

GENERAL STRUCTURAL NOTES

01100 GENERAL REQUIREMENTS

- PER CONTRACT DRAWING S-0001, THE DESIGN OF THE PROJECT SHALL CONFORM WITH THE 2016 SAN FRANCISCO BUILDING CODE, WHICH COMPRISES THE 2016 CALIFORNIA BUILDING CODE AND 2016 SAN FRANCISCO AMENDMENTS. THE COURTESY BUILDING PERMIT WAS APPROVED BASED ON THE 2016 SFBC AND 2016 CBC.
- MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2019 EDITION OF THE CALIFORNIA BUILDING CODE.
- DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.
- DETAILS ON SHEETS TITLED "TYPICAL" OR DETAILS TITLED "TYPICAL" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. SUCH DETAILS ARE NOT NOTED AT EACH LOCATION THAT THEY OCCUR.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND FOR CHECKING DIMENSIONS. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES AND RESOLVE BEFORE PROCEEDING WITH THE WORK.
- DO NOT SCALE THE DRAWINGS.
- PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION AND FOR TEMPORARY SUPPORT OF THE BUILDING. RETAIN A REGISTERED CIVIL ENGINEER WHOM IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC. VISITS TO THE SITE BY THE OWNER'S REPRESENTATIVE WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
- INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS FROM THE SITE AND DISPOSE OFF SITE.
- VERIFY ALL DIMENSIONS IN THE FIELD. NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
- ALL EXISTING HAZARDOUS MATERIALS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL AND STATE CODES. NO NEW OR EXISTING CONSTRUCTION SHALL CONTAIN HAZARDOUS OR PROHIBITED MATERIALS.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT AREAS ADJACENT TO NEW CONSTRUCTION FROM NOISE, DEBRIS AND DUST THROUGHOUT THE PERFORMANCE OF THE CONTRACT.
- ANY DAMAGE TO EXISTING UTILITIES OR FACILITIES SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF PERSONS AND PROPERTY AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS.
- CONTRACTOR SHALL MAINTAIN THE STREETS AND ANY OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ANY SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS MUST BE REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT.
- THE ENGINEER-OF-RECORD SHALL PERFORM STRUCTURAL OBSERVATIONS PER CBC 1704. THE ENGINEER SHALL REPORT ANY OBSERVED DEFICIENCIES TO THE OWNER, CONTRACTOR AND BUILDING OFFICIAL, AND SUBMIT A FINAL SUMMARY REPORT STATING SITE VISITS HAVE BEEN MADE, NOTING ANY DEFICIENCIES, THAT CORRECTIVE WORK HAS BEEN COMPLETED, AND THAT CONSTRUCTION PROCEEDED IN GENERAL CONFORMANCE WITH THE APPROVED PLANS.
- THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE ENGINEER PRIOR TO ALL REQUIRED TESTING AND OBSERVATIONS U.O.N. CONTRACTOR SHALL CALL ENGINEER FOR OBSERVATION OF ALL FOUNDATION STEEL AND EXCAVATIONS PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL CALL ENGINEER FOR HOLD DOWN OBSERVATION PRIOR TO SHEATHING, AND FRAMING, NAILING AND SHEAR WALL OBSERVATION PRIOR TO COVERING EITHER SIDE OF SHEATHING WITH FINISHED MATERIALS. THE CONTRACTOR SHALL CALL ENGINEER TO OBSERVE ALL STRUCTURAL MEMBERS AND CONNECTIONS FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO CONCEALMENT WITH FINISH MATERIALS.

01400 SPECIAL INSPECTIONS

- AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTOR SHALL BE RETAINED BY THE CONTRACTOR TO PERFORM TESTS AND INSPECTIONS.
- THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 - "STRUCTURAL TESTS AND INSPECTIONS" OF THE 2019 CALIFORNIA BUILDING CODE:
 - NONE
- IF INITIAL TESTS OR INSPECTIONS MADE BY THE OWNER'S TESTING AGENCY REVEAL THAT ANY PORTION OF THE WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, ADDITIONAL TESTS, INSPECTIONS, AND NECESSARY REPAIRS WILL BE MADE AT THE CONTRACTOR'S EXPENSE.

