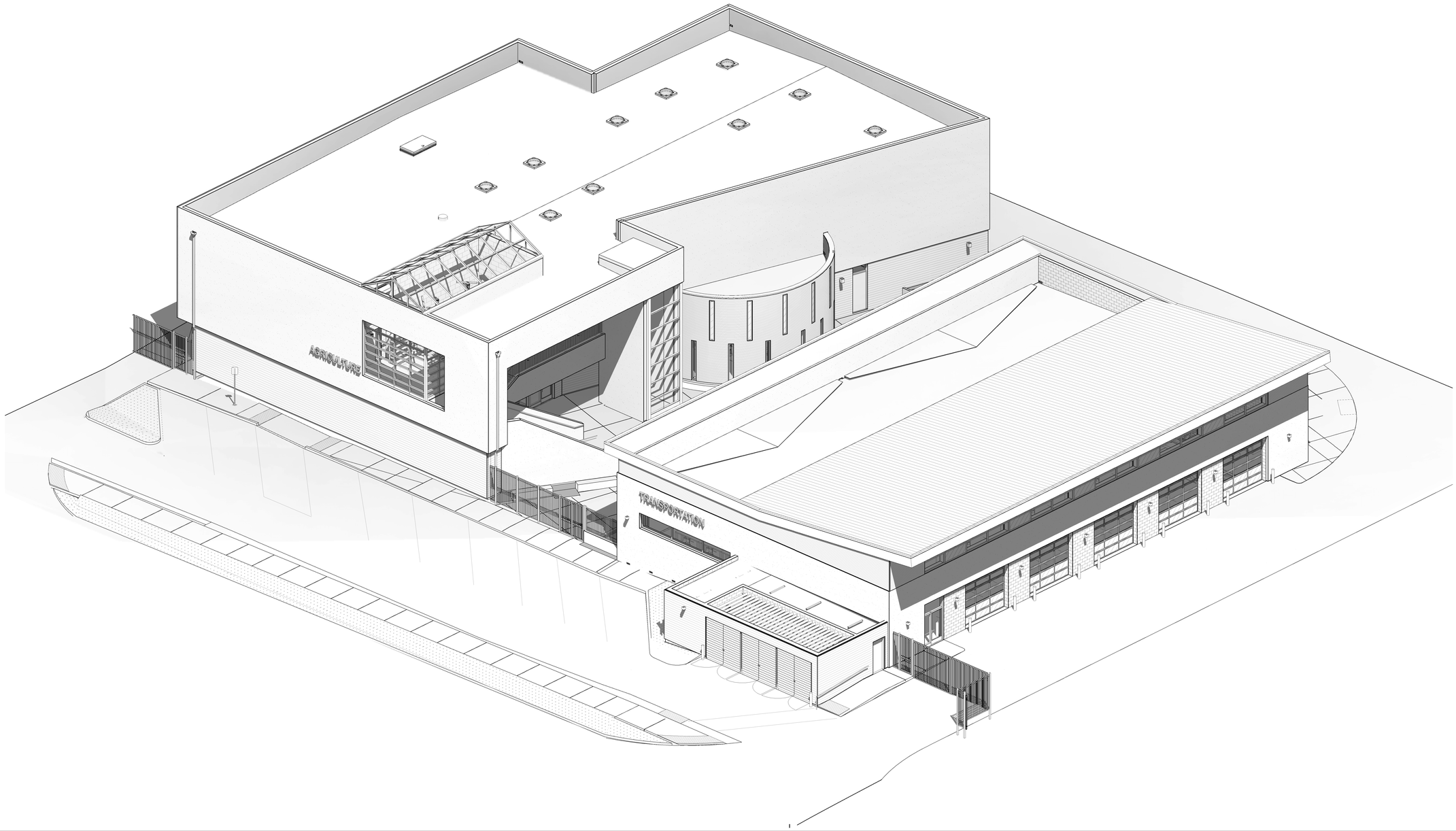
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 6/24/19

FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS

FILLMORE UNIFIED SCHOOL DISTRICT

555 Central Ave. Fillmore, CA. 93015



WESTGROUP DESIGNS
ARCHITECTURE | PLANNING | INTERIOR DESIGN
19520 Jamboree Rd. | Suite 100 | Irvine California 92612
949.250.0880 | fax 949.250.0882 | westgroupdesigns.com

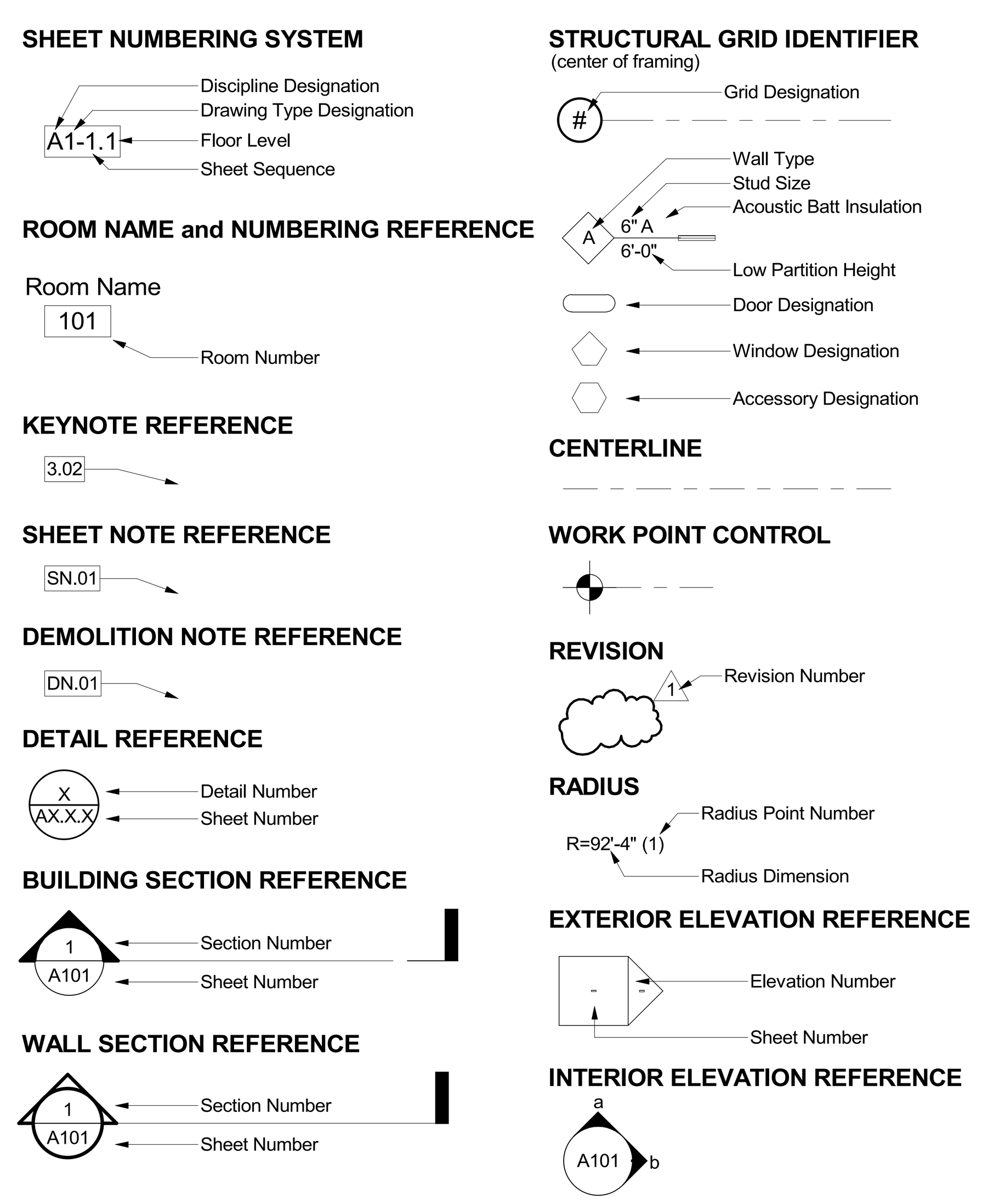
SHEET TITLE:
COVER SHEET

SHEET NUMBER:
CS-0.1

ISSUANCE: **DSA SUBMITTAL**

WD PROJ. # 18413 DSA A# 03-119532

SYMBOL LEGEND:



