

A. DESIGN SCOPE BY PSE CONSULTING ENGINEERS, INC. (PSE):

1. Design Shown on drawings by PSE is for the following items.
 - a. Foundation and framing.
 2. Design Shown on PSE drawings does not include: finishes, architectural items, windows, doors, moisture barriers, water proofing, mechanical units, plumbing, or electrical items.
- B. GENERAL REQUIREMENTS:**
1. Furnish all labor, materials, and equipment necessary to complete the work shown or inferred by these drawings.
 2. Where construction details are not shown or noted for any part of the work, such details shall be the same as for similar work shown on the drawings.
 3. Notes and details on the drawings take precedence over the general notes and typical details in case of conflict.
 4. Provide manufacturer's approved product evaluation reports (CBO reports) and a list of all proposed substitutions to the Engineer for review and written approval before fabrication.
 5. Pipes, ducts, sleeves, chases, etc. shall not be placed in slabs, beams, or walls unless specifically shown or noted nor shall any structural member be cut for pipe, ducts, etc., unless specifically shown. Obtain prior written approval for installation of any additional holes, ducts, etc.
 6. Locate and protect underground or concealed conduit, plumbing or other utilities where new work is being performed.
 7. Obtain contract documents and specifications representing the full structure and do not indicate methods, procedures or sequence of construction. The contractor shall take necessary precautions to maintain and insure the integrity of the new and any existing structures during construction. The design stresses shall not be exceeded during construction based on the age of each element. Neither the owner nor the Architect/Engineer shall be responsible for the contractor's design, construction and maintenance of the new structure and its connections and bracing for the new and any existing structures and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations. Observation visits to the site by the engineer shall not include inspection of the above items.
 8. Obtain prior written approval for any changes to the drawings.
 9. The contractor shall compare the structural drawings with all other Construction Documents, such as Architectural, Mechanical and Electrical drawings, specifications, etc. Do not scale drawings. The contractor shall verify dimensions, elevations and all information. Report, in writing, any inconsistencies, errors, or omissions to the Architect/Engineer of record before proceeding with the work.
 10. If any existing conditions are found to be in conflict with the structural conditions and allow the contractor to proceed with the work, the Architect/Engineer, in writing, in case of any discrepancy between actual conditions and what is shown on the structural drawings before proceeding with the work.
 11. See Architectural, Mechanical, Electrical and other drawings for embedded items.
 12. Member shall be provided for all members with 30 feet or more of span. Check beam table and contact the Structural Engineer for the amount of member.

1. The shipping / cargo container(s) shall be:

- a) Damaged (Free of rust, dents, cracks, etc. cetera that affect the structural integrity of the container).
 - b) Made from steel.
 - c) Design and tested according to the International Organization for Standardization (ISO) specifications.
 - d) Certified for compliance to the Rules for Certification of Cargo Containers and the International Convention for Safe Containers (CSC) for use as shipping containers by the American Bureau of Shipping (ABS) or other approved Certification Inspection and Testing Agency (CITA).
 - e) Container shall have a CSC safety approval placard (CSC Plate) and CITA logo prior to any modification.
 - f) Wall and roof are continuously welded around its entire periphery and is itself made from sheets of corrugated 14ga. Cor-Ten steel also continuously welded together. This steel, also used for the side and end walls has a minimum yield strength of 50ksi and tensile of 70ksi.
2. Prior to construction/modification, Client / Owner / Contractor shall:
- a) Provide pictures of high/good quality to PSE showing the following of each container:
 - All four sides
 - Roof
 - Under framing
 - Top Rails
 - Bottom Rails
 - Interior
 - CSC Plate
 - b) Visually inspect all existing welds for consistency and undamaged.
 - c) Confirm existing plywood floor sheathing is:
 - Not damaged, cracked, deformed, delaminated, or showing any other signs that structural integrity has been compromised
 - Free of hazardous materials, liquids, and/or stains, or shall be encapsulated.
 - Fully fastened to container floor joists per original construction
 - If existing plywood floor sheathing needs to be replaced, inform PSE prior to replacing with equivalent pressure/preservative treated OSB or 1" steel plate with equivalent or better fastening to container floor joists.
 - d) If possible, provide manufacturer drawings of container to PSE.
3. Dimensions provided may be the nominal dimensions of the container. Contractor/fabricator, owner, and/or architect to verify actual dimension before construction.