05000 STRUCTURAL STEEL

- STRUCTURAL STEEL, FABRICATION AND ERECTION METHODS SHALL CONFORM TO THE CURRENT ADDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
- ALL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
- ALL STRUCTURAL STEEL SHALL BE PRIMED.
- STEEL SHALL BE THE FOLLOWING:
 - ROLLED PLATES, BARS AND ANGLES - ASTM A36

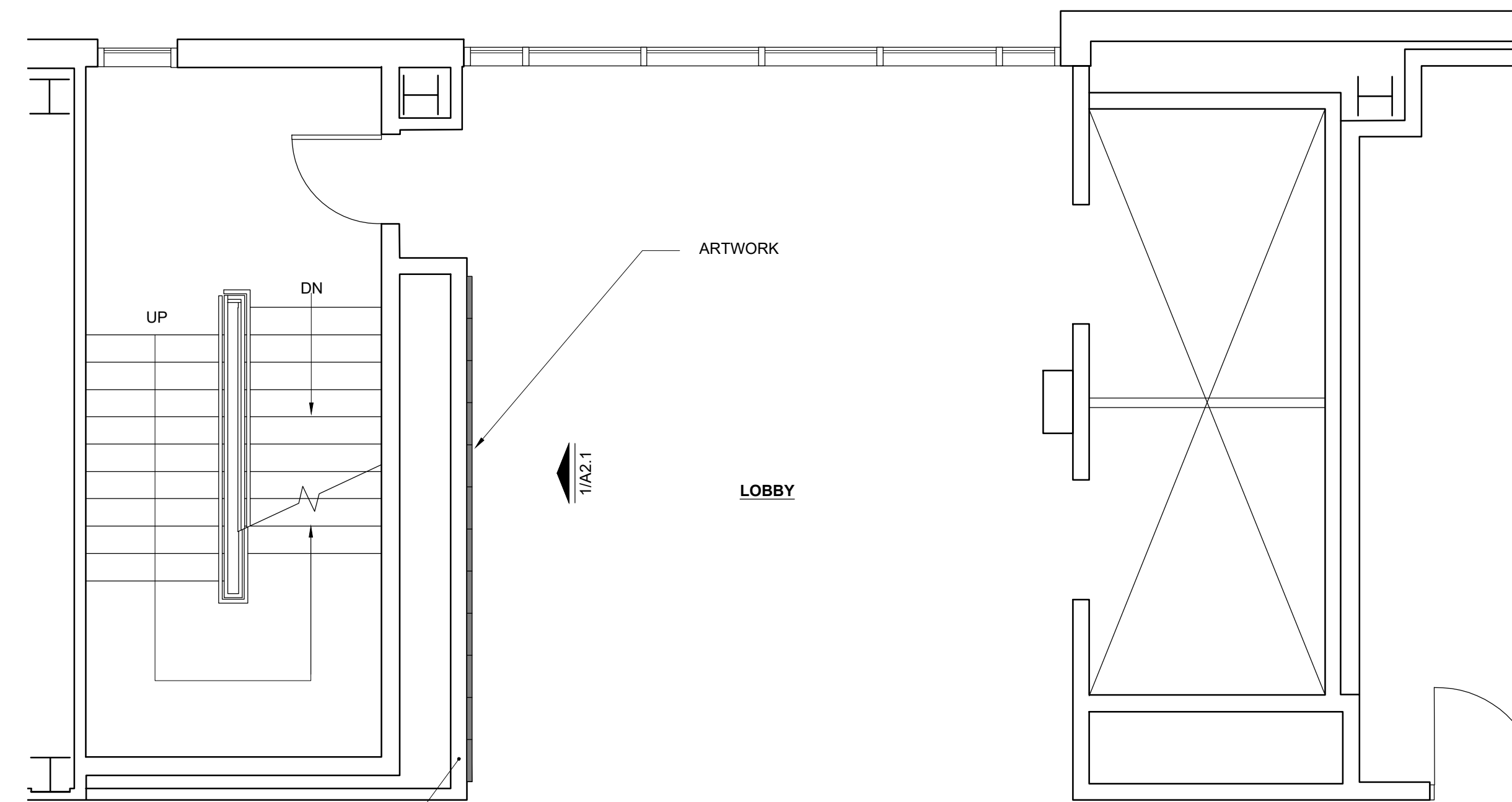
05400 COLD FORMED STEEL FRAMING (C.F.S.)