ABBREVIATIONS:

&	And
∠	Angle
@	At
℄	Centerline
°	Degree
PERP./⊥	Perpendicular
ℙ	Property Line
A.F.F.	Above Finish Floor
ACOUS.	Acoustical
ACT	Acoustical Ceiling Tile
ADJ.	Adjustable
AGGR.	Aggregate
A.B.	Aggregate Base
ALUM./AL.	Aluminum
ARCH.	Architectural
A.D.	Area Drain
A.C.	Asphalt Concrete
A.V.	Audio Visual
AUTO.	Automatic
BM.	Beam
BLK.	Block
BLKG.	Blocking
BD.	Board
BOT.	Bottom
BLDG.	Building
CAB.	Cabinet
CATV	Cable T.V.
C.I.	Cast Iron
C.B.	Catch Basin
CLKG.	Caulking
CLG.	Ceiling
CEM.	Cement
CNTR./CTR.	Center
CER.	Ceramic
C.L.	Chain Link
CB.	Chalkboard
C.R.	Classroom
CLR.	Clear
C.W.	Cold Water
COL.	Column
COMP.	Composite
CONC.	Concrete
C.M.U.	Concrete Masonry Unit
CONN.	Connection
CONST.	Construction
C.J.	Construction Joint/ Control Joint
CONT.	Continuous
CONTR.	Contractor
CORR.	Corridor
C.M.P.	Corrugated Metal Pipe
C.Y.	Cubic Yard
CUST.	Custodian
D.	Deep/Depth
DET./DTL.	Detail
DIAG.	Diagonal
DIA./Ø	Diameter
DIM.	Dimension
DIM.PT.	Dimension Point
D.A.	Disabled Accessible
DW.	Dishwasher
DR.	Door
DBL.	Double
DN.	Down
DS.	Downspout
D.I.	Drain Inlet
DWG.	Drawing
D.F.	Drinking Fountain
EA.	Each
E.	East
ELEC.	Electrical
E.W.C.	Electric Water Cooler
E.W.H.	Electric Water Heater
EL./ELEV.	Elevation
EMER.	Emergency
ENCL.	Enclosure
EQ.	Equal
EQUIP.	Equipment
E.F.	Exhaust Fan
(E)/EXST.	Existing
EXP.	Expansion
E.J.	Expansion Joint
EXT.	Exterior
F.O.C.	Face of Concrete/Curb
F.O.F.	Face of Finish
F.O.S.	Face of Studs
FB.	Fiberboard

F.R.P.	Fiberglass Reinforced Panel
F.V.	Field Verify
FIN.	Finish
F.F.E.	Finish Floor Elevation
F.G.	Finish Grade
F.A.	Fire Alarm
F.E.	Fire Extinguisher
F.E.C.	Fire Extinguisher Cabinet
FLASH.	Flashing
F.H.M.B.	Flat Head Machine Bolt
F.H.M.S.	Flat Head Machine Screw
F.H.W.S.	Flat Head Wood Screw
FL./FLR.	Floor
F.D.	Floor Drain
FT.	Foot/Feet
FTG.	Footing
FND.	Foundation
FURR.	Furring
GALV.	Galvanized
G.I.	Galvanized Iron
G.S.M.	Galvanized Sheet Metal
G.W.H.	Gas Water Heater
GA.	Gauge
GLU.LAM./G.L.B.	Glue Laminated (Beam)
G.B.	Grab Bar
GR.	Grade
GND.	Ground
GYP.	Gypsum
GYP.BD.	Gypsum Wallboard
HW.	Hardware
HDWD.	Hardwood
HDR.	Header
HVAC	Heating/Ventilating Air Conditioning
H./HT.	Height
H.M.	Hollow Metal
HOR./HORIZ.	Horizontal
H.B.	Hose Bib
HR.	Hour (Fire Rating)
IN.	Inch
INFO.	Information
I.D.	Inside Diameter
INSUL.	Insulation
INT.	Interior
INV.	Invert
JAN.	Janitor
JT.	Joint
JST.	Joist
KP.	Kickplate
KIT.	Kitchen
LAM.	Laminate
LAV.	Lavatory
LT.WT.	Light Weight
L.F.	Lineal Feet
M.B.	Machine Bolt
MH.	Manhole
MFR.	Manufacturer
M.O.	Masonry Opening
MAT'L.	Material
MAX.	Maximum
MECH.	Mechanical
MEMB.	Membrane
MTL.	Metal
MEZZ.	Mezzanine
MIN.	Minimum
MISC.	Miscellaneous
MTD.	Mounted
M.P.	Multipurpose
(N)	New
NOM.	Nominal
N.	North
N.I.C.	Not in Contract
N.T.S.	Not to Scale
NO./ #	Number
O.C.	On Center
OPP. HAND	Opposite Hand
O.H.	Opposite Hand
O.D.	Outside Diameter
O.H.W.S.	Oval Head Wood Screw
O/	Over
OA.	Overall

PT.	Paint
PR.	Pair
PTN./PART.	Partition
PEN.	Penetration
PERF.	Perforated
P.LAM.	Plastic Laminate
PL.	Plate
P.V.	Plumbing Vent
PLYWD.	Plywood
LBS./#	Pound
PRE-FAB.	Prefabricated
P.M.F.	Pressed Metal Frame
P.T./P.T.D.F.	Pressure Treated Douglas Fir
R.	Radius/Riser
R.W.L.	Rain Water Leader
RDWD.	Redwood
REF.	Reference
REFRIG.	Refrigerator
REINF.	Reinforced
REQ'D.	Required
RET.	Return
R.D.	Roof Drain
RM.	Room
R.O.	Rough Opening
R.H.W.S.	Round Head Wood Screw
R.B.	Rubber Base
SECT.	Section
S.SK.	Service Sink
SHTG.	Sheathing
SHT.	Sheet
S.M.	Sheet Metal
S.M.S.	Sheet Metal Screw
S.V.	Sheet Vinyl
SHR./SHWR.	Shower
SIM.	Similar
S.C.	Solid Core
S.	South
SPEC.	Specification
SQ.	Square
SST./S.S.	Stainless Steel
STD./STND.	Standard
STL.	Steel
STOR.	Storage
S.D.	Storm Drain
ST.	Street
STRUCT.	Structural
SUSP.	Suspended
SYM.	Symbol
TB.	Tackboard
TEL./TELE.	Telephone
T.V.	Television
T.CLR.	Tempered Clear
T.L.T.	Tempered Low Transmission
THK.	Thick
THRES.	Threshold
THRU.	Through
T./TLT.	Toilet
T&G	Tongue & Groove
T.O.	Top of
T.O.C.	Top of Curb
T.O.P.	Top of Pavement
T.O.W.	Top of Wall/Top of Walk
T.S.	Tube Steel
TYP.	Typical
U.N.O.	Unless Noted Otherwise
U.O.N.	Unless Otherwise Noted
VERT.	Vertical
V.G.D.F.	Vertical Grain Douglas Fir
V.C.T.	Vinyl Composition Tile
V.W.C.	Vinyl Wall Covering
VIF	Verify In Field
WSCT.	Wainscot
W.C.	Water Closet
W.H.	Water Heater
WT.	Weight
W.W.M.	Welded Wire Mesh
W.	West/Width
WDW.	Window
W.G.	Wire Glass
W/	With
W/O	Without
WD.	Wood
YD.	Yard
Y.D.	Yard Drain

GENERAL NOTES:

