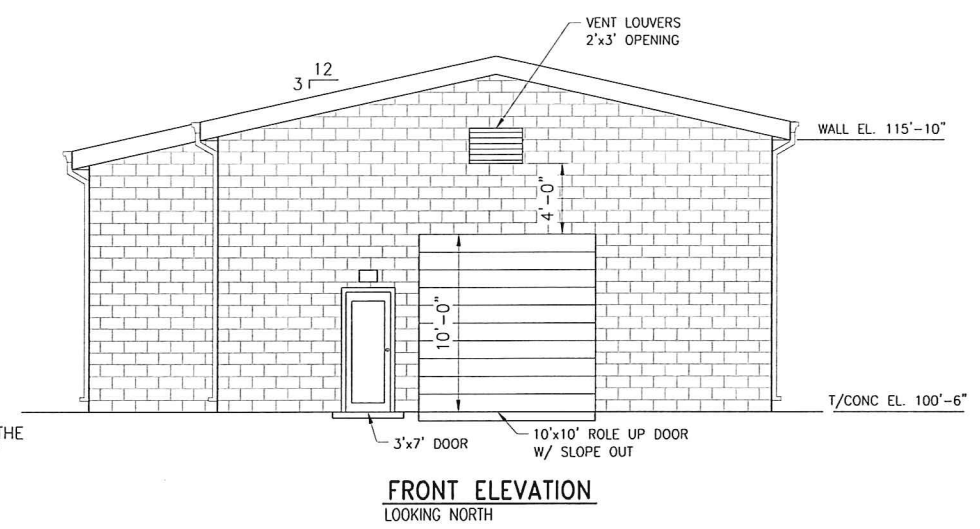
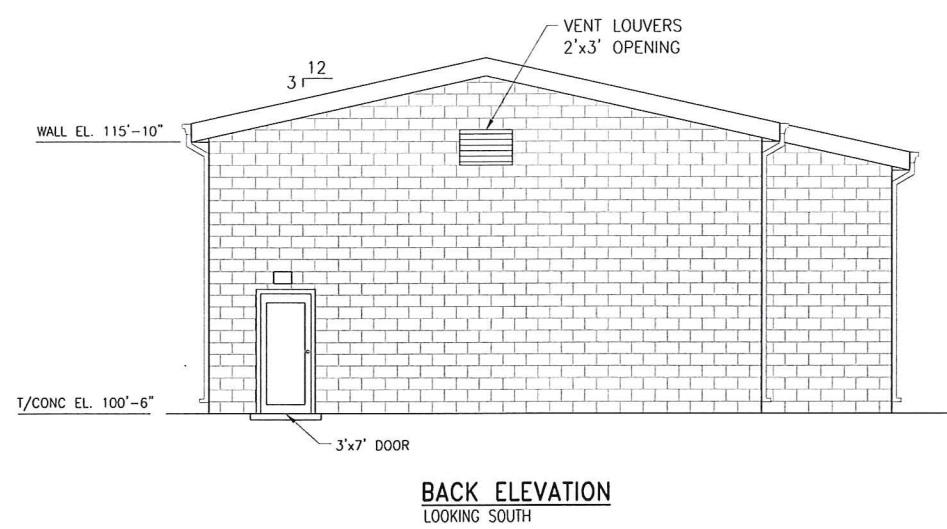
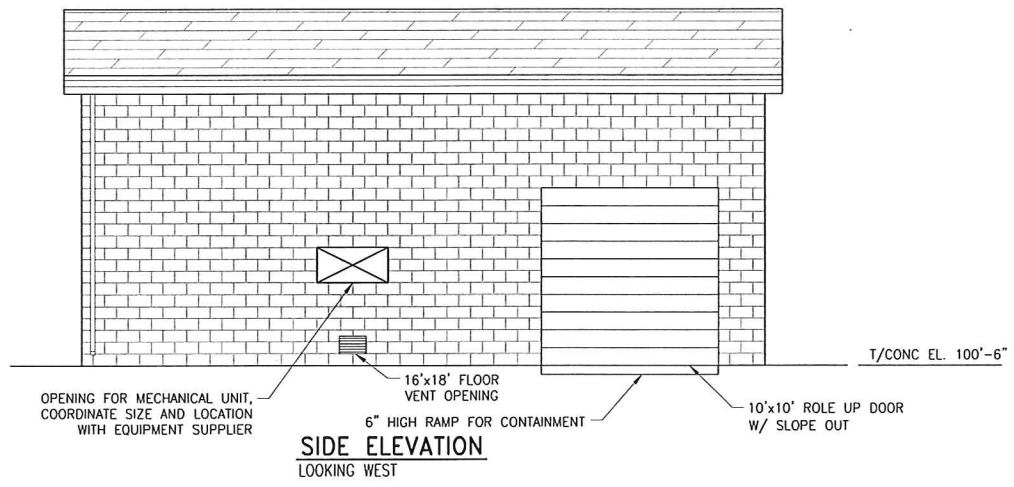
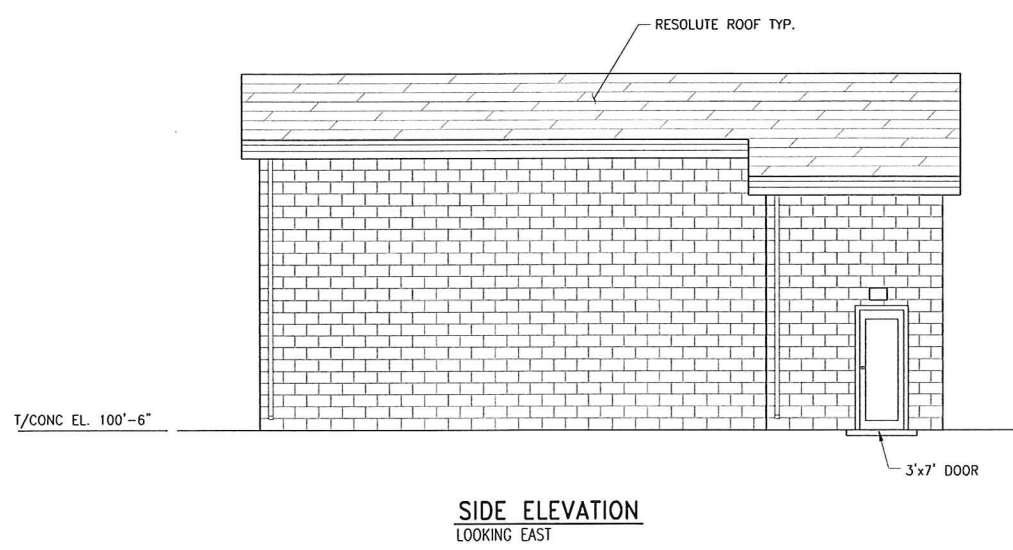
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765 NORTH 10500 WEST, OGDEN UT 84404
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NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED	DRAWN BY	DATE
	FRACTIONS: ± 1/16	C. TEMBY	5/22/2012
	.X = ± .1	CHECKED BY	DATE
	.XX = ± .05	B. LLOYD	9/11/2013
	.XXX = ± .010	ENGINEER	DATE
	.XXXX = ± .0005	J. JORGENSEN	9/11/2013
	ANGLES: ± .5	SUPERVISOR	DATE
		MFG ENGINEER	DATE

