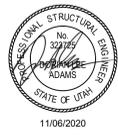


# RECONFIGURATION - SLEEP LAB

## 100% Construction Documents

Project No. 10173823  
550 E 1400 N, Suite R  
Logan, UT 84341

Date: Nov 6, 2020

	STAMPS	<u>OWNER</u>	
		<u>ARCHITECT</u>	<b>HDR ARCHITECTURE, P.C.</b> 201 CALIFORNIA ST. SUITE 1500 SAN FRANCISCO, CA 94111
		<u>STRUCTURAL ENGINEER</u>	<b>REAVELEY ENGINEERS &amp; ASSOCIATES</b> 675 EAST 500 SOUTH, SUITE 400 SALT LAKE CITY, UT 84102
		<u>MECHANICAL/ PLUMBING ENGINEER</u>	<b>VAN BOERUM &amp; FRANK ASSOCIATES, INC.</b> 330 SOUTH 300 EAST SALT LAKE CITY, UT 84111
		<u>ELECTRICAL ENGINEER</u>	<b>SPECTRUM ENGINEERS</b> 324 SOUTH STATE STREET, SUITE 400 SALT LAKE CITY, UT 84111
		<u>CIVIL ENGINEER</u>	<b>GREAT BASIN ENGINEERING INC</b> 5746 S 1475 E #200 SOUTH OGDEN, UT 84403
		<u>FOOD SERVICE</u>	<b>CINI LITTLE INTERNATIONAL, INC.</b> 535 NORTH BRAND BLVD., SUITE 710 GLENDALE, CA 91203
		<u>LANDSCAPE ARCHITECT</u>	<b>ARC SITIO DESIGN</b> 1058 EAST 2100 SOUTH SALT LAKE CITY, UTAH 84106











1. Design Criteria

- 1.1. Governing Building Code ..... 2018 International Building Code (IBC)
A. Risk Category ..... II
1.2. Floor Live Loading
A. Sleep Lab ..... 50 psf Live Load + 15 psf Partition Load
B. Exit Facilities & Corridors ..... 100 psf Live Load
1.3. Roof Live Loading
A. Roof Live Load ..... 20 psf
B. Roof Snow Load ..... 31 psf + Drift per IBC
1. Ground Snow Load, Ps ..... 44 psf
2. Snow Exposure Factor, Cs ..... 1.0
3. Importance Factor, I ..... 1.0
4. Thermal Factor, Ct ..... 1.0
5. Slope Factor, Cst ..... 1.0
1.4. Earthquake
A. Seismic Design Category ..... D
B. Spectral Response Accelerations
Sa = 1.05g Sds = 0.76g
S1 = 0.35 g S1s = 0.46 g
C. Soil Site Class ..... D
Ft = 1.08 Fv = 1.95
D. Basic Seismic-Force-Resisting System ..... Light Framed Wood Shear Walls
E. Importance Factor, I ..... 1.0
F. Redundancy Factor, R ..... 1.0
G. Analysis Procedure ..... Equivalent Lateral Force (Static)
H. Seismic Design Coefficient, Cd ..... 0.119
1.5. Wind
A. Basic Design Wind Speed, V ..... 104 mph
B. Allowable Stress Design Wind Speed, Vsd ..... 80.6 mph
C. Velocity pressure exponent coefficient, Kz ..... 0.85
D. Ground elevation factor, Kd ..... 0.85
E. Exposure category ..... D
F. Topographic Coefficient, Cgt ..... 0.18
G. Internal Pressure Coefficient, Ci ..... 1.0
H. Components and Cladding Design Pressure

Design Wind Pressure - LRFED (psf)
Location Tributary Area (ft²)
Walls Within 4.4 ft of building corner 29.6 25 23 18.5
All other areas 24 21.7 20.7 18.5
Roof Between 6.6 ft and 13.2 ft of building exterior perimeter 69.4 54.2 47.6 32.4
All other areas 38.6 32.7 30.1 24.2