1. SEE INDIVIDUAL SHEETS FOR LEGEND DESCRIPTIONS AND SHEET NOTES.
2. REFERENCE TO MAKES, BRANDS, AND MODEL IS TO ESTABLISH TYPE AND QUALITY DESIRED. WHERE "OR EQUAL" IS STATED, THE ARCHITECT SHALL DETERMINE ACCEPTABILITY.
3. ALL MATERIALS, METHODS OF INSTALLATION AND FINISHING OF CONSTRUCTION SYSTEMS (PARTITIONS, CEILING, DOORS, FRAMES, FLOORS, ETC.) SHALL CONFORM TO THE MANUFACTURERS SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR THE EXPECTED USE.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. SHOULD A DISCREPANCY APPEAR IN THE CONTRACT DOCUMENTS, OR BETWEEN THE CONTRACT DOCUMENTS, NOTIFY THE ARCHITECT AT ONCE FOR INSTRUCTION ON HOW TO PROCEED.
5. SHOULD A CONFLICT OCCUR IN OR BETWEEN DRAWINGS AND SPECIFICATIONS, THE ARCHITECT SHALL BE ASKED FOR CLARIFICATION. IF A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS IS BROUGHT TO THE ATTENTION OF THE ARCHITECT AFTER AWARD OF BID, NO ADDITIONAL COST TO THE PROJECT SHALL BE INCURRED FOR CLARIFYING TO PROCEED PER THE DRAWINGS OR SPECIFICATIONS.
6. DIMENSIONS:
   a. DO NOT SCALE DRAWINGS.
   b. ALL DIMENSIONS ARE TO THE FACE OF STUD, OR FACE OF CONCRETE, OR CENTERLINE OF COLUMN UNLESS NOTED OTHERWISE.
   c. CEILING HEIGHT DIMENSIONS ARE FROM FINISH FLOOR SLAB TO FACE OF FINISH OF CEILING MATERIAL UNLESS NOTED OTHERWISE.
   d. LARGE SCALE DRAWINGS SHALL GOVERN OVER SMALLER SCALE DRAWINGS.
   e. FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE, UNLESS NOTED OTHERWISE.
7. CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT PADS AND BASES AS WELL AS POWER AND WATER OR DRAIN INSTALLATIONS WITH EQUIPMENT MANUFACTURERS BEFORE PROCEEDING WITH THE WORK. CHANGES TO ACCOMODATE FIELD CONDITIONS OR SUBSTITUTIONS SHALL BE MADE WITHOUT ADDITIONAL CHARGES TO OWNER.
8. PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING AND SEALANT AS REQUIRED FOR PROPER INSTALLATION OF THE WORK.
9. WHERE LARGER STUDS OR FURRING ARE REQUIRED TO COVER PIPING AND CONDUITS, THE LARGER STUD SIZE OR FURRING SHALL EXTEND THE FULL SURFACE OF THE WALL WIDTH AND LENGTH WHERE THE FURRING OCCURS.
10. PROVIDE ALL ACCESS PANELS AS REQUIRED BY GOVERNING CODES TO ALL CONCEALED SPACES, VOIDS, ATTICS, ETC. VERIFY TYPE AND LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
11. PRIOR TO INSTALLATION, FIRE AUTHORITY HAVING JURISDICTION SHALL BE CALLED TO FIELD VERIFY LOCATIONS AND TYPES OF FIRE EXTINGUISHERS AND KNOX BOXES.
12. ALL WORK SHALL CONFORM TO 2016 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR). CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGED DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
13. A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR.
14. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
15. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
16. FABRICATION AND INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR□S DRAWINGS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE DSA. LIST DEFERRED SUBMITTAL ITEMS FOR THIS PROJECT.

PROJECT DESCRIPTION:

1. NEW ONE-STORY AUTO SHOP TECHNOLOGY BUILDING W/ (6) SERVICE BAYS, ENGINE LAB/CLASSROOM & RESTROOMS.
2. NEW TWO-STORY AGRICULTURAL SCIENCE/MECHANICS BUILDING W/ (3) CLASSROOMS & SHOP.
3. NEW LANDSCAPING & HARDSCAPE TO BLEND NEW CONSTRUCTION W/ EXISTING CAMPUS.
4. INCLUDE AFS SYSTEM & FULLY AUTOMATIC FIRE ALARM W/VOICE EVACS

DEFERRED SUBMITTALS:

1. ELEVATOR GUIDE RAILS AND SUPPORT BRACKETS
2. WINDOW WALL SYSTEMS/STOREFRONT WITH SPANS GREATER THAT 10 FEET
3. SLOPED GLAZING
4. TRANSLUCENT POLYCARBONATE WALL SYSTEMS

PROJECT DIRECTORY:

Architect:

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(949) 250-0880

Contact: Shazad Ghanbari - shazadg@westgroupdesigns.com

Owner:

Fillmore Unified School District
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(805) 524-6000

Contact: Dr. Adrian Palazuelos - apalazuelos@fillmoreusd.org

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rhallum@ninyoandmoore.com
(949) 753-7070

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Structural Engineers
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jrandall@knastructural.com
(949) 462-3200

RLA Landscape Architects
Landscape Architects
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Irvine, CA. 92618
jim@ridgela.com
(949) 387-1323

ENVELOPE MANDATORY MEASURES

- ☒ INSTALLED INSULATING MATERIAL SHALL HAVE BEEN CERTIFIED BY THE MANUFACTURE TO COMPLY WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL, TITLE 20, CHAPTER 24, ARTICLE 3.
- ☒ ALL INSULATING MATERIALS SHALL BE INSTALLED IN COMPLIANCE WITH THE FLAME SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF SECTIONS 2602 AND 707 OF TITLE 24, PART 2.
- ☒ DEMISING WALL IN NONRESIDENTIAL BUILDINGS: THE OPAQUE PORTION OF FRAMED DEMISING WALLS IN NONRESIDENTIAL BUILDINGS SHALL HAVE INSULATION WITH AN INSTALLED R-VALUE OF NO LESS THAT R-13 BETWEEN FRAMING MEMBERS.
- ☒ ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDINGS THAT ARE OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHERSTRIPPED OR OTHERWISE SEALED.
- ☒ MANUFACTURED DOORS AND WINDOWS INSTALLED SHALL HAVE AIR INFILTRATION RATES NOT EXCEEDING THOSE SHOWN IN TABLE NUMBER 1-E OF THE STANDARDS. MANUFACTURED FENESTRATION PRODUCTS MUST BE LABELED FOR U-VALUE ACCORDING TO NFRC PROCEDURES.
- ☒ FENESTRATION U-FACTOR SHALL BE RATED IN ACCORDANCE WITH NFRC 200, OR NFRC 100 FOR SITE-BUILT FENESTRATION, OR THE APPLICABLE DEFAULT SHGC.
- ☒ FENESTRATION SHGC SHALL BE RATED IN ACCORDANCE WITH NFRC 200, OR NFRC 100 FOR SITE-BUILT FENESTRATION, OR THE APPLICABLE DEFAULT SHGC.
- ☒ SITE CONSTRUCTED DOORS, WINDOWS AND SKYLIGHTS SHALL BE CAULKED BETWEEN THE UNIT AND THE BUILDING, AND SHALL BE WEATHERSTRIPPED (EXCEPT FOR UNFRAMED GLASS DOORS AND FIRE DOORS)

ASBESTOS STATEMENT

DISTRICT NOTES

THE CONTRACTOR SHALL CERTIFY PURSUANT TO 40 CODE OF FEDERAL REGULATIONS sec. 763.99(a)(7), THAT NO ASBESTOS-CONTAINING MATERIAL WAS SPECIFIED AS A BUILDING MATERIAL IN ANY CONSTRUCTION DOCUMENT FOR THE PROJECT AND WILL ENSURE THE DISTRICT WITH CERTIFICATION THAT ALL MATERIALS USED IN THE CONSTRUCTION ARE FREE FROM ANY ASBESTOS-CONTAINING BUILDING MATERIALS ("ACBM's"). THIS CERTIFICATION SHALL BE PART OF THE FINAL PROJECT SUBMITTAL.