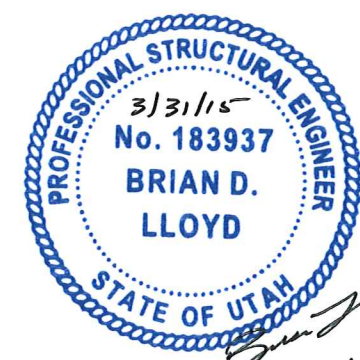
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LUBRICATIONS BUILDING ROOF FRAMING PLAN	D	120213-S-003	0
SCALE AS NOTED		SHEET 1 OF 1	

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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	

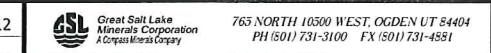


NOTE: ELEVATION BASED ON THE ASSUMPTION THAT CROWN OF MAIN ROAD ADJACENT TO STRUCTURE IS EL. 100'-0\".



Brian D. Lloyd
9/16/13

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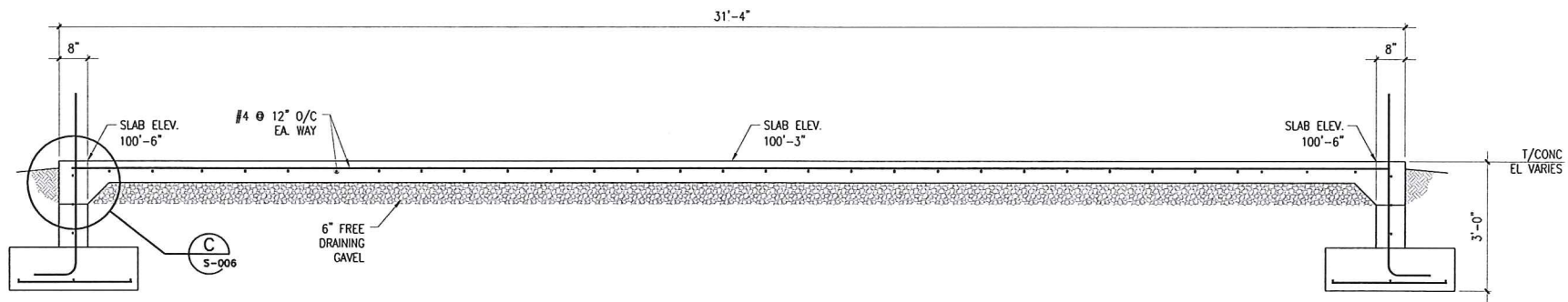
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	.XX = ± .05	B. LLOYD	9/11/2013
	.XXX = ± .010	ENGINEER	DATE
	.XXXX = ± .0005	J. JORGENSEN	9/11/2013
	ANGLES: ± .5	SUPERVISOR	DATE
		MFG ENGINEER	DATE

TITLE
LUBRICATIONS BUILDING STRUCTURAL ELEVATIONS

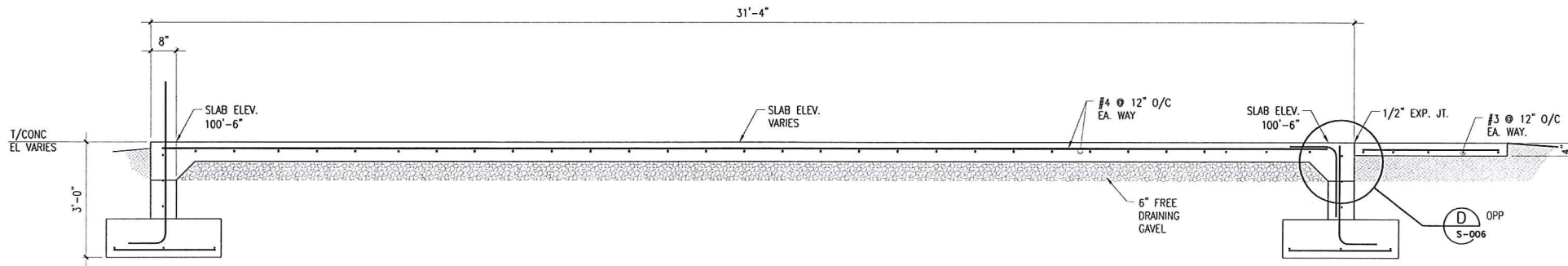
SIZE DWG NO
D 120213-S-004

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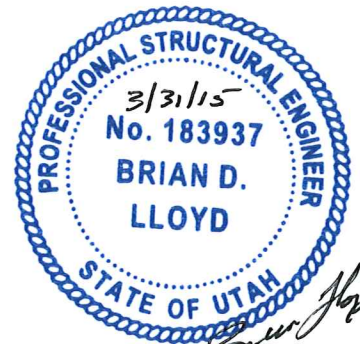
REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	



SECTION A
SCALE: 1/2" = 1'-0"



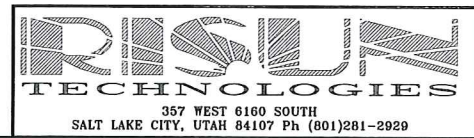
SECTION B
SCALE: 1/2" = 1'-0"



DATUM ELEV.
ELEV. 100' = 4218'-0"

- NOTES:
- TRUSS CONNECTION PLATES TO BE 304 STAINLESS STEEL.
 - VERTICAL SURFACES BELOW GRADE FOUNDATION SHALL BE COATED WITH "COAL TAR EPOXY" 221B9903, BLACK 2 PART EPOXY OR EQUAL.
 - INTERIOR AND EXTERIOR HORIZONTAL FOUNDATION SURFACES SHALL RECEIVE CONCRETE SEALANT, BLOCK LOX OR MICRO SEAL, COATING THICKNESS AS SPECIFIED BY MANUFACTURER. ICI DELUX PAINT, PH. (801) 621-4633
 - DRILL AND EPOXY, USE HILTI HIT RES00-SD EPOXY OR EQUAL
 - SEE STANDARD DETAIL FOR REINFORCING BAR BENDS U.N.O.
 - SEE STANDARD DETAIL FOR DEVELOPMENT LENGTH U.N.O.