AB	ANCHOR BOLT
AD	ADDITIONAL
ALT	ALTERNATE
APA	AMERICAN PLYWOOD
ASS	ASSOCIATION
ARCH	ARCHITECTURAL
B	BOTTOM
BLKG	BLOCKING
BN	BOUNDARY NAIL
BTM	BOTTOM OF FOOTING
CBC	CALIFORNIA BUILDING
CJ	CONSTRUCTION JOINT
CL	OR CONTROL JOINT
CLR	CENTER LINE
CLR	CLEAR
CONN	CONNECTION
CONT	CONTINUOUS
DBL	DOUBLE
DM	DIMENSION
DL	DEAD LOAD
DO	DITTO (REPEAT)
DWG	DRAWING
DWL	DOWEL
E	EXISTING
EA	EACH
EF	EACH FACE
EL	ELEVATION
EMBED	EMBEDMENT
EN	EDGE NAIL
ENG	ENGINEER OF RECORD

- | | |
|------|---|
| EQ | EQUAL |
| ES | EACH SIDE |
| EW | EACH WAY |
| FA | FRAMING ANCHOR |
| FF | FROST DEPTH |
| FEN | FLOOR EDGE NAILING |
| FFN | FINISHED FLOOR |
| FN | FIELD/INTERMEDIATE
NAILING |
| FS | FAR SIDE |
| FG | FOOTING |
| GLV | GALVANIZED |
| GC | GENERAL CONTRACTOR |
| GIR | GEOTECHNICAL INVESTIGATION
REPORT |
| GLB | GLUED LAMINATED BEAM |
| GR | GRADE |
| HR | HEADER |
| HR | HANGER |
| HRHZ | HORIZONTAL |
| HSH | HORIZONTALLY SLOTTED HOLES |
| ICB | INTERNATIONAL CONFERENCE OF
BUILDING OFFICIALS |
| ID | INSIDE DIAMETER |
| INT | INTERIOR |
| JO | JOINT |
| LDGR | LEDGER |
| LGST | LIGHT GAUGE STEEL,
COLD-FORMED STEEL |

- LIVE LOAD
MATERIAL
MAXIMUM
MACHINE BOLT
MANUFACTURER
MINIMUM
METAL
NUMBER
NEAR SIDE
NOT TO SCALE
ON CENTER
OUTSIDE DIAMETER
OREGON ONE & TWO FAMILY
DWELLING SPECIALTY CODE
OPPOSITE HAND
ORIENTED STRAND BOARD
OREGON STRUCTURAL
SPECIALTY CODE
ON SITE VERIFY
OUT TO OUT OF BEARING
PERPENDICULAR
PLATE
POUND PER LINEAR FOOT
PSE, INC.
PRESSURE TREATED
PLATE WASHER
REFERENCE
ROOF EDGE NAILING
REINFORCEMENT

- | | |
|-------|------------------------|
| RT | RAFTERS |
| SGN | STRUCTURAL GENERAL |
| | NOTES |
| SEP | SEPARATION |
| SIM | SIMILAR |
| SIN | SINGLE NAIL |
| SNL | SNOW LOAD |
| SPEC | SPECIFICATION |
| STD | STANDARD |
| STGR | STAGGER |
| STIFF | STIFFENERS |
| T | TOP |
| TB | TOP & BOTTOM |
| TD | TYPICAL DETAILS |
| THK | THICKNESS/THICK |
| THK | THICKNESS |
| TBN | TOP OF BEAM |
| TBF | TOP OF FOOTING |
| TOW | TOP OF WALL |
| TYP | TYPICAL |
| UBC | UNIFORM BUILDING CODE |
| UN | UNLESS OTHERWISE NOTED |
| VSH | VERTICAL SLOTTED HOLES |
| W | WOOD |
| WEN | WALL EDGE NAILING |
| WFW | WEDGED WIRE FABRIC |
| WTH | WITH |
| W/O | WITHOUT |

1. All design, material, and construction work for this project shall conform to the Colorado State Building Codes based on the 2021 International Building Code (IBC).
2. Design parameters.
 - a. Floor Live Load = 40 psf.
 - b. Floor Dead Load = 15 psf.
 - c. Roof Live Load = n/a psf.
 - d. Roof Dead Load = 15 psf.
 - e. Ground Snow Load, $P_g = 76.8 \text{ psf}$.
 - f. Flat Roof snow load = 53.8 psf.
 - g. Snow Exposure Factor, $E_s = 1.0$
 - h. Snow Load Ground Surface Suction, $q_g = 1.0$
 - i. Thermal Factor, $C_t = 1.0$
 - j. Ultimate Wind Speed (3 second gust) = 105 mph
 - k. Wind Importance Factor, $I_w = 1.0$
 - l. Wind Exposure = C
 - m. Internal Pressure Coefficient = 0.85
 - n. Components and Cladding studs = 38 psf
 - o. Seismic Importance Factor, $I_e = 1.0$
 - p. Site Class = D
 - q. $S_s = 0.592$
 - r. $S_{m1} = 0.102$
 - s. $S_{m5} = 0.777$
 - t. $S_{d1} = 0.244$
 - u. $S_{d5} = 0.163$
 - v. Seismic Design Category = D
 - w. Basic Seismic Force Resisting System = Metal Sheathed Shipping Container
 - x. Approximate Fundamental Period, $T = 0.104$
 - y. Analysis Procedure Used = Equivalent Lateral Force Procedure
 - z. Response Modification Factor, $R = 2.0$