APPLICABLE CODES:

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS INCLUDING THE FOLLOWING:

CALIFORNIA BUILDING CODE	2016
CALIFORNIA GREEN BUILDING STANDARDS CODE	2016
CALIFORNIA MECHANICAL CODE	2016
CALIFORNIA ELECTRICAL CODE	2016
CALIFIORNIA PLUMBING CODE	2016
CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS	2016

2016 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2015 INTERNATIONAL BUILDING CODE VOLUMES 1-2 AND 2016 CA AMENDMENTS)
2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2014 NATIONAL ELECTRICAL CODE AND 2013 CA AMENDMENTS)
2016 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2015 NATIONAL ELECTRICAL CODE AND 2013 CA AMENDMENTS)
2016 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2015 UNIFORM MECHANICAL CODE AND 2013 CA AMENDMENTS)
2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2015 UNIFORM PLUMBING CODE AND 2013 CA AMENDMENTS)
2016 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2015 INTERNATIONAL FIRE CODE AND 2013 CA AMENDMENTS)
2016 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.
2016 CALIFORNIA REFERENCD STANDARDS, PART 12, TITLE 24 C.C.R.
TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
2013 ASME A17.1(W/A17.1A/CSA B44A-08 ADDENDA) SAFETY CODE FOR ELEVATORS AND ESCALATORS

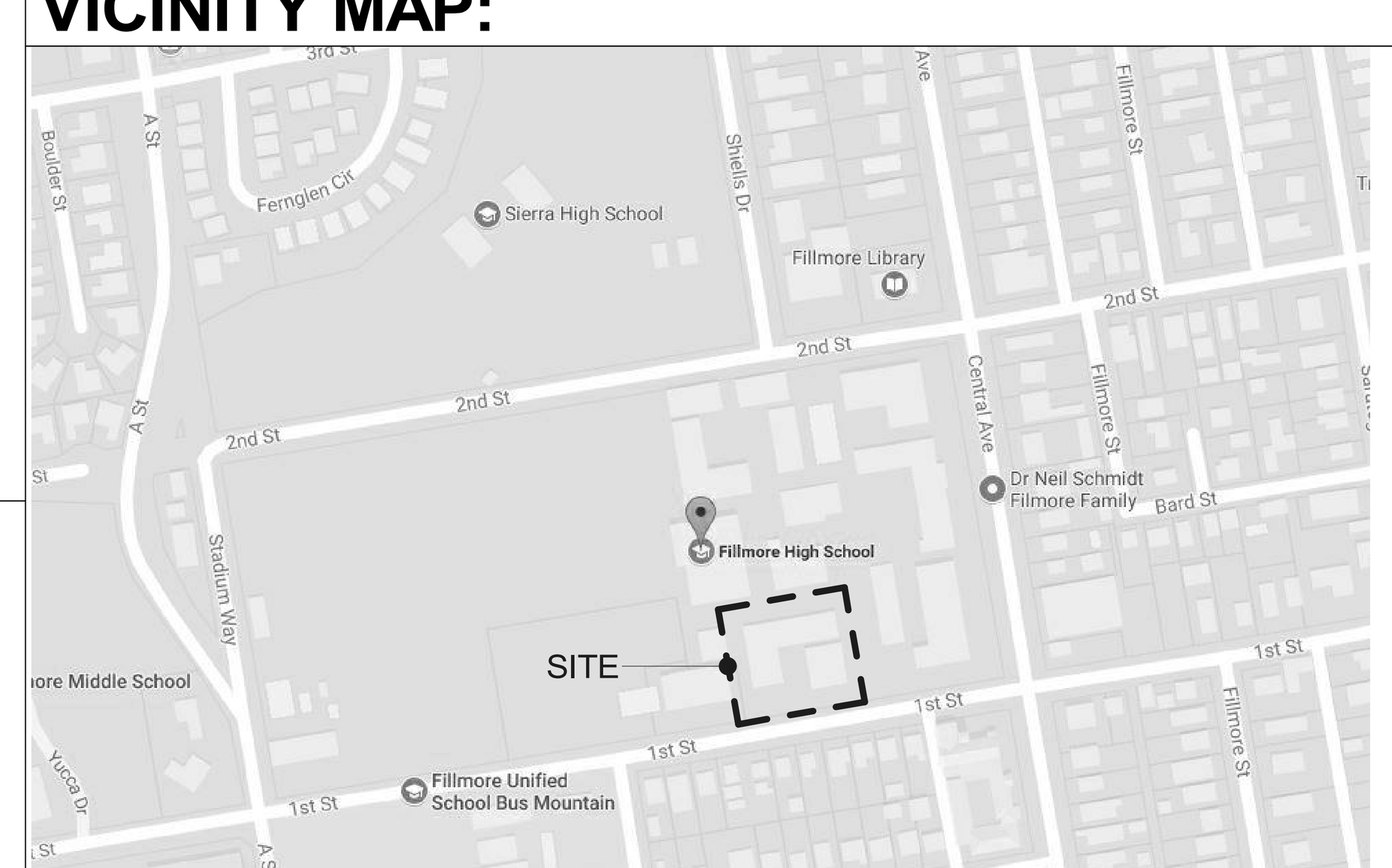
CALIFORNIA ADMINISTRATIVE CODE, PART 1, CHAPTER 10, ADMINISTRATIVE REGULATIONS FOR THE CALIFORNIA ENERGY COMMISSION (CEC).

APPLICABLE STANDARDS:

NFPA 13	AUTOMATIC SPRINKLER SYSTEMS	2016 EDITION
NFPA 14	STANDPIPE SYSTEMS	2013 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 17a	WET CHEMICAL SYSTEMS	2013 EDITION
NFPA 20	STATIONARY PUMPS	2016 EDITION
NFPA 22	WATER TANKS FOR PRIVATE FIRE PROTECTION	2013 EDITION
NFPA 24	PRIVATE FIRE MAINS	2016 EDITION
NFPA 35	STANDARD FOR INSPECTION, TESTING, AND MAINTENANCE OF WATER-BASE FIRE PROTECTION SYSTEMS	2017 EDITION
NFPA 72	NATIONAL FIRE ALARM CODE	2016 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2015 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2015 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
ICC 300	ICC STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRAND STANDS	2015 EDITION
UL 300	FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF RESTAURANT COOKING AREAS	2005 EDITION
UL 464	AUDIBLE SIGNAL APPLIANCES	2003 EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS - 2016 CBC (SFM) CHAPTER 35. SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.
*CALIFORNIA ADMINISTATIVE CODE, PART 1, CHAPTER 10, ADMINISTRATION REGULATIONS FOR THE CALIFORNIA ENERGY COMMISSION (CEC).

VICINITY MAP:



Project Information:

TRANSPORTATION TECH (SDSR) BLDG:

TYPE OF CONSTRUCTION = VB
SPRINKLERED = YES
OCCUPANCY TYPE = E
PROJECT SF = 8,796 SF

AGRICULTURAL SCIENCES BLDG:

TYPE OF CONSTRUCTION = VB
SPRINKLERED = YES
OCCUPANCY TYPE = E
PROJECT SF = 13,809 SF

SITE LOCATION:

555 Central Ave, Fillmore, CA 93015

USE OF CONSTRUCTION DOCUMENTS PREPARED BY OTHER PROFESSIONALS

IR A-18_TITLE 24, PART 1, SECTION 4-316,4-317

Application No. **03 - 119532** File No. **56-H1**

All Civil, Structural, Mechanical, Electrical, Plumbing, Telecom, Fire Alarm, Fire Sprinklers and Pool drawings as listed in the sheet index above have been prepared by other design professionals or consultants who are licensed and / or authorized to prepare such drawings in this State. They have been examined by me for: 1) design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications, and 2) coordination with my plans and specifications and are acceptable for incorporation into the construction of this project.

The Statement of General Conformance "shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344" of Title 24, Part 1.(Title 24,Part 1, Section 4-317 (b))

I certify that these drawings and /or page:

- ☑ are in general conformance and
- ☑ have been coordinated

Signature: [signature] Date: 12.21.18

Architect designated to be in general responsible charge

DAVID JORDAN SMITH
Print Name

C-20495 — License Number
01.31.21 — Expiration Date

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IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
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19520 Jamboree Road | Suite 100
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FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS

FILLMORE UNIFIED SCHOOL DISTRICT

555 Central Ave. Fillmore, CA. 93015

ISSUED FOR:

SCHEMATIC DESIGN	11/16/2017
DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
DAVID JORDAN SMITH
C20495
EXP. 01/21
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