1.6. Foundation

- A. Subsurface Conditions:
Soil Bearing Pressure is 1500 psf on compacted fill, as shown on the existing drawings by Architectural Design West Inc and dated 6/28/1979

2. Earthwork

- 2.1. Compacted structural fill: Structural fill shall be provided at all locations and extents described by the TYPICAL COMPACTED STRUCTURAL FILL DETAIL. All fill material shall be a well-graded granular material with a maximum size less than 4 inches and with not more than 10 percent passing a No. 200 sieve. It shall be compacted to 95 percent of the maximum laboratory density as determined by ASTM D1557. All fill shall be tested (See Specifications and the Quality Assurance section of the GSN).
2.2. It shall be the responsibility of the Contractor to brace and shore excavations as required.

3. Concrete

- 3.1. Materials shall comply with the Standards specified in American Concrete Institute (ACI) 318-14, "Building Code Requirements for Structural Concrete."
A. Concrete mix design requirements shall be as follows:
Location Fc at 28 days (psi) Max W/C Ratio Air Content (%) Max Aggregate Size (in) Exposure Classes\*
Footings 3000 0.50 - 1" F0 S0 C0
All other site cast concrete 4500 0.45 6 1" F1 S0 C1
\* Exposure Classes are per ACI 318, Section 19.3.1.1, where F, S, and C are exposure categories for freezing and thawing, sulfate, and corrosion protection of reinforcement, respectively.
B. Cementitious Materials:
1. Portland Cement (ASTM C150):
a. Type I or II for exposure class S0.
b. Fly Ash (ASTM C618, Class C or F): maximum fly ash content as a percentage of total weight of cementitious materials shall be 25 percent.
C. Concrete Density (Maximum Air Dry Weight):
1. Normal weight concrete shall be approximately 145 to 155 pounds per cubic foot. Aggregate shall be ASTM C33.
D. Steel Reinforcement:
1. ASTM A615 Grade 60, fy = 80,000 psi min. unless noted otherwise.
E. Fiber Reinforcement:
1. Synthetic Micro-Fiber: fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116, 1/2 to 1-1/2 inches long. Add to concrete at a dosage rate of 1.5 lb/cu yd where indicated.
2. Macro-synthetic Fibers: monofilament, non-fibrillating fibers made of a polypropylene/polyethylene blend. Macro fibers shall comply with ASTM C 1116, Type III, and meet the criteria of ASTM D 7508.
a. Where noted in the Steel Deck Schedule, macro-synthetic fibers shall be added to concrete over steel deck at a dosage rate determined by the fiber manufacturer but not less than 4 lb/cu yd.
b. Do not burn off exposed fibers.
F. Admixtures:
1. Air-entraining admixtures, comply with ASTM C 260 (when used).
a. Tolerance on air content as delivered shall be +/- 1.5%.
b. When air content of a tower finished floor slab exceeds 3%, there is an increased risk for delaminations and blistering to occur. When this situation is present, the Contractor shall pay special attention to the finishing procedures to help minimize such risks. Refer to ACI 302.1R-15 "Guide for Concrete Floor and Slab Construction" for proper finishing guidelines.
2. The use of super plasticizers and water reducers is allowed, but not required.
3. Calcium chloride or admixtures containing calcium chloride shall not be added to the concrete mix.
G. Chloride Ion: Maximum water soluble chloride ion concentrations in hardened concrete at age between 28 and 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures shall not exceed a maximum, by weight of cement, of 1.00% for concrete with exposure class CO, 0.30% for concrete with exposure class C1, 0.15% for concrete with exposure class C2, and 0.06% for all prestressed concrete.
H. Slump Limit: 4 inches, maximum for all concrete prior to the addition of plasticizers and water reducing admixtures. The concrete supplier shall indicate the final slump of each concrete mix in the submitted mix design.
I. Only one grade or type of concrete shall be poured on the site at any given time.
3.2. Formwork shall comply with ACI Standards Publication 347 and the project specifications. The Contractor shall be responsible for the design, detailing, care, placement and removal of the formwork and shores.
3.3. Concrete cover requirements for deformed bar reinforcing steel shall comply with ACI 318, "Building Code Requirements for Structural Concrete".
A. Cast-in-place Concrete:
1. Cast against and permanently exposed to earth: Specified Cover
#5 and smaller bars ..... 3"
2. Formed concrete exposed to air or weather: #5 and smaller bars ..... 1.1/2"
3.4. No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.