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765 NORTH 10500 WEST, OGDEN UT 84404
PH (501) 731-3100 FX (501) 731-4551

TITLE
**LUBRICATIONS BUILDING
FOOTING & FOUNDATION
SECTIONS**

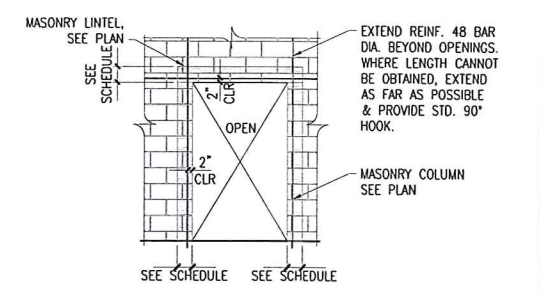
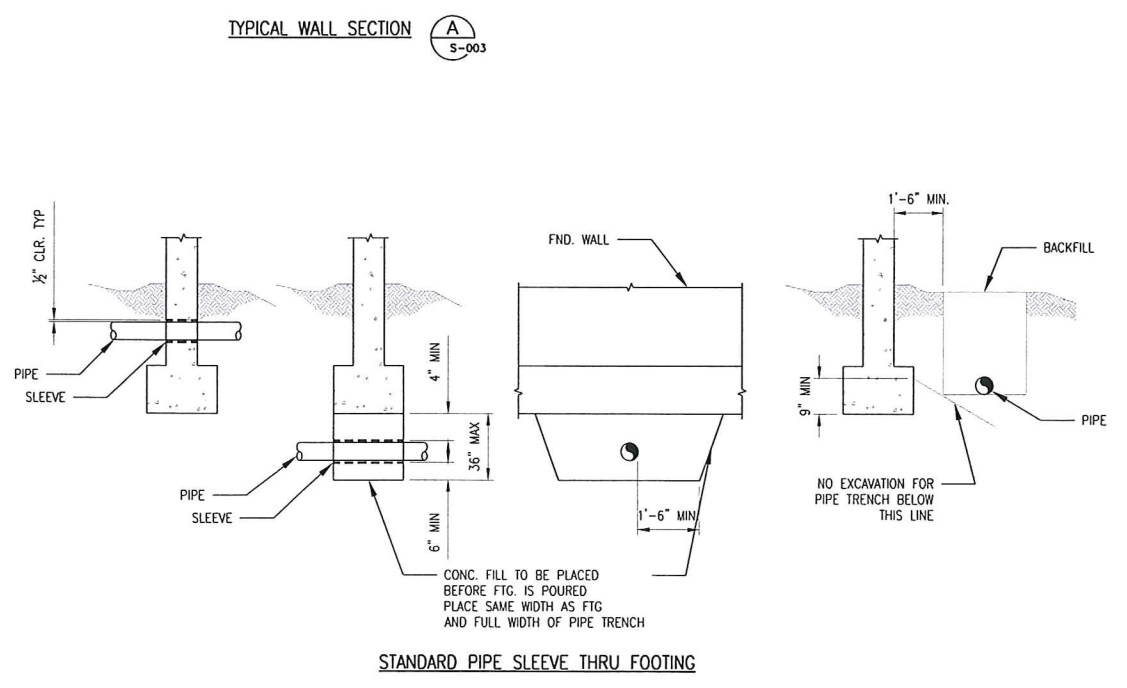