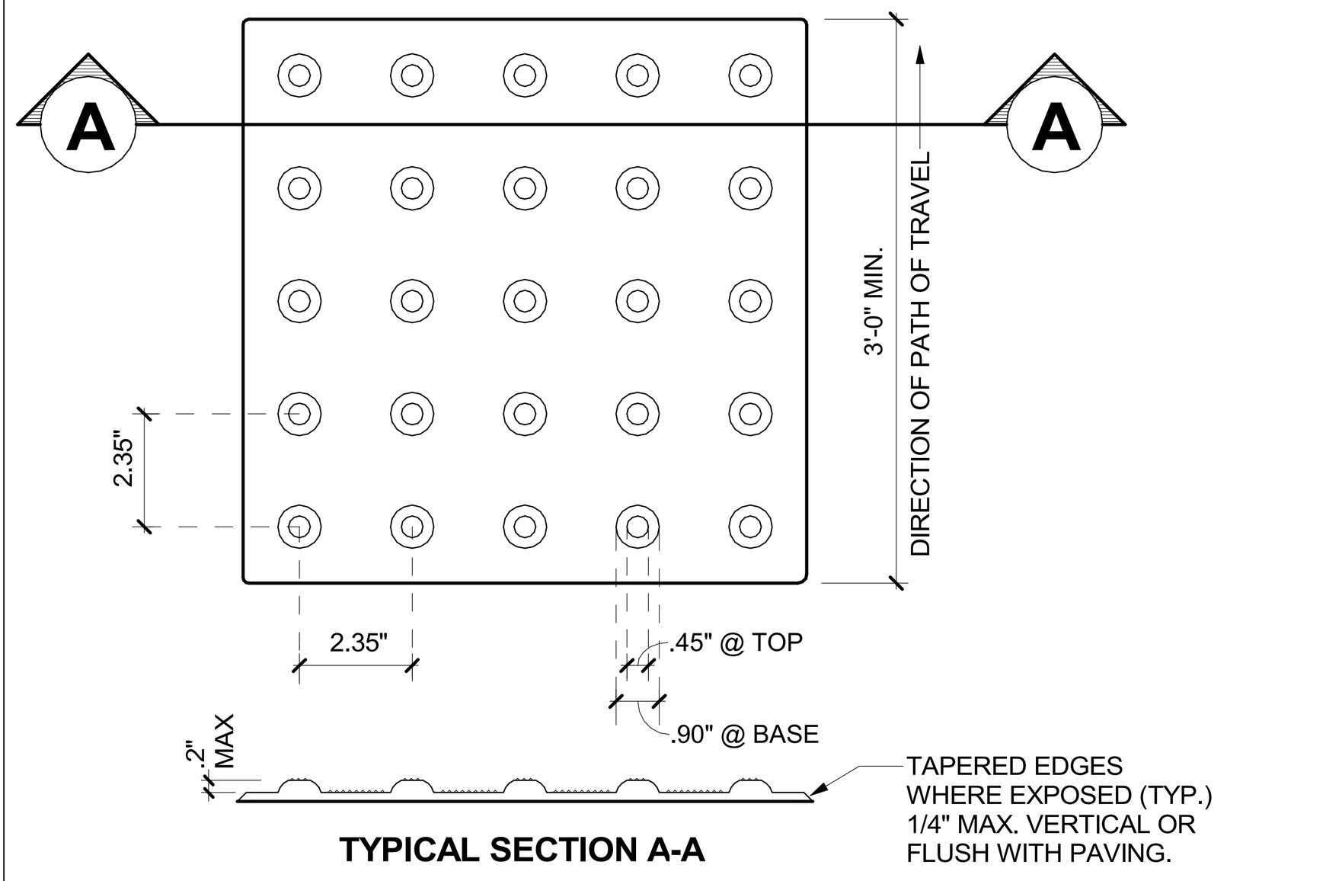
GENERAL INFORMATION

SHEET NUMBER:

G0-0.1

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	WD	Checker	05/08/19

DSA A# 03-119532



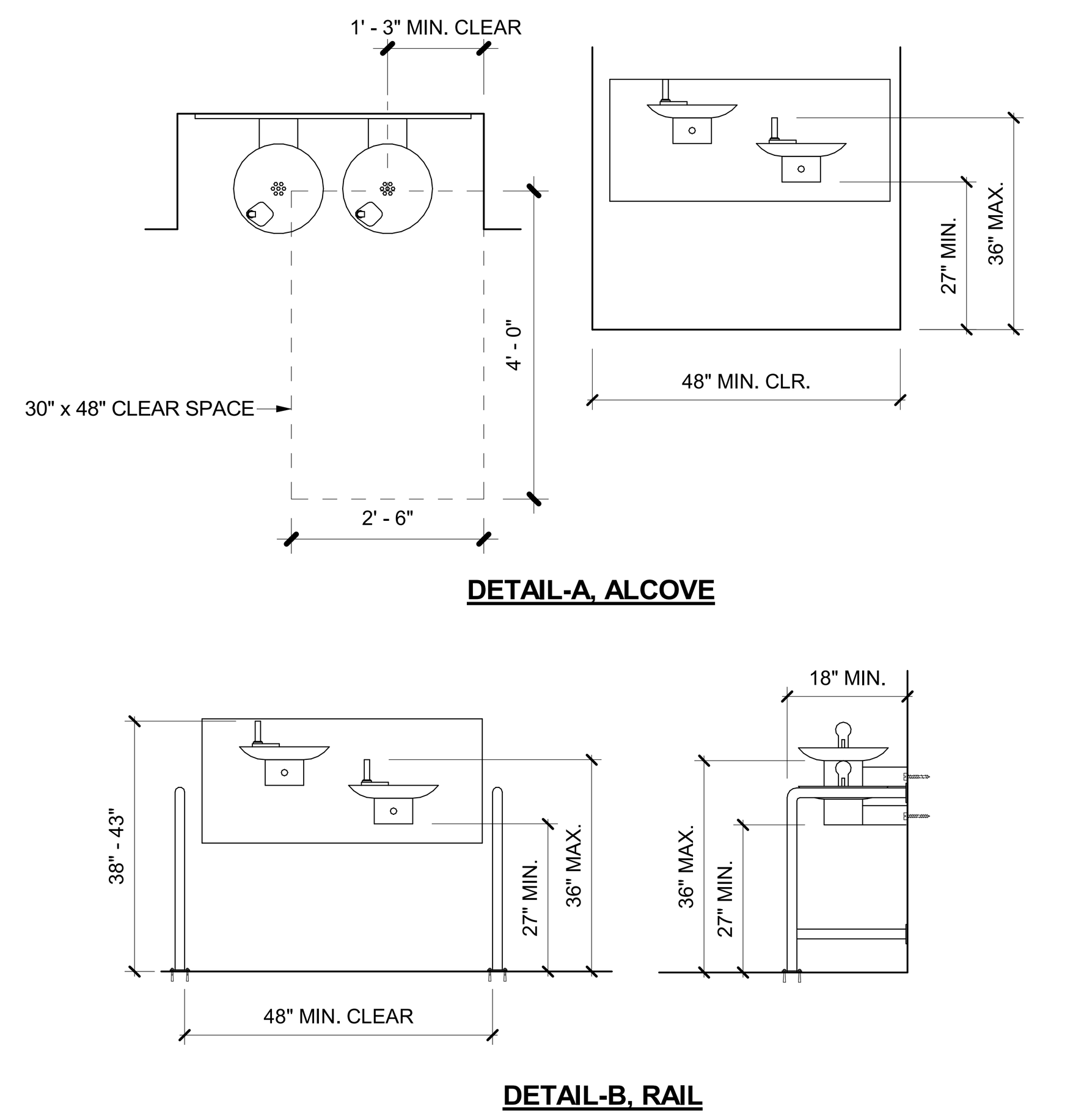
DETECTABLE WARNING STRIPS SHALL BE LOCATED AT ALL CURB RAMPS AND EXTEND FOR MINIMUM 36" IN THE DIRECTION OF TRAVEL FOR FULL WIDTH OF THE RAMP.

COLOR YELLOW CONFORMING TO FEDERAL COLOR No. 33538, AS SHOWN IN TABLE IV OF STANDARD No. 595B.