4. Structural Steel

- 4.1. Steel Lintels
A. Provide steel angle lintels at all openings through the masonry veneer. Provide one inch of bearing for each foot of width of opening, with a minimum bearing of six inches. See the STEEL ANGLE LINTEL SCHEDULE for size.

5. Cold-Formed Steel

- 5.1. Material:
A. Studs:
1. Base metal thickness of less than 54 mil: ASTM A1003 or A653, Fy = 33 ksi.
2. Base metal thickness of 54 mil or greater: ASTM A1003 or A653, Fy = 50 ksi.
B. Track, Connection Clips, and Miscellaneous Shapes:
1. Base metal thickness of less than 54 mil: ASTM A1003 or A653, Fy = 33 ksi.
2. Base metal thickness of 54 mil or greater: A1003 or A653, Fy = 50 ksi
5.2. Design, fabrication and construction shall comply with the following Codes and Standards:
A. American Iron and Steel Institute (AISI) S100-16, "North American Specification for the Design of Cold-Formed Steel Structural Members," dated 2016.
B. American Iron and Steel Institute (AISI) S202-15, Code of Standard Practice for Cold-formed Steel Framing, 2015
C. American Iron and Steel Institute (AISI) S220-15, "North American Standard for Cold-Formed Steel Framing-Nonstructural Members"
D. American Iron and Steel Institute (AISI) S240-15: North American Standard for Cold-Formed Steel Structural Framing
E. American Iron and Steel Institute (AISI) S400-15/51-18: North American Standard for Seismic Design of Cold-formed Steel Structural Systems, 2015, with Supplement 1, dated 2016.

5.3. Welding

- A. The steel stud contractor shall contact the Quality Assurance Agency prior to beginning any welds. A program of joint preparation and welding procedures should be worked out between the two parties before the construction is started so that correct welds will be made from the beginning.
B. Certification of Welders: All shop and field welding shall be executed by AWS certified welders who have been specifically certified for the process of welding being performed. The welder's certification will be considered as being current unless the welder is not engaged in the process of welding being performed for a period exceeding six months or there is a specific reason to question a welder's ability as required by AWS. Certification and records must comply with AWS Standards. Certification and appropriate records must be provided to the Architect prior to beginning any welding.
C. Unless noted otherwise, all welded connections shall be done using 1/8" AWS type E6013 or 7014 rod with a welding heat of 60-110 amperes depending on the gauge of material and the fit of the parts. Wire tying of framing components shall not be permitted. Welds and damaged coatings on studs shall be repaired with zinc galvanizing repair paint.

6. Wood

- 6.1. Fabrication and construction shall comply with the following Codes and Standards:
A. American Wood Council National Design Specification for Wood Construction 2018 Edition and Supplement (NDS and NDS Supplement)
B. American Wood Council Special Design Provisions for Wind and Seismic 2015 Edition (SDPWS)
C. Truss Plate Institute National Design Standard for Metal-plate-connected Wood Truss Construction 2014 Edition (TPI 1)
6.2. Materials:
A. Sawn Lumber: Members shall be identified by the grade mark and shall conform to the requirements of DOC P 245.
1. Dimension Lumber: Members shall be Number 2 Douglas Fir-Larch or better or as noted otherwise.
2. Heavy Timber: Timbers larger than 5"x5" shall be Douglas-Fir Larch Number 1 or better or as noted otherwise, as graded by WWPA.
B. Glued Laminated Timber (Glulam): Glulam shall conform to ANSI/AITC A 190.1 and ASTM D 3737. All Glulams shall meet the requirements for Stress Class 24F-1.8E as specified in Table 5a of the NDS Supplement. A balanced layout is required for all continuously spanned beams, cantilever beams, columns, and where specifically noted.
C. Prefabricated Wood I-Joists: I-joists shall conform to ASTM D 5055. I-joists specified on the drawings are intended for use as the basis of design. Prefabricated wood I-joists that are equivalent to or better than the specified products shall be submitted for approval, and shall include EI values, moment capacities, and maximum vertical shear capacities.
D. Structural Composite Lumber: All Structural Composite Lumber Shall Comply with the requirements of ASTM D 5456. Engineered Wood Rim Board shall comply with ANSI/APA PRR 410 or ASTM D 7672.