- COLD FORMED FABRICATION SHALL CONFORM TO AISI SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
- ALL GALVANIZED STUDS AND/OR JOISTS 54, 68 AND 97 MIL SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A446, GRADE D, WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
- ALL GALVANIZED STUDS AND/OR JOISTS 33 AND 43 MIL AND ALL GALVANIZED TRACK, BRIDGING AND ACCESSORIES SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A446, GRADE A, WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI.
- METAL STUD PROPERTIES SHALL BE PER METAL STUD MANUFACTURERS ASSOCIATION STANDARDS.

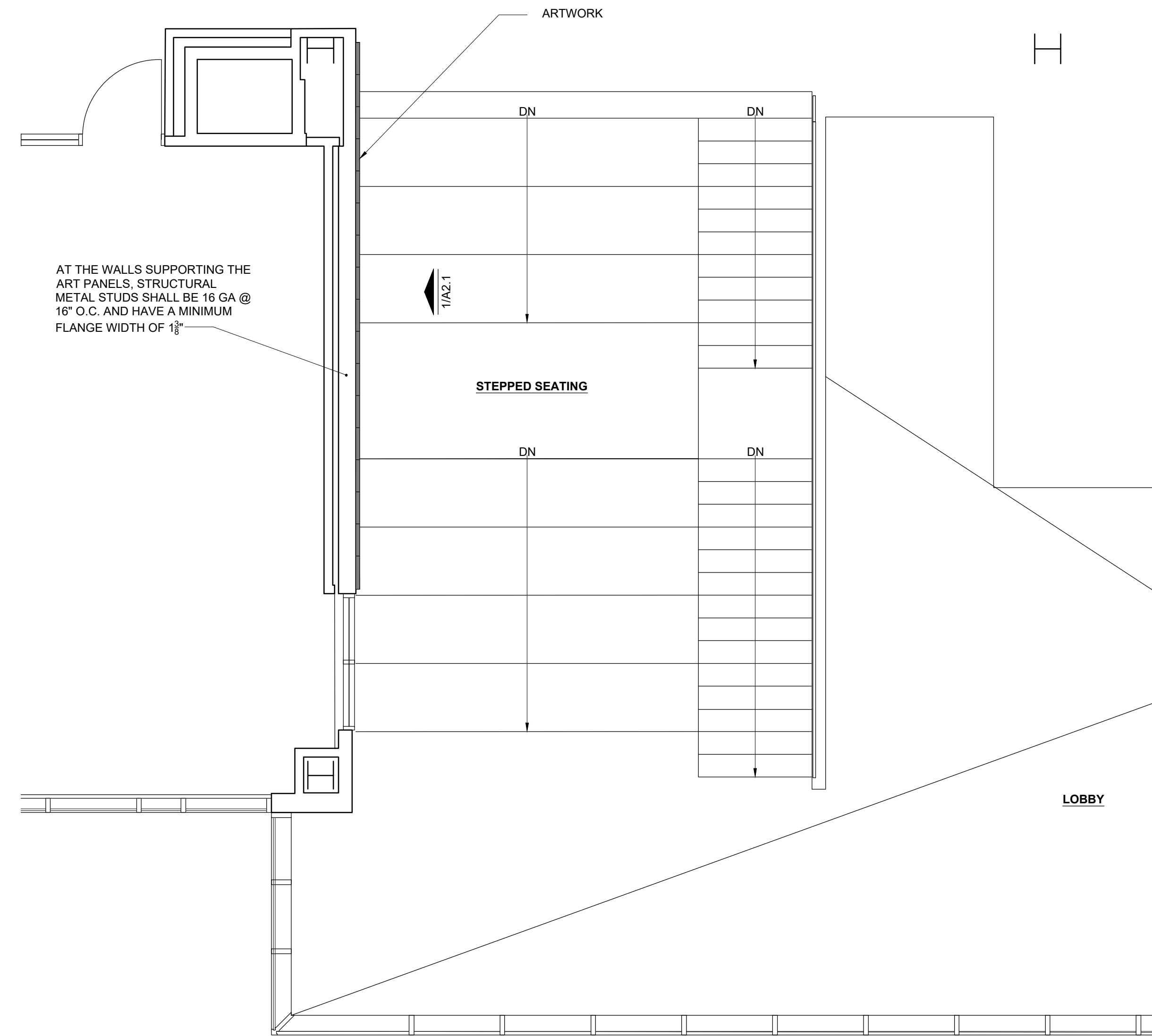
17000 DESIGN CRITERIA

DESIGN PER 2016 CALIFORNIA BUILDING CODE

- DEAD LOADS: VARY BASED ON ACTUAL BUILDING WEIGHTS.
- LIVE LOADS: PARTITION LATERAL LOAD: 5 PSF