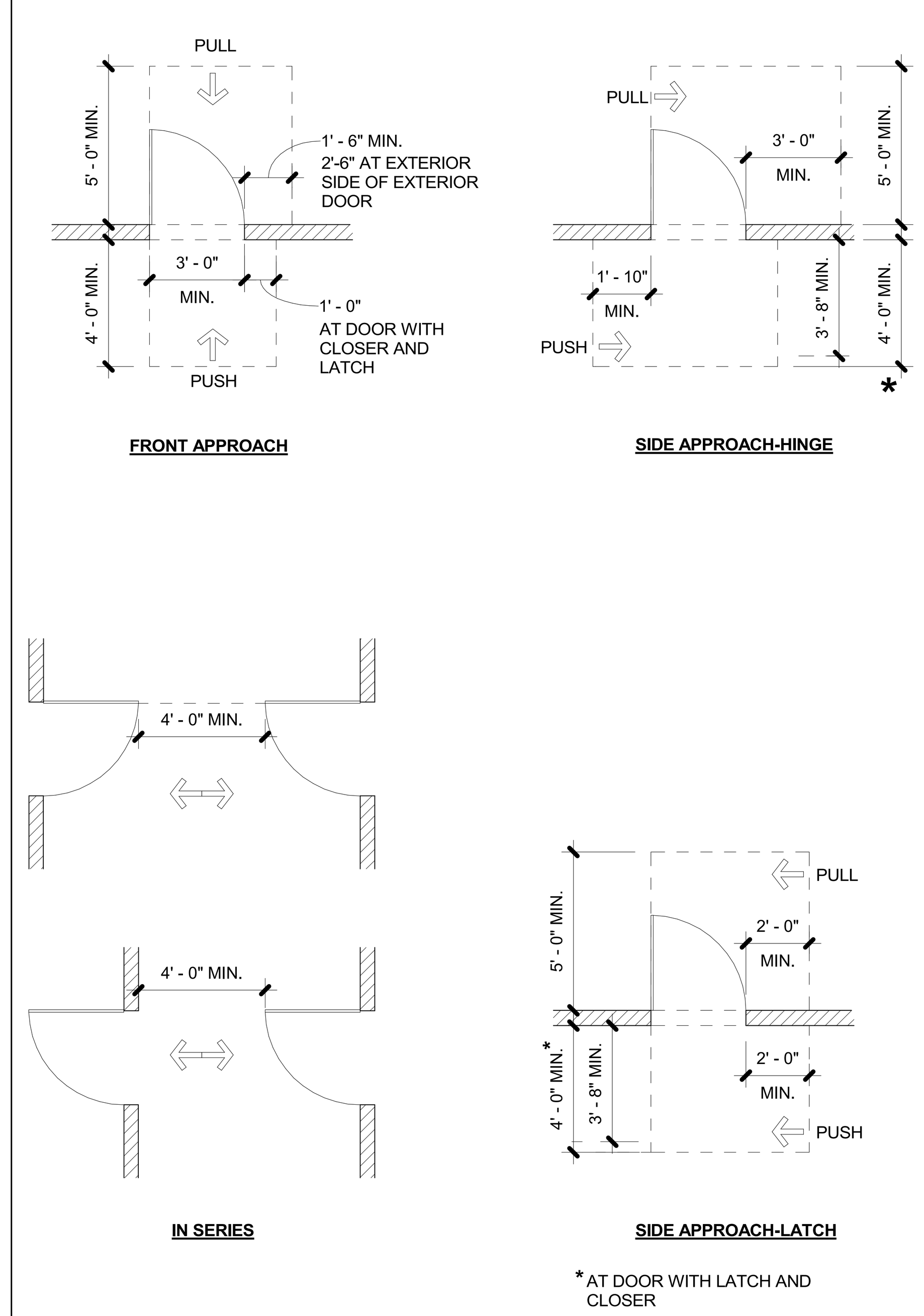
TRUNCATED DOMES 16
3" = 1'-0"

DRINKING FOUNTAINS

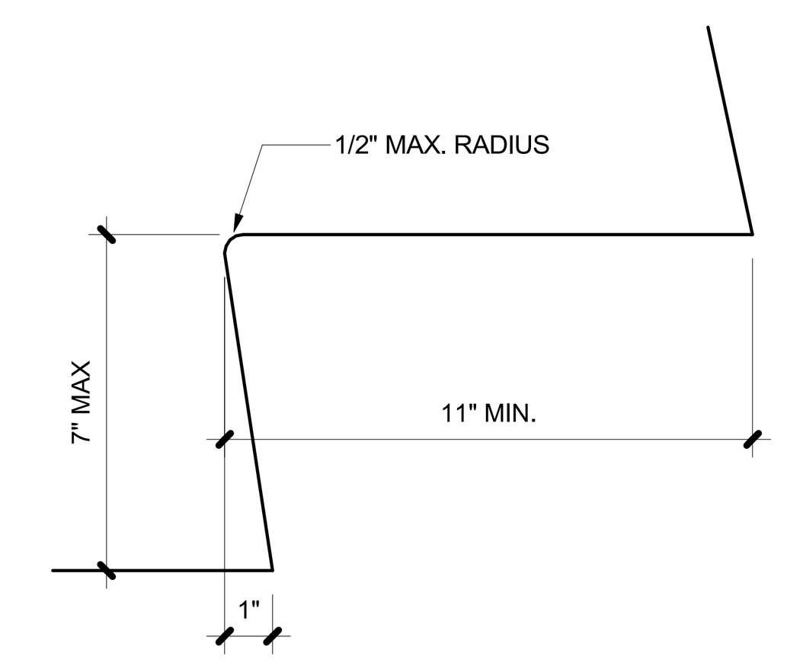
1. THE BUBBLER OUTLET ORIFICE SHALL BE LOCATED WITHIN 5" OF THE FRONT OF THE DRINKING FOUNTAIN AND SHALL BE WITHIN 36" OF THE FLOOR. THE WATER STREAM FROM THE BUBBLER SHALL BE PARALLEL TO THE FRONT EDGE OF THE DRINKING FOUNTAIN.
2. THE SPOUT SHALL PROVIDE A FLOW OF WATER AT LEAST 4" HIGH. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAT 5 LBS.
3. DRINKING FOUNTAIN MUST BE 18" - 19" DEEP AND ALLOW FRONT APPROACH.
4. KNEE CLEARANCE MUST BE 27" MIN. A.F.F. FOR DEPTH OF A 8" MIN. MEASURED FROM THE FRONT EDGE OF THE DRINKING FOUNTAIN.
5. TOE CLEARANCE MUST BE 9" MIN. A.F.F. AND 17" MIN. DEEP, MEASURED FROM THE FRONT OF THE DRINKING FOUNTAIN.



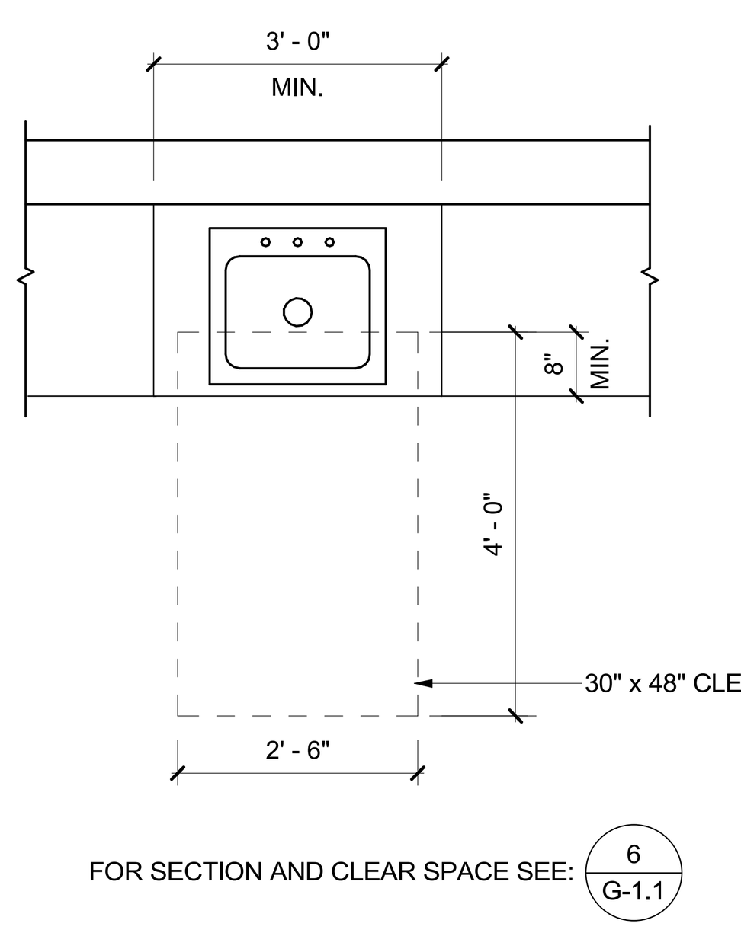
ADA FOUNTAIN 11
1/2" = 1'-0"



ADA DOORS AND GATES 7
1/4" = 1'-0"