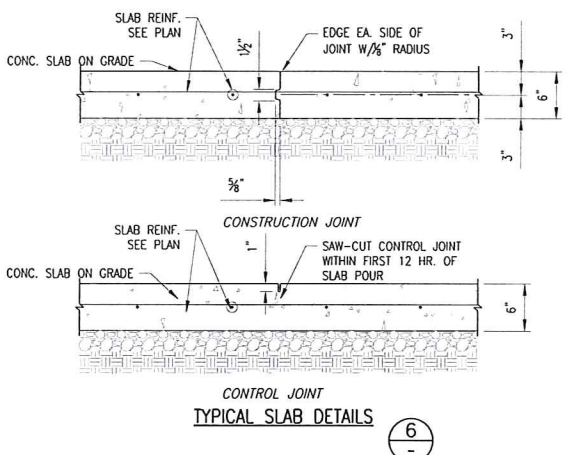
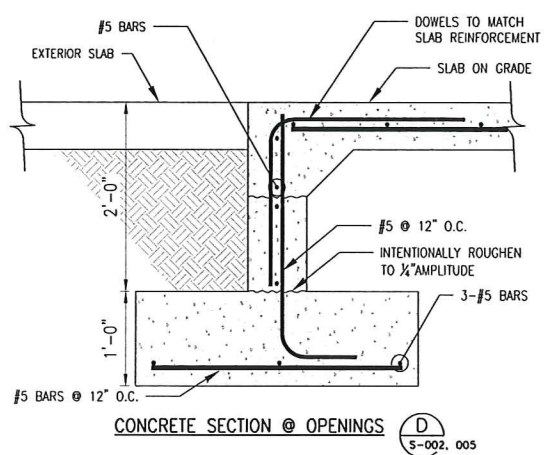
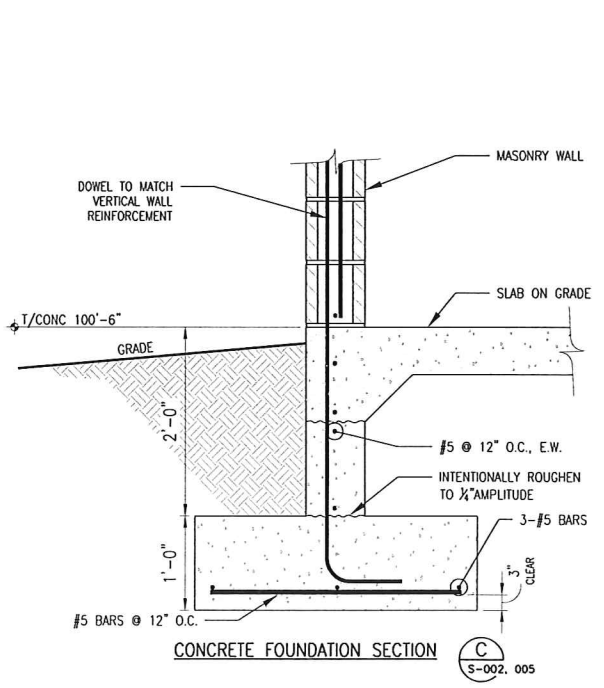
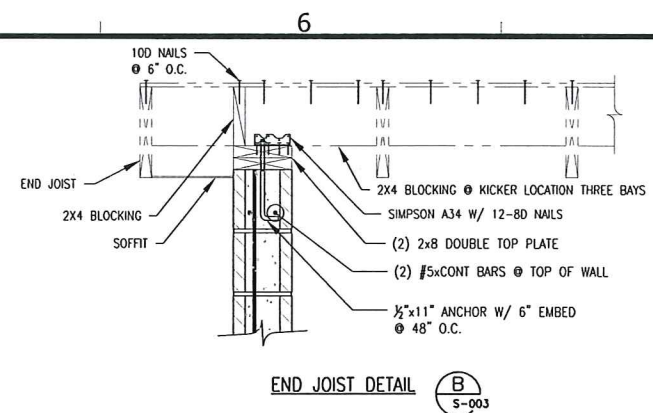
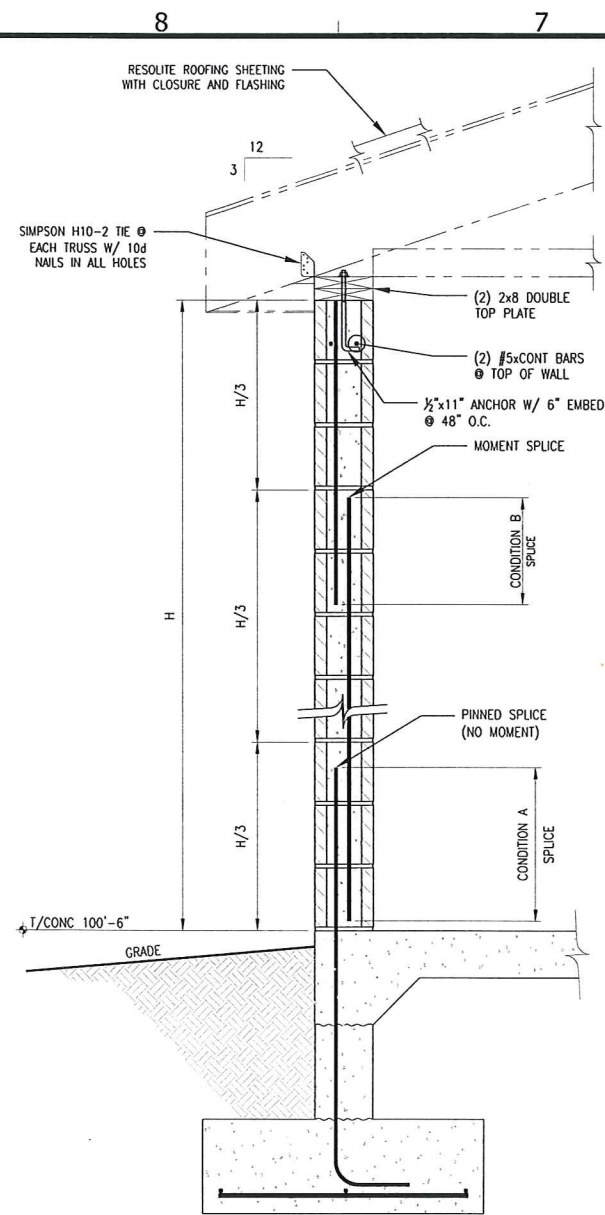
SIZE DWG NO
D 120213-S-005