- SEISMIC DESIGN: BASE SHEAR $F_p = 1.44 W_p$ (ULTIMATE STRENGTH DESIGN), $R_p = 2.5$, $a_p = 2.5$, $S_{D1} = 1.5$, $S_1 = 0.6$, $S_{D2} = 1.8$, $S_{D3} = 1.5$
- WIND DESIGN: RISK CATEGORY II, DOES NOT APPLY. INTERIOR APPLICATION
 $V_{ULT} = 100$ MPH (3 SECOND GUST)
 $V_{ASD} = 85$ MPH
 EXPOSURE N/A
 $GCFI = +/- 0.18$

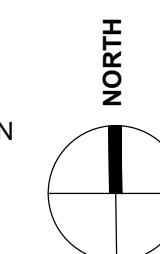


AT THE WALLS SUPPORTING THE ART PANELS, STRUCTURAL METAL STUDS SHALL BE 16 GA @ 16" O.C. AND HAVE A MINIMUM FLANGE WIDTH OF 1 1/2"

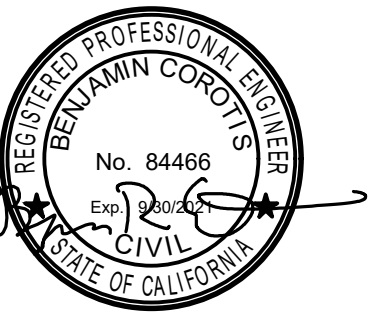


AT THE WALLS SUPPORTING THE ART PANELS, STRUCTURAL METAL STUDS SHALL BE 16 GA @ 16" O.C. AND HAVE A MINIMUM FLANGE WIDTH OF 1 1/2"

1 2ND FLOOR PLAN
1/4" = 1'-0"



ARCHITECT:
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PROJECT ADDRESS:
1550 EVANS AVENUE
SAN FRANCISCO, CA
94124