Composite lumber type Bending stress, Fb (psi) Shear Stress, Fv (psi) Modulus of Elasticity, E (ksi) Bearing Stress, Fc, L (psi)
Laminated Veneer Lumber (LVL) 2600 285 1900 750
Parallel Strand Lumber (PSL) 2900 290 2000 750
Laminated Strand Lumber (LSL) 1700 400 1700 680

Wood Structural Panel Sheathing: All panels shall be rated by the American Plywood Association (APA). Panels shall bear the stamp of an approved testing and grading agency. Panels shall be grade DOC PS 1 or PS 2 with exterior glue with the following panel span rating, unless noted otherwise.
Area to be sheathed Span Rating Minimum Thickness (in)
Roofs 40/20 1/2
Floors 24' o.c. or 48/24 23/32
Walls 24/0 3/8

- F. Nails as referenced in these documents shall meet the tolerances in ASTM F1667 and have the following properties:
Common Galvanized Box
Nail Length Minimum Penetration Shank Diameter Dowel Bending Yield Strength (psi) Shank Diameter Dowel Bending Yield Strength (psi)
6d 2" 1.18" 0.113" 100,000 0.099" 100,000
8d 2 1/2" 1.38" 0.131" 100,000 0.113" 100,000
10d 3" 1.12" 0.148" 90,000 0.128" 100,000
16d 3 1/2" 1.58" 0.182" 90,000 0.135" 100,000
20d 4" 2" 0.192" 80,000 0.148" 90,000
When used to attach structural sheathing nails shall be common or galvanized box type nails. All other nails shall be common type nails.
G. Bolts for connections: ASTM A307 with ASTM A563 heavy hex nuts and standard washers unless noted otherwise.
H. Lag screws for connections: SAE J429 Grade 1 or ASTM A307 Grade A with dimensions per ANSISASME B18.2.1. Minimum dowel bending yield strength to be 45,000 psi
6.3. Special Treatments:
A. Preservative Treatment:
1. The following conditions require that wood members be either naturally durable or preservative treated:
a. Joists and structural floors less than 18 in from exposed earth.
b. Girders less than 12 in from exposed earth.
c. All wood in contact with concrete or masonry which is less than 8 in from exposed earth or below grade.
d. Sleepers, sills, posts or columns on floor slabs in direct contact with earth. Wood members and siding less than 2 vertical inches from any horizontal surface exposed to the weather.
e. Any wood member exposed to the weather without covering or protection to prevent water or moisture accumulation.
2. Preservative-treated wood shall meet the requirements in IBC Section 2303.1.9. Preservative-treated wood shall be treated to meet the requirements of AWPA Standard U1 and M4 according to species, use, and preservative. Preservatives used shall be listed in AWPA U1, Section 4. Preservative-treated wood shall be identified by the mark of an accredited inspection agency. Preservative treated wood shall have a moisture content of less than 19% prior to being enclosed or covered.
B. Fire-Retardant-Treated Wood:
1. Fire retardant-treated wood shall meet requirements in IBC Section 2303.2. Fire-retardant-treated wood shall be treated to meet a flame spread index of 25 or less and show no evidence of significant progressive combustion when the test is continued for 20 minutes per ASTM E 84 or UL 723.
2. Treatment methods shall provide permanent protection to all surfaces
3. All fire retardant treated wood products shall be labeled per the requirements of section 2303.2.4 of the IBC.
4. Strength adjustment factors resulting from fire retardant treatment shall be determined based on the requirements of IBC sections 2303.2.5 and all subsections thereof. Strength adjustment factors for the preservative treatments used shall be submitted to the Engineer of Record for review prior to procurement of materials.
5. Moisture content of fire retardant treated wood shall be 19% or less for lumber and 15% or less for structural panels prior to use.
C. Fasteners, including nuts and washers, in contact with treated wood shall meet the following criteria as per IBC Section 2304.10.5:
1. Fasteners in contact with preservative-treated wood shall be hot-dipped galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, wood screws, timber rivets, and lag screws may be mechanically-deposited zinc-coated steel with coatings meeting ASTM B 695, Class 55 minimum. Fasteners used in exterior applications shall be per fastener manufacturer's recommendations.
2. Fasteners in contact with fire-retardant-treated wood shall be hot-dipped galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, wood screws, timber rivets, and lag screws may be mechanically-deposited zinc-coated steel with coatings meeting ASTM B 695, Class 55 minimum.