SCALE AS NOTED SHEET 1 OF 1

NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED	DRAWN BY	DATE
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	.X = ± .1	CHECKED BY	DATE
	.XX = ± .05	B. LLOYD	9/11/2013
	.XXX = ± .010	ENGINEER	DATE
	.XXXX = ± .0005	J. JORGENSEN	9/11/2013
	ANGLES: ± .5'	SUPERVISOR	DATE
		MFG ENGINEER	DATE

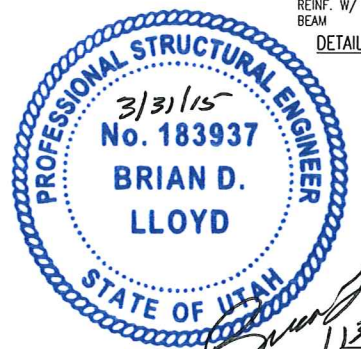
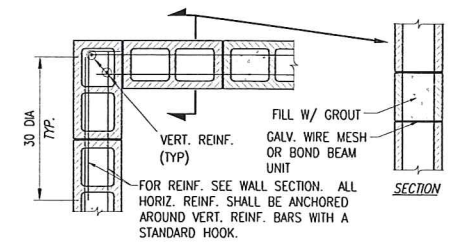
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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	



DOOR CMU FRAMING SECTION
SCALE: 1/4"=1'-0"

- NOTES:
1. TYPICAL HORIZONTAL AND VERTICAL WALL REINFORCING NOT SHOWN FOR CLARITY.
 2. USE OPEN END UNITS AT INTERSECTIONS OF LINTELS AND JAMBS.



DATUM ELEV.
ELEV. 100' = 4218'-0"

- NOTES:
1. PROVIDE NON-CORROSIVE METAL SLEEVES WITH INNER DIA. 1" GREATER THAN THE OUTER DIA. OF THE PIPE.
 2. IF PIPE IS IN PLACE PRIOR TO POURING CONCRETE WRAP PIPE WITH 1" STYROFOAM INSULATION BEFORE POURING CONCRETE IN LIEU OF SLEEVE.

ISSUED FOR CONSTRUCTION

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SALT LAKE CITY, UTAH 84107 Ph (801)281-2929

NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED	DRAWN BY	DATE
	FRACTIONS: ± 1/16	C. TEMBY	5/22/2012
	.X = ± .1	CHECKED BY	DATE
	.XX = ± .05	B. LLOYD	9/11/2013
	.XXX = ± .010	ENGINEER	DATE
	.XXXX = ± .0005	J. JORGENSEN	9/11/2013
	ANGLES: ± .5°	SUPERVISOR	DATE
		MFG ENGINEER	DATE

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TITLE	
LUBRICATIONS BUILDING FOOTING & FOUNDATION SECTIONS & DETAILS	
SIZE DWG NO	REV
D 120213-S-006	0
SCALE AS NOTED	SHEET 1 OF 1