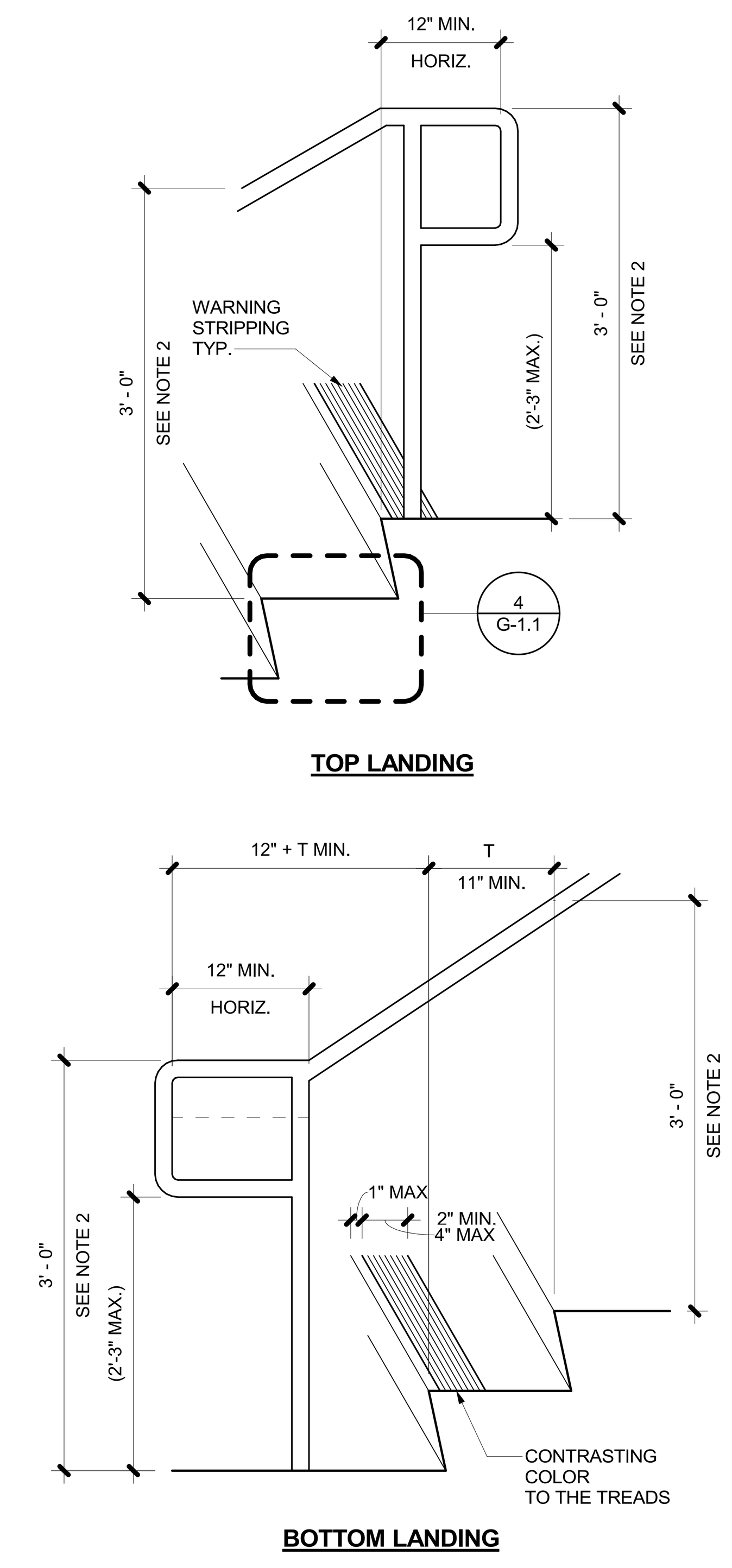


STAIR TREAD 4
3" = 1'-0"



FOR SECTION AND CLEAR SPACE SEE: 6 G-1.1

ADA SINK CABINET 15
1/2" = 1'-0"



NOTES:

1. ACCESSIBLE REQUIREMENTS ONLY. SEE STAIR DRAWING SHEETS FOR ACTUAL HANDRAIL, TREAD, AND RISER DESIGN.
2. DESIGN REQUIREMENT 3'-0" (CODE ALLOWABLE 34" TO 38")

STAIR REQUIREMENTS 2
1" = 1'-0"

GENERAL NOTES

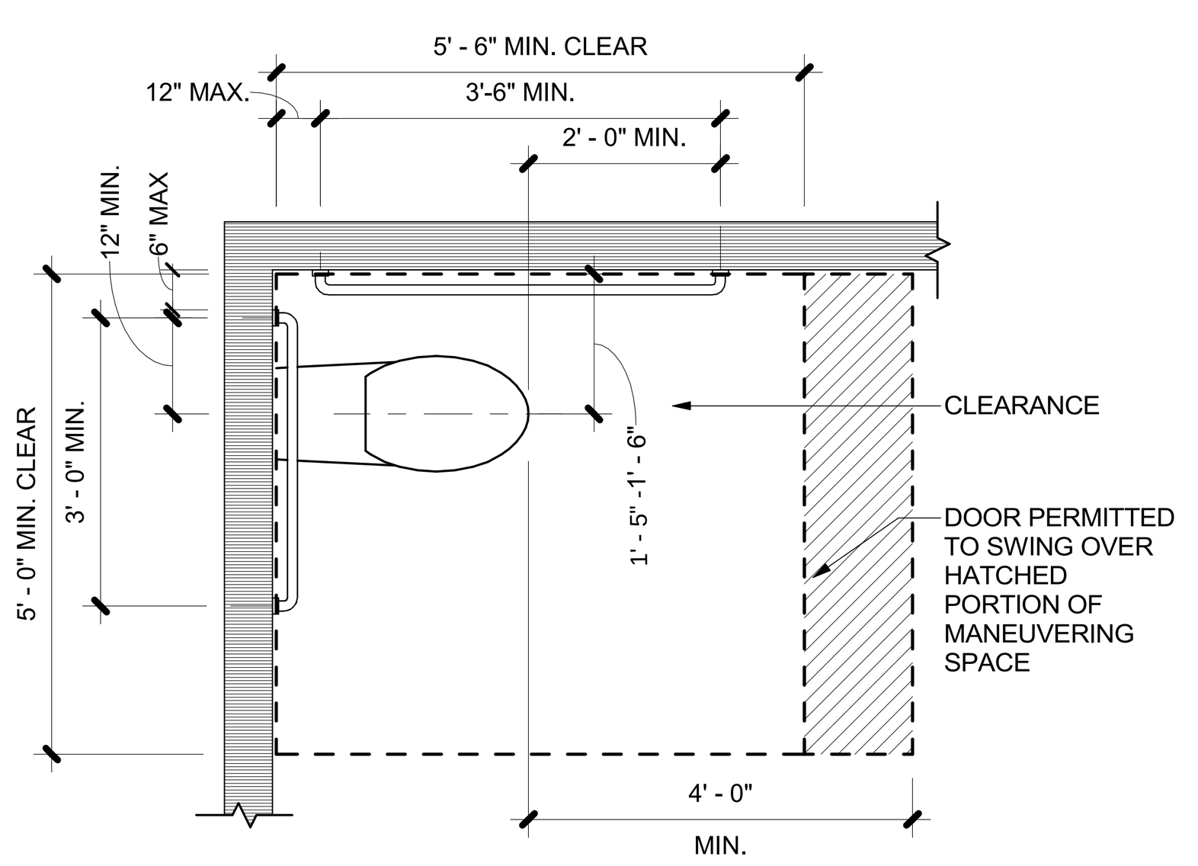
1. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
2. FAUCET CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. LEVER-OPERATED, PUSH TYPE AND ELECTRONICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. SELF-CLOSING VALVES ARE ALLOWED IF THE FAUCET IS WITHIN THE ABOVE MENTIONED FORCE REQUIREMENTS.
3. GRAB BAR SHALL BE 1 1/4" - 1 1/2" DIAMETER OR THE SHAPE PROVIDING EQUIVALENT GRIPPING SURFACE. CLEARANCE BETWEEN GRAB BAR AND WALL SHALL BE 1 1/2" WIDE.
4. GRAB BAR SHALL BE SMOOTH. EDGES SHALL HAVE RADIUS OF 1/8" MINIMUM.
5. THE STRUCTURAL STRENGTH OF GRAB BARS, TUB AND SHOWER SEATS, FASTENERS, AND MOUNTING DEVICES SHALL MEET THE FOLLOWING SPECIFICATIONS:
   a. BENDING STRESS IN GRAB BAR OR SEAT INDUCED BY THE MAXIMUM BENDING MOMENT FROM THE APPLICATION OF A 250-LB POINT LOAD SHALL BE LESS THAT THE ALLOWABLE STRESS FOR THE MATERIAL OF THE GRAB BAR OR SEAT.
   b. SHEAR STRESS INDUCED IN A GRAB BAR OR SEAT BY THE APPLICATION OF A 250-LB POINT LOAD SHALL BE LESS THAN THE ALLOWABLE SHEAR STRESS FOR THE MATERIAL OF THE GRAB BAR OR SEAT, AND ITS MOUNTING BRACKET OR OTHER SUPPORT IS CONSIDERED TO BE FULLY RESTRAINED, THEN DIRECT AND TORSIONAL SHEAR STRESSES SHALL NOT EXCEED THE ALLOWABLE SHEAR STRESS.
   c. TENSILE FORCE INDUCED IN A FASTENER BY A DIRECT TENSION FORCE OF A 250-LB POINT LOAD, PLUS THE MAXIMUM MOMENT FROM THE APPLICATION OF A 250-LB POINT LOAD SHALL BE LESS THAN THE ALLOWABLE WITHDRAWAL LOAD BETWEEN THE FASTENER AND SUPPORTING STRUCTURE.
   d. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.
6. SURFACE OF WALL ADJACENT TO GRAB BAR SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS.
7. OPERABLE PARTS (INCLUDING COIN SLOTS) OF ALL FIXTURES OR ACCESSORIES SHALL BE LOCATED A MAXIMUM OF 40" ABOVE FINISH FLOOR. CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE 5 LBS. MAXIMUM.