- 6.4. General Framing and Carpentry
A. Minimum Nailing Requirements (See drawings for areas with greater requirements):
1. Roof: Use two plicys between each support for spans of 48" o.c. and one plicy between each support for lesser spans at all unsupported panel edges. Provide 1/8" gap between panels. Typical diaphragm nailing shall be 10d common nails. Nail all diaphragm boundaries at 6" o.c. Nail all supported sheathing panel edges to a common framing member at 6" o.c. At sheathing supports away from panel edges nailing shall be at 12" o.c.
2. Floor: Nail all sheathing panels to common framing members with 10d common nails at 6" o.c. at all supported edges and 10d at 12" o.c. at all intermediate supports.
3. Walls: All sheathing panel edges shall be nailed with 8d common nails at 6" o.c. to common framing members or panel edge blocking, unless noted otherwise. Sheathing shall be nailed at 12" o.c. at all intermediate supports (3/8" or 7/16" panels on studs spaced at 24" o.c. requires 6" spacing at all intermediate supports). All abutting shear wall panel edges shall be blocked with panel edge blocking. Where nominal 3 in members are required at panel edges, panel edge blocking shall also be 3 in nominal thickness if placed perpendicular to sheathing.
4. All nailing through structural wood panels shall be 3/8 in minimum from panel edges.
B. Connect all items as per the "Minimum Nailing Schedule" contained within the contract drawings and IBC Table 2304.10.1, "Fastening Schedule," unless noted otherwise.
C. All blocking shall, unless noted otherwise, be nominally 2 in thick minimum and fit tight against adjacent framing members.
1. Full-depth blocking shall match the depth of adjacent framing member depths. Full-depth blocking shall be shaped to match diaphragm slope. Full-depth blocking out from I-joist material of the same depth as the I-joists used in floor/roof sheathing may be used for flat floors or roofs.
2. Panel edge blocking and solid blocking may be turned flat against sheathing or other framing, unless noted otherwise.
3. Where required, squash blocking shall match wall stud nominal thickness, spacing, and shall align with wall studs.
D. Provide full-depth blocking between all framing members that bear directly on walls.
E. Full-depth blocking between joists shall be nailed to the wood plate at the top of shear walls with one Simpson "A35" framing anchor per each piece of blocking, unless noted otherwise.
F. Coordinate size and locations of middle or end notching for roof ventilation with architectural drawings.
G. Pies of built-up beams, headers, etc. shall be connected together per the TYPICAL BUILT-UP BEAM ASSEMBLIES detail.
H. Pies of built-up columns, jamps, studs, etc. shall be connected together per the TYPICAL BUILT-UP COLUMN ASSEMBLIES detail.
I. All required bracing and bracing for prefabricated wood I-joists shall be provided by joist manufacturer and installed by Contractor. All penetrations through the joists shall be done per manufacturer's recommendations and requirements.
J. Lateral support for non-bearing walls shall be provided per TYPICAL WOOD NON-BEARING WALL BRACING DETAIL. Framing members shall not bear on non-bearing walls.