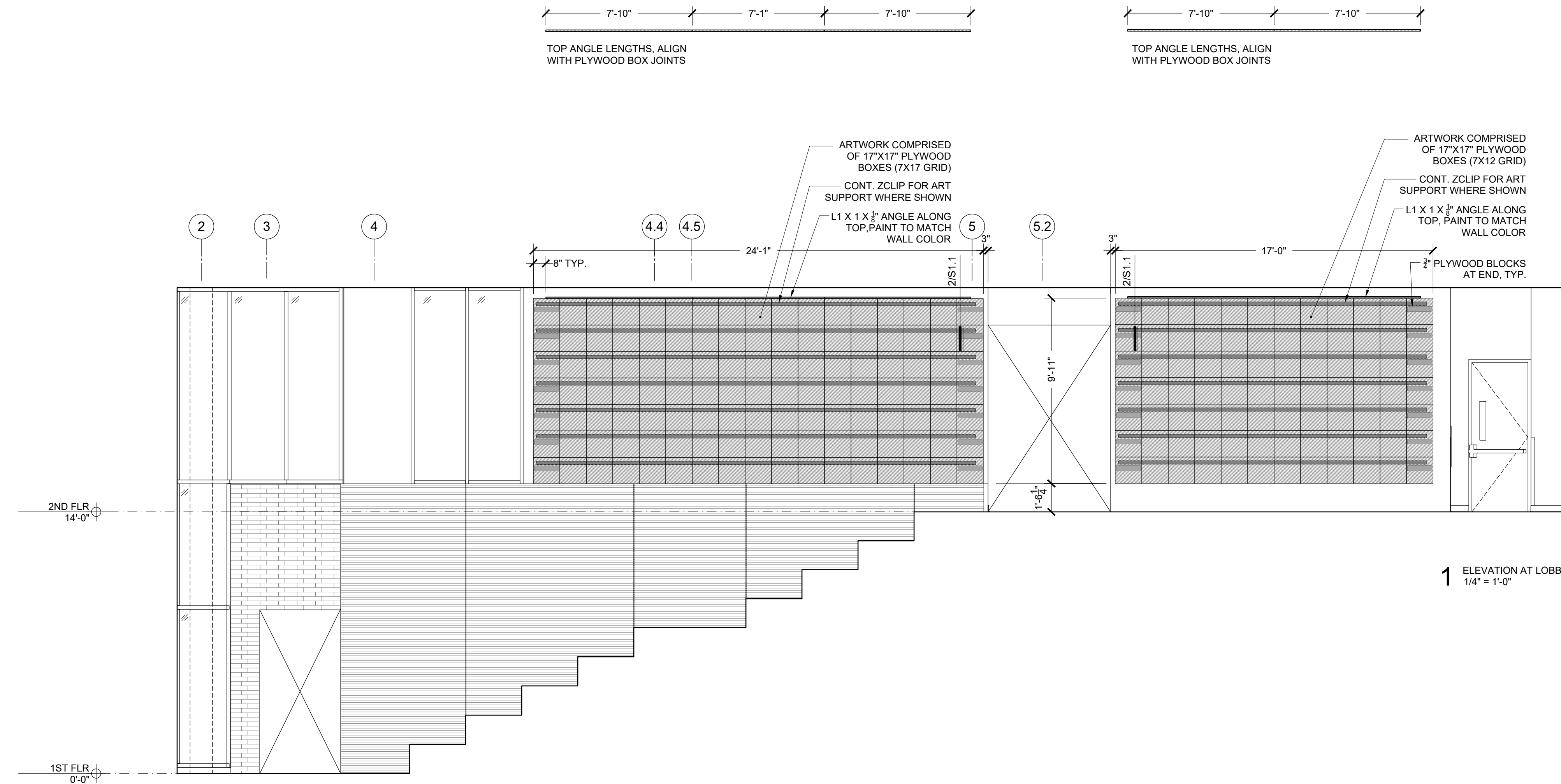
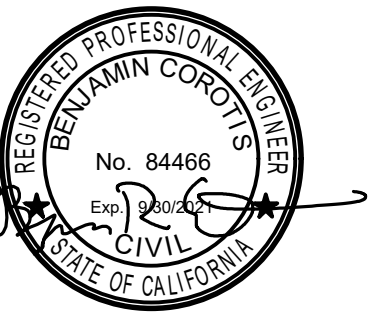
SOUTHEAST
COMMUNITY
CENTER ART