- b. Floor Dead Load = 15 psf.
 d. Roof Dead load = 15 psf.
 f. Flat Roof snow load = 53.8 psf.
 h. Snow Load Importance Factor, $I_s = 1.0$
 i. Ultimate Wind Speed (3 second gust) = 105 mph
 l. Wind Exposure = C
 n. Components and Cladding studs = 38 psf
 p. Site Class = D
 r. $S_1 = 0.102$
 t. $S_{m1} = 0.244$
 v. $S_{d1} = 0.163$
 x. Basic Seismic Force Resisting System = Metal Shear
 z. Approximate Fundamental Period, $T = 0.104$
 bb. Analysis Procedure Used = Equivalent Lateral Force

The owner shall employ one or more qualified Inspectors to provide inspections during construction in accordance with section 1701 of the above code. The Inspector shall be certified by the building official to perform the type of inspection specified. Inspection shall be provided for:


- a. Foundation excavation,
- b. Reinforcement placement, prior to closing the forms and delivery of concrete.
- c. Concrete placement,
- d. Bolts installed in concrete and masonry, prior to and during the placement of concrete around bolts.
- e. Structural Steel,
- f. Field welding,
- g. High-strength bolting,
- h. During preparation and taking of test specimens,
- i. See other sections of these notes for more required inspections.

Note: All discrepancies shall be brought to the immediate attention of the contractor for correction; then if not corrected, to the building official and to the Engineer in writing. The inspector shall furnish an inspection report to the building official and to the Engineer/Architect of Record.

The owner/contractor shall retain an independent testing laboratory to test the quality of:

- Soil or fill material supporting footings and slab-on-grade.
- Concrete.
- Mortar shall be tested in accordance with UBC standard 21-16.
- Grout shall be tested in accordance with UBC standard 21-18.
- All other material used in this project as required by the Engineer.
- A copy of test results shall be sent to the Engineer of Record.

1. Unless noted otherwise on plans, all structural steel shall be per Table 2-3 of AISC Manual of Steel Construction, Thirteenth Edition, as shown below:

On-Site Fabrication		
Shape	Steel, Typ	Yield Strength F _y , KSI
W-shape	A 992	50-65
Angles	A 36	36
Rectangular Tube, HSS	A 500, Gr C	50
Round Tube, HSS	A 500, Gr C	46
Pipe	A53, Gr B	35
Plate	A 36	36
 Hex Bolts	A 325	120/105
LOS Stud \times 18ga	A 670 Gr. 33	33
LOS Stud \times 18 ga	E 507 gr. 55	55
Container/Module Tube	Corten/A242	50
Container/Module Channel	Corten/A242	50
Container/Module Panel	Corten/A242	50

2. Fabrication and erection shall be in accordance with the American Institute of Steel Construction (AISC).
3. All beam connections shall be bolted or shop welded as detailed on the drawing or designed by fabricator per AISC Manual of Steel Construction allowable Stress Design, "Framed Beam Connections." Bolts shall be 3/4 inch diameter ASTM A325, load indicator bolts. All bolts shall be tightened to the minimum tension specified in the AISC Manual of Steel Construction, Part 9, Tables A325 or A490 bolts.
4. All welding shall conform to the current American Welding Society (AWS) specifications and be performed by certified welders.
5. Column anchor bolts shall have minimum yield strength of 36 KSI.
6. Metal deck shall be the type as indicated on the drawings. The deck shall be welded to the supporting members per manufacturer's recommendations or as indicated on the drawings whichever is more restricting or stringent.
7. All openings in metal deck to have 4" X 4" X 1/4" angle frames set between joists.
8. All structural steel and bar joists shall have one shop coat of rust inhibitor primer paint conforming to specification. Field touch up all unpainted areas and weld areas.
9. Grout for base plates shall be nonshrinkage cementitious grout having a minimum 3-days compressive strength of 4000 PSI.
10. Reference specifications for additional requirements.

SHEET INDEX:	
S1	GENERAL STRUCTURAL NOTES
S2	CONTAINER FLOOR PLANS
S2.1	CONTAINER DETAILS

Construction Types:
Light Gauge Steel, Straw Bales
Bamboo, Log, Timber/Wood,
Structural Insulated Panels/SIPs
Masonry, Steel, Concrete,
Modular Homes/Factory Built
Housing (FBH), ICF, Shipping
Containers, and many more!
Commercial or Residential,
And Green/Sustainable!

Project:

AquaWorks
DBO, Inc.
Shipping
Container

38600 Main St.,
Milner CO 80487

Owner / Client:
AquaWorks DB
Inc.

3-1-2024

COLORADO LICENSE
TABIL M. THAPA
30389
PROFESSIONAL ENGINEER

Expires 10/31/2025

[illegible]

DRAWN BY: M.R.D

DS. BY: M.R.D

CHK BY: N.T

DATE: 2-02-2024

TITLE:
GENERAL
NOTES

PAGE NO:

S1A

PROJECT #:
AQUAWORKS DBC
INC., 224-2002



PROJECT #:
AQUAWORKS DBO
INC., 224-2002

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Structural details for this project are for illustration only. They are not drawn to scale unless noted otherwise. Contractor must verify all dimensions before fabrication or construction. Do not scale drawings.