- 6.5. Framing Connections
A. Simpson Strong Tie Connectors are used as the basis of design. Alternate connectors are permitted with approval of the Engineer. The Contractor shall submit the proposed product data and code evaluation report demonstrating the connector is equivalent or exceeds the capacity of the specified connector.
B. Framing connections not indicated shall be connected in a manner similar to typical details in the drawings and the Engineer shall be notified prior to the procurement of connector materials.
C. Where framing connection type is specified without reference to a specific model no, the highest capacity model hanger of that type which is compatible with the member to be supported shall be used unless noted otherwise in the drawings.
D. All framing connectors supporting roof members where additional uplift capacity is available shall be fastened to achieve such.
E. Fill holes in the framing anchors per manufacturer's requirements, unless noted otherwise.

7. Miscellaneous

- 7.1. Post-Installed Anchors in Concrete and Masonry
A. Anchorage to hardened concrete and grout-filled masonry shall include all mechanical and adhesive anchors and epoxy doweled reinforcing bars of size, quality, spacing, and embedment as shown on the drawings. Additional anchors shall not be used without approval from the Engineer prior to installation.
B. Special inspection is required during the installation of all post-installed anchors. Refer to applicable code evaluation reports and the Quality Assurance and Statement of Special Inspections sections of the General Structural Notes.
C. Anchorage to Concrete:
1. All post-installed anchors into hardened concrete shall be selected from the following pre-approved products, unless noted otherwise:
Steel Screw Anchors Evaluation Report
Hilti KWIK HUS-EZ ICC ESR-3027
DeWalt Screw-Bolt+ ICC ESR-3889
Simpson Titen HD ICC ESR-2713
Steel Expansion/Wedge Anchor Evaluation Report
Hilti KWIK Bolt TZ ICC ESR-1917
DeWalt Power-Stud+ S02 ICC ESR-2502
Simpson Strong-Bolt Z ICC ESR-3037
Adhesive Anchor System Evaluation Report
Hilti HIT-HY 200 ICC ESR-3187
Hilti HIT-RE 500 V3 ICC ESR-3814
DeWalt AC208+ ICC ESR-4027
DeWalt Pure 110+ ICC ESR-3298
Simpson SET-3G ICC ESR-4057

- 2. Adhesive anchors shall be installed into concrete having a minimum age of 21 days. For installations sooner than 21 days, consult the adhesive manufacturer.
D. Anchorage to Masonry:
1. All post-installed anchors into grout-filled masonry shall be selected from the following pre-approved products, unless noted otherwise:
Steel Screw Anchor Evaluation Report
Hilti KWIK HUS-EZ ICC ESR-3027
DeWalt Screw-Bolt+ ICC ESR-4042
Simpson Titen HD ICC ESR-1056
Steel Expansion/Wedge Anchor Evaluation Report
Hilti KWIK Bolt TZ ICC ESR-3785
DeWalt Power-Stud+ SD1 ICC ESR-2966
Simpson Wedge-All ICC ESR-1396
Adhesive Anchor System Evaluation Report
Hilti HIT-HY 270 ICC ESR-1445
DeWalt AC100+ Gold ICC ESR-3200