rev.	issue	date
	PERMIT SUBMITTAL	12/11/20

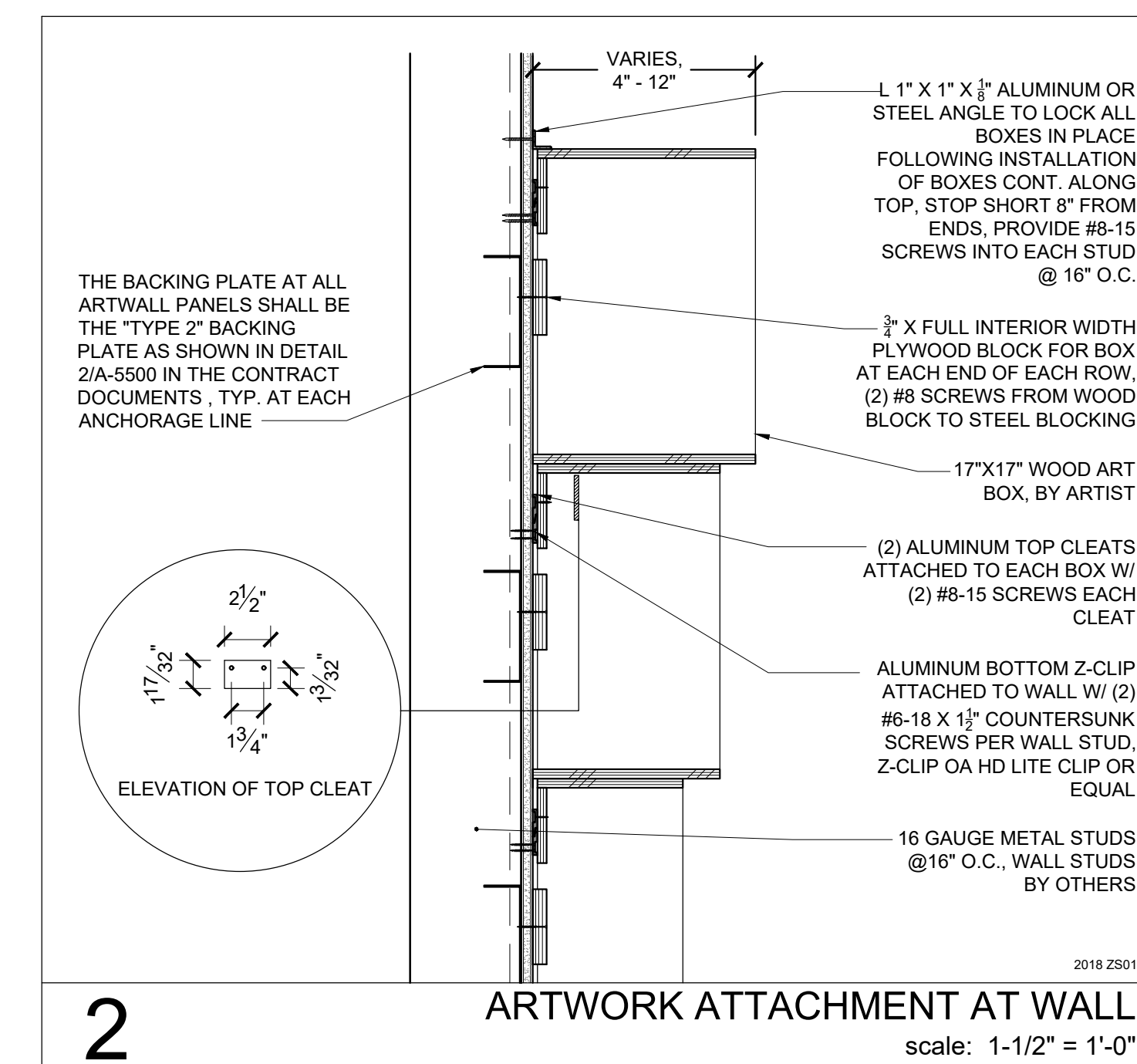
ARTWORK
LOCATION AND
DETAIL

S0.1

sheet



1 ELEVATION AT LOBBY
1/4" = 1'-0"



2 ARTWORK ATTACHMENT AT WALL
scale: 1-1/2" = 1'-0"

OWNERS:
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ARTWORK
LOCATION AND
DETAIL