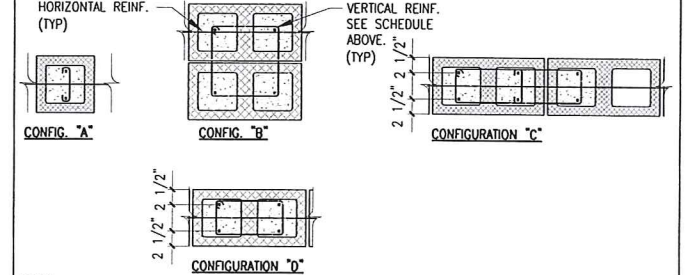
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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	APPROVED
0		ISSUED FOR CONSTRUCTION	9/11/2013	

MASONRY LINTEL SCHEDULE				
MK#	DEPTH	MAX SPAN	REINFORCING	
			HORIZONTAL	STIRRUPS
ML-1	16"	3'-6"	(1) #4 CONT., TOP & BOTTOM	#4 @ 16" O/C
ML-2	24"	6'-6"	(2) #4 CONT., TOP & BOTTOM	(2) #4 @ 16" O/C
ML-3	32"	12'-0"	(2) #5 CONT., TOP & BOTTOM	(2) #4 @ 16" O/C

MASONRY SCHEDULE						
MK#	THK	MTL	SOLID GROUT	VERTICAL REINF.	HORIZONTAL REINF.	SPECIAL INSPECTION
MW-1	8"	CMU	NO	#5 @ 32" O/C, CENTERED	(2) #4 @ 32" O/C	YES

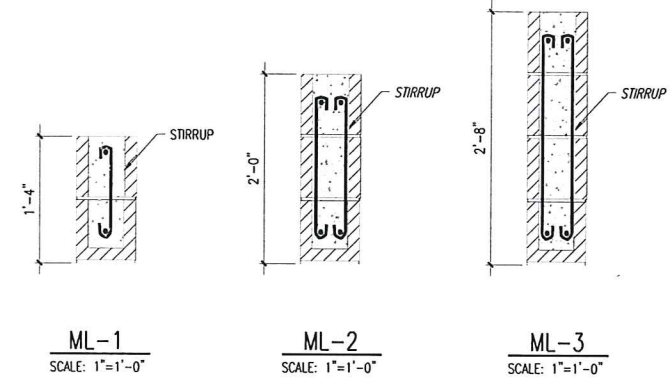
MASONRY COLUMN SCHEDULE				
MK#	COL. SIZE	REINFORCING		NOTES
		VERTICAL TIES	CONFIGURATION	
MC-1	8" X 8"	(2) #5 EA. FACE	#3 @ 16" O/C	A
MC-2	8" X 16"	(4) #5 EA. FACE	#3 @ 8" O/C	D



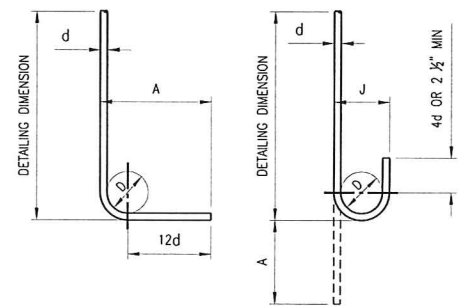
- NOTES:
- LOCATE THE CENTERLINE OF VERTICAL BARS 2/5" FROM THE FACE OF THE MASONRY. LOCATE HORIZONTAL WALL REINFORCEMENT INSIDE OF VERTICAL BARS.
 - EXTEND VERTICAL REINFORCEMENT AND TIES FULL HEIGHT OF WALL, U.N.O.
 - EXTEND VERTICAL MASONRY COLUMN REINFORCEMENT INTO THE FOOTING AND TERMINATE WITH A STANDARD 90° DOWEL VERTICAL COLUMN REINFORCING 4'-0" INTO CONCRETE FOUNDATION WALLS TALLER THAN 5'-0".
 - IN CONCRETE FOUNDATION WALLS, VERTICAL MASONRY COLUMN REINFORCING SHALL BE TIED WITH #3 TIES AT THE SAME SPACING AND CONFIGURATION AS MASONRY COLUMNS ABOVE.
 - SEE GENERAL STRUCTURAL NOTES FOR ALL OTHER REQUIREMENTS.
 - PROVIDE (2) #4 TIES IN TOP 5" OF COLUMN.
 - HORIZONTAL REINFORCEMENT SHALL BE ANCHORED AROUND VERTICAL REINFORCING WITH A STANDARD 90° HOOK.
 - SEE MASONRY LAP SPLICE & DEVELOPMENT LENGTH STANDARD DETAIL.