- E. Alternate anchors or adhesives are permitted with approval of the Engineer. The Contractor shall submit the proposed anchor product data and code evaluation report demonstrating the anchor is equivalent to or exceeds the capacity of the specified anchor.
F. Installation of adhesive anchors horizontally or upwardly inclined to support sustained tension loads shall be performed by personnel certified by an applicable certification program. Certification shall include written and performance tests in accordance with the ACI/CRSI Adhesive Anchor Installer Certification program or equivalent. Proof of current certification shall be submitted to the Engineer for approval prior to commencement of installation.
G. Anchors shall be installed according to the Manufacturer's Printed Installation Instructions and applicable code evaluation reports including:
1. Hole diameter, depth, and cleaning procedure
2. Adhesive mixing, preparation, and placement
3. Installation torque
H. Locate all existing reinforcement and embedded items prior to drilling into concrete or masonry elements. Do not damage rebar or embeds while drilling or installing anchors.
I. Grout all defective or abandoned holes with non-shrink grout or an injectable epoxy adhesive matching the surrounding concrete compressive strength. Consult the Architect for additional requirements at architecturally exposed concrete.
J. Drilled anchors are not allowed in post-tensioned concrete without approval of the Architect and Engineer.
K. ASTM steel anchors are limited to use in dry, interior locations.
L. Holes for post-installed anchors may not be core drilled unless specifically allowed by the manufacturer's installation instructions and the code evaluation report.

- 8. Special Instructions
8.1. The project specifications are not superseded by the General Structural Notes but are intended to be complementary to them. Consult the specifications for additional requirements in each section. Notes and specific details on the drawings shall take precedence over General Structural Notes and typical details.
8.2. The architectural drawings are the prime contract drawings. Consultant drawings by other disciplines are supplementary to the architectural drawings. All omissions or conflicts, including dimensions, between the various elements of the consultants' drawings and/or specifications shall be brought to the attention of the Architect before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the Architect without additional cost to the Owner. Any work done by the Contractor after discovery of such discrepancy shall be done at the Contractor's risk.
8.3. The structural drawings shall be used in conjunction with the architectural drawings. Primary structural elements and overall structural layout are indicated within the structural plans and details. Some secondary elements, architectural layouts, alcoves, elevations, slopes, depressions, curbs, mechanical equipment and electrical equipment, are not indicated within the structural drawings. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in the architectural, structural and/or other consultants' drawings.
8.4. Shoring and Bracing Requirements:
A. Floor and Roof Structures -- The General Contractor is responsible for the method and sequence of all structural erection. The Contractor shall provide temporary shoring and bracing as the method of erection requires to provide adequate vertical and lateral support. Shoring and bracing shall remain in place as the chosen method requires until all permanent members are in place and all final connections are completed, including all roof and floor attachments. The building shall not be considered stable until all connections are complete.
B. Foundation walls must be braced until the complete floor or roof systems is completed. Do not backfill until floor or roof systems are in place.
C. Walls above grade shall be braced until the structural system is complete. Walls shall not be considered to be self-supporting.
8.5. All expansion joints (E.J.) shown in the structural drawings shall be considered seismic separation joints, unless noted otherwise.
8.6. Submittals: A copy of all shop drawings that have been submitted for review must be kept at the construction site for reference. These drawings must bear the appropriate review stamps. The shop drawing review process shall relieve the Contractor of the responsibility of completing the project according to the contract documents. The General Contractor shall review and mark all shop drawings prior to submitting them to the Architect for review. Shop Drawings made from reproductions of (these) contract drawings will be rejected.
8.7. Project Coordination: It shall be the responsibility of the General Contractor to coordinate with all trades and all items that are to be integrated into the structural system. Openings or penetrations through, or attachments to the structural system that are not indicated on these drawings shall be the responsibility of the General Contractor and shall be coordinated with the Architect/Engineer. The order of construction is the responsibility of the General Contractor. It is the Contractor's obligation to provide all items necessary for the chosen procedure.
8.8. Contractor shall field verify all dimensions, and conditions. If the contract drawings do not represent actual conditions, Contractor shall notify Architect/Engineer prior to fabrication or construction within that area.
8.9. Notice of Copyright: The structural drawings, plans, schedules, notes and details are hereby copyrighted by Reaveley Engineers. Submission or distribution of documents to meet official regulatory requirements or for similar purposes in connection with the project is not to be construed as publication in derogation of Reaveley Engineers' reserved rights. The documents defining the structure are instruments of service prepared by Reaveley Engineers for one use only. Furthermore, these documents shall not be reproduced, or copied, in whole or in part by the Contractor or subcontractors for preparation of shop drawings or other submittals.