S1.1

20-18 Phillip Hua Artwork at Southeast Community Center Calculations

1550 Evans Avenue
San Francisco, CA
Permit Submittal
11 December 2020

Loads	1-3
Attachments	4--5



20-18 Hua Artwork Loads

11/16/2020 | 1

Dead Load

(42)	17" x 17" x 12" boxes	12 lbs	= 504 lbs
(41)	17" x 17" x 10" boxes	10.5 lbs	431 lbs
(50)	17" x 17" x 8" boxes	8.75 lbs	438 lbs
(47)	17" x 17" x 6" boxes	6.25 lbs	294 lbs
(23)	17" x 17" x 4" boxes	5.5 lbs	127 lbs
(203)			<u>1794 lbs</u>

$$\text{avg. wt} = \frac{1794 \text{ lbs}}{203} = 8.84 \text{ lbs}$$

$$\text{wt} / \text{ft}^2 = \frac{1794 \text{ lbs}}{119" \times (204" + 229")} = 4.4 \text{ psf}$$

Live Load

5 psf lateral partition load

Wind Load

N/A, artwork is inside building

Seismic Loading

ASCE 7-16, Ch. 13, non-structural components

$$S_{DS} = 1.2 \quad \left. \begin{array}{l} \text{see following page for seismic values} \\ \text{appendages +} \\ \text{ornamentation} \end{array} \right\}$$

$$a_p = 2.5$$

$$R_p = 2.5$$

$$Z = 10'$$

$$h = 10'$$

$$I_p = 1.0$$

$$F_p = \frac{0.4 a_p S_{DS} W_p}{R_p / I_p} \left(1 + 2 \frac{Z}{h}\right) = \frac{0.4 \cdot 2.5 \cdot 1.2 W_p}{2.5 / 1.0} \left(1 + 2 \frac{10}{10}\right) = 1.44 W_p$$

$$\text{Vertical force } \uparrow - 0.2 S_{DS} W_p = 0.2 \cdot 1.2 W_p = 0.24 W_p$$

$$F_p = 1.44 \cdot 4.4 \text{ psf} = \underline{6.4 \text{ psf}} \leftrightarrow > 5.0 \text{ psf} \quad \text{Seismic load governs}$$

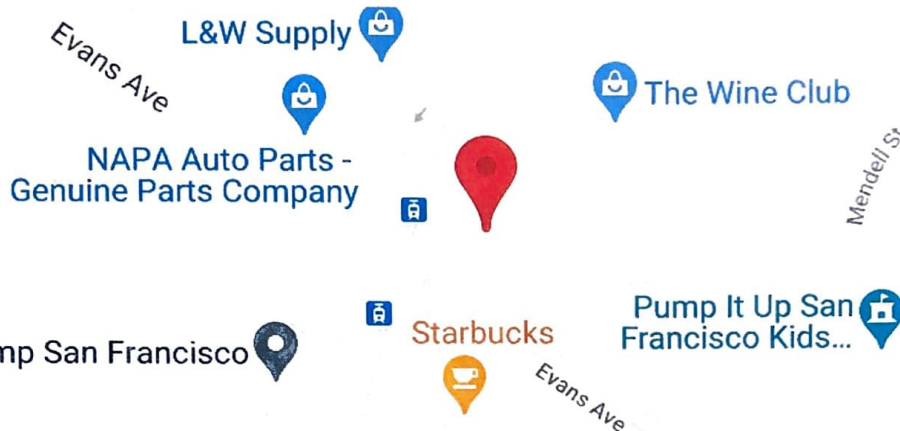
$$\text{Vertical force} = 0.24 \cdot 4.4 \text{ psf} = 1.1 \text{ psf} \quad \updownarrow$$