- NOTES:
- COORDINATE WITH ARCHITECTURAL DRAWINGS, MASONRY WALL FINISHES, TYPE OF MATERIAL, COURSING ETC.
 - CENTER VERTICAL REINFORCEMENT IN WALLS UNLESS NOTED OTHERWISE.
 - PLACE HORIZONTAL WALL REINFORCEMENT BETWEEN VERTICAL MASONRY COLUMN REINFORCING BARS.
 - CONTINUE HORIZONTAL WALL REINFORCEMENT THRU MASONRY LINTELS, USE LARGER REINFORCEMENT WHERE HORIZONTAL BARS & LINTEL REINFORCEMENT OCCURS IN THE SAME COURSE.
 - SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
 - HOOK ALL HORIZONTAL BARS AROUND VERTICAL REINFORCEMENT AT OPENINGS & CORNERS.

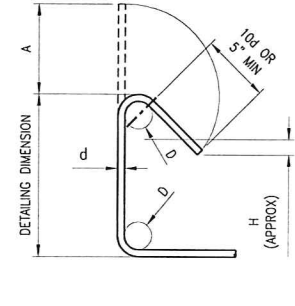
- NOTES:
- PROVIDE NON-CORROSIVE METAL SLEEVES WITH INNER DIA. 1" GREATER THAN THE OUTER DIA. OF THE PIPE.
 - IF PIPE IS IN PLACE PRIOR TO POURING CONCRETE, WRAP PIPE WITH 1" STYROFOAM INSULATION BEFORE POURING CONCRETE IN LIEU OF SLEEVE.



MASONRY LINTELS
NOTE: BOND BEAM REINFORCING NOT SHOWN FOR CLARITY



MAIN STEEL				
BAR SIZE	D	90° HOOKS		180° HOOKS
		A	J	A
#3	2 1/4"	6"	3"	5"
#4	3"	8"	4"	6"
#5	3 3/4"	10"	5"	7"
#6	4 1/2"	1'-0"	6"	8"
#7	5 1/4"	1'-2"	7"	10"
#8	6"	1'-4"	8"	11"
#9	9 1/2"	1'-7"	11 3/4"	1'-3"
#10	10 3/4"	1'-10"	1'-1 1/4"	1'-5"
#11	12"	2'-0"	1'-2 1/4"	1'-7"

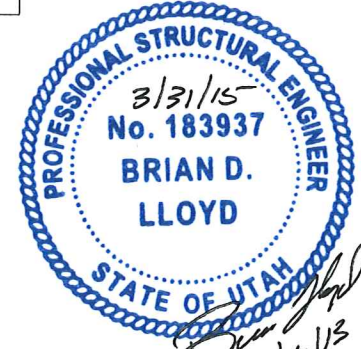


TIES/STIRRUP				
BAR SIZE	D	90° HOOKS		135° HOOKS
		A	A	H
#3	1 1/2"	4"	5"	3 1/2"
#4	2"	4 1/2"	6 1/2"	4 1/2"
#5	2 1/2"	6"	8"	5 1/2"
#6	4 1/2"	1'-0"	11"	6 1/2"
#7	5 1/4"	1'-2"	1'-0 1/2"	7 1/4"
#8	6"	1'-4"	1'-2 1/2"	9"

LAP SPLICE & DEVELOPMENT LENGTH SCH.		
SIZE	CONDITION A	CONDITION B
#3	18"	27"
#4	24"	36"
#5	30"	45"
#6	36"	54"
#7	42"	63"
#8	48"	72"

STANDARD MASONRY LAP SPLICE

STANDARD HOOK DETAILS (GRADE 60)



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NEXT HIGHER ASSEMBLY	TOLERANCE UNLESS OTHERWISE INDICATED FRACTIONS: ± 1/16 .X = ± .1 .XX = ± .05 .XXX = ± .010 .XXXX = ± .0005	DRAWN BY C. TEMBY CHECKED BY B. LLOYD ENGINEER J. JORGENSEN SUPERVISOR	DATE 5/22/2012 DATE 9/11/2013 DATE 9/11/2013 DATE
	ANGLES: ± .5°	MFG ENGINEER	DATE

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SALT LAKE CITY, UTAH 84107 Ph (801)281-2929

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TITLE LUBRICATIONS BUILDING FOOTING & FOUNDATION SCHEDULES			
SIZE	DWG NO	REV	
D	120213-S-007	0	
SCALE AS NOTED		SHEET 1 OF 1	

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