- 9. Quality Assurance
9.1. Quality Assurance Agency Requirements:
A. The Owner shall engage a qualified Quality Assurance Agency (QAA) to provide all special inspection and quality assurance testing for the project. The QAA shall provide all information necessary for the building official to determine that the agency meets the applicable requirements.
1. The QAA shall be objective, competent and independent from the Contractor responsible for the work being inspected. The agency shall disclose to the building official and the registered design professional in responsible charge possible conflicts of interest so that objectivity can be confirmed.
2. The QAA shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.
3. The QAA shall employ experienced personnel educated in conducting, supervising and evaluating tests and special inspections. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of special inspection or testing activities for projects of similar complexity and material qualities.
4. The QAA shall send copies of all inspection and testing reports to the building official, Owner, Architect, Engineer and Contractor. Reports shall indicate that the work inspected was or was not completed in conformance to the approved construction documents. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If the Contractor corrects, the discrepancies shall be brought to the attention of the Architect and Engineer.
5. The QAA shall submit a final report documenting required special inspections and tests, and correction of any discrepancies noted in the inspections or tests. The final report shall be distributed to the building official, Owner, Architect and Engineer in a timely manner prior to the completion of the project.

- 9.2. Contractor Responsibilities:
A. The Contractor shall submit a written statement of responsibility to the building official and the Owner or the owner's authorized agent prior to the commencement of work on the systems or components listed in the statement of special inspections. The Contractor's statement of responsibility shall contain acknowledgement or awareness of the special requirements contained in the statement of special inspections.
B. Notification of QAA: The Contractor shall notify the QAA in a timely manner so that inspection and testing may be performed as outlined in the statement of special inspections.
9.3. Structural Observations by the Engineer of Record:
A. The Engineer of Record will perform structural observations at critical phases of the project. Observations will be made on a periodic basis throughout the construction of the structural system. Copies of the Engineer's report will be distributed to the Architect, Contractor, Owner, and building official.
B. Observation visits to the site by the Engineer's field representatives shall not be construed as inspection or approval of construction.
10. Statement of Special Inspections
10.1. The following materials, systems and components require special inspection or testing per Chapter 17 of the International Building Code (IBC).
10.2. For items requiring continuing inspection, a special inspector must be present onsite during the performance of that task. In most cases, periodic inspections/tests shall be performed prior to commencing the task, intermittently during the task, and at the completion of the task. Frequency marked with (E) designates periodic inspections that must be performed prior to or upon completion of every task.
Wood Construction per IBC Sections 1705.5, 1705.10.1 & 1705.11.2
Item Frequency Detailed Instructions
High-load diaphragms Periodic Verify thickness and grade of sheathing, size of framing members at panel edges, nail/staple diameters and length, and the number of fastener lines and fastener spacing per approved plans.
Structural wood Periodic If fastener spacing is less than 4" o.c. for either diaphragm or shear wall fastening: Verify that proper nailing, bolting, anchoring and other fastening of shear walls, diaphragms, drag struts, braces, shear panels and holdowns has occurred.
Soils per IBC Section 1705.6
Item Frequency Detailed Instructions
Verify subgrade is adequate to achieve design bearing capacity Periodic Prior to placement of concrete.
Verify excavations extend to proper depth and material Periodic Prior to placement of compacted fill or concrete.
Verify that subgrade has been appropriately prepared prior to placing compacted fill Periodic Prior to placement of compacted fill.
Perform classification and testing of compacted fill materials Periodic All materials shall be checked at each lift for proper classifications and gradations not less than once for each 10,000ft² of surface area.
Verify proper materials, densities and lift thicknesses during placement and compaction. Continuous



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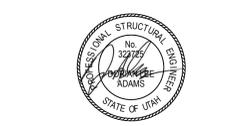
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