Hua Artwork

1550 Evans Ave, San Francisco, CA 94124, USA

Latitude, Longitude: 37.7429616, -122.3871248



Google

Map data ©2020

Date	11/16/2020, 11:19:57 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S _S	1.5	MCE _R ground motion. (for 0.2 second period)
S ₁	0.6	MCE _R ground motion. (for 1.0s period)
S _{MS}	1.8	Site-modified spectral acceleration value
S _{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S _{DS}	1.2	Numeric seismic design value at 0.2 second SA
S _{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F _a	1.2	Site amplification factor at 0.2 second
F _v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.571	MCE _G peak ground acceleration
F _{PGA}	1.2	Site amplification factor at PGA
PGA _M	0.685	Site modified peak ground acceleration
T _L	12	Long-period transition period in seconds
SsRT	1.789	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.926	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.705	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.774	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGA _d	0.571	Factored deterministic acceleration value. (Peak Ground Acceleration)
C _{RS}	0.929	Mapped value of the risk coefficient at short periods
C _{R1}	0.91	Mapped value of the risk coefficient at a period of 1 s

20-18 Hua Artwork

Attachments

11/17/2020

4

Check attachment to wall (per 17"x17" box)

DL Max. box wt/size = 17" x 17" x 12" = 12 lbs

EL 0.24 · 12 lbs = 2.9 lbs ↓

1.44 · 12 lbs = 17.3 lbs ↔

ASD load combos

LC 8 1.0 DL + 0.7 E_v + 0.7 E_h = 1.0 · 12 lbs + 0.7 · 2.9 + 0.7 · 17.3 lbs
 = 14 lbs ↓ + 12.1 lbs ↔

LC 10 0.6 DL - 0.7 E_v + 0.7 E_h = 0.6 · 12 lbs - 0.7 · 2.9 + 0.7 · 17.3 lbs
 = 5.2 lbs ↓ + 12.1 lbs ↔

Check screws #8-15 screws (0.164" diam., 5/16" head)

P_{all} = 72 lbs $\frac{14}{164} + \frac{12}{72} = 0.25 \leq 1.0$ O.K.
 V_{all} = 164 lbs

Allowable Screw Connection Capacity (Pounds per screw)

Thickness (Mils)	F _y (KSI)	F _u (KSI)	#6 screw (0.138" dia; 5/16" head)		#8 screw (0.164" dia; 5/16" head)		#10 screw (0.190" dia; 0.340" head)		#12 screw (0.216" dia; 0.340" head)		1/4" screw (0.250" dia; 0.409" head)	
			Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension
18	33	33	44	24	48	29	52	33	55	38	60	44
27	33	33	82	37	89	43	96	50	102	57	110	66
30	33	33	95	40	103	48	111	55	118	63	127	73
33	33	45	151	61	164	72	177	84	188	95	203	110
43	33	45	214 ⁷	79	244	94	263	109	280	124	302	144
54	33	45	214 ⁷	84 ⁷	303 ⁷	118 ⁷	370	137	394	156	424	180
68	33	45	214 ⁷	84 ⁷	303 ⁷	118 ⁷	406 ⁷	159 ⁷	525 ⁷	196	600	227
97	33	45	214 ⁷	84 ⁷	303 ⁷	118 ⁷	406 ⁷	159 ⁷	525 ⁷	205 ⁷	704 ⁷	275 ⁷
118	33	45	214 ⁷	84 ⁷	303 ⁷	118 ⁷	406 ⁷	159 ⁷	525 ⁷	205 ⁷	704 ⁷	275 ⁷
54	50	65	214 ⁷	84 ⁷	303 ⁷	118 ⁷	406 ⁷	159 ⁷	525 ⁷	205 ⁷	613	261
68	50	65	214 ⁷	84 ⁷	303 ⁷	118 ⁷	406 ⁷	159 ⁷	525 ⁷	205 ⁷	704 ⁷	275 ⁷
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Check seismic horizontal load parallel to wall:

Support at wall ends only. $\frac{17 \text{ boxes}}{2} \cdot 1.44 \cdot 12 \text{ lbs} = 147 \text{ lbs}$

(2) #8 screws = (2) $\cdot 164 \text{ lbs} = 328 \text{ lbs} > 147 \text{ lbs}$ O.K.