TOILET COMPARTMENTS

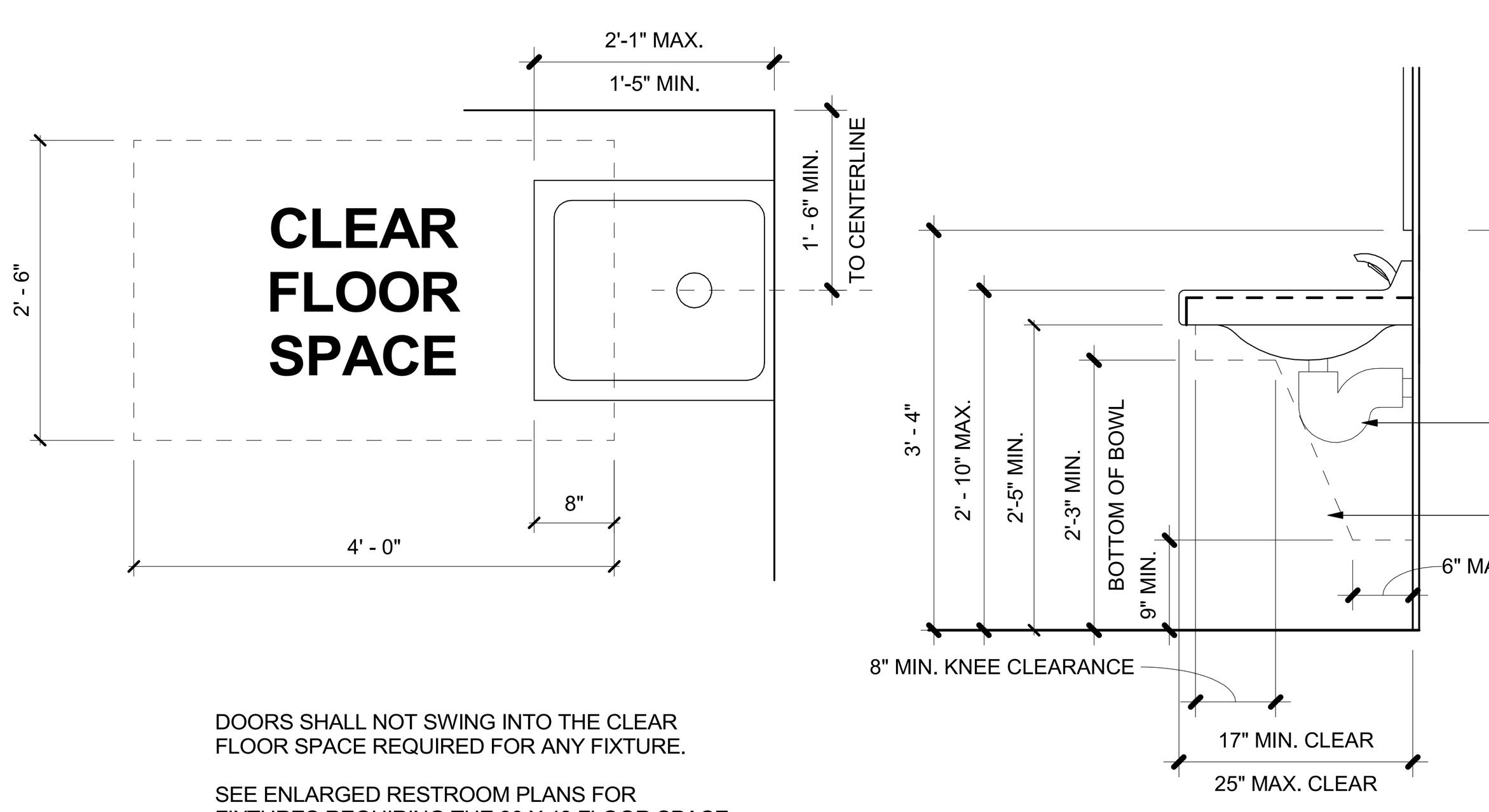
1. COMPARTMENT DOOR TO ACCESSIBLE FIXTURE MUST COMPLY WITH DOOR MANEUVERING REQUIREMENTS, AND IN NO CASE SHALL THE SPACE IMMEDIATELY OUTSIDE OF THE WATER CLOSET COMPARTMENT DOOR BE LESS THAN 48" MEASURED PERPENDICULAR TO THE COMPARTMENT DOOR IN ITS CLOSED POSITION.
2. STALL DOOR MUST BE SELF-CLOSING, AND HAVE U-PULLS ON BOTH SIDES. IF PROVIDED, THE LOCKING MECHANISM MUST BE ACCESSIBLE, NOT REQUIRING GRASPING, PINCHING OR TURNING OF THE WRIST.
3. DOORS, OTHER THAN THE DOOR TO THE ACCESSIBLE COMPARTMENT, CANNOT SWING INTO THE WHEELCHAIR TURNING SPACE BY MORE THAN 12".
4. THE HEIGHT OF ACCESSIBLE WATER CLOSETS SHALL BE A MINIMUM OF 17" AND A MAXIMUM OF 19" MEASURED TO THE TOP OF THE TOILET SEAT.
5. FLUSH CONTROLS SHALL BE OPERABLE BY AN OSCILLATING HANDLE WITH A MAXIMUM OPERATING FORCE OF 5 LBS. OR BY A REMOTE LOW VOLTAGE BUTTON. THE HANDLE OR BUTTON SHALL BE LOCATED SO THEY ARE OPERABLE WITHOUT REQUIRING EXCESSIVE BODY MOVEMENT.
6. FLUSH VALVE SHALL BE ON WIDE SIDE OF TOILET AREA. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING.

ELECTRICAL

1. CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT, SHALL COMPLY WITH THE FOLLOWING:
   a. THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX.
   b. UNOBSTRUCTED FORWARD OR SIDE REACH SHALL BE 48" MAXIMUM AND 15" MINIMUM ABOVE THE FINISH FLOOR OR GRADE.
   c. OBSTRUCTED FORWARD REACH DEPTH OF 20" OR LESS SHALLL BE 48" HIGH MAXIMUM. OBSTRUCTED FORWARD REACH DEPTH GREATER THAN 20" SHALL BE 44" HIGH MAXIMUM WITH A MAXIMUM OBSTRUCTED REACH DEPTH OF 25".
   d. OBSTRUCTED SIDE REACH DEPTH OF 10" OR LESS SHALLL BE 48" HIGH MAXIMUM. OBSTRUCTED SIDE REACH DEPTH GREATER THAN 10" SHALL BE 46" HIGH MAXIMUM WITH A MAXIMUM OBSTRUCTED REACH DEPTH OF 24" MAXIMUM.



CLEARANCES AT WATER CLOSET 14
1/2" = 1'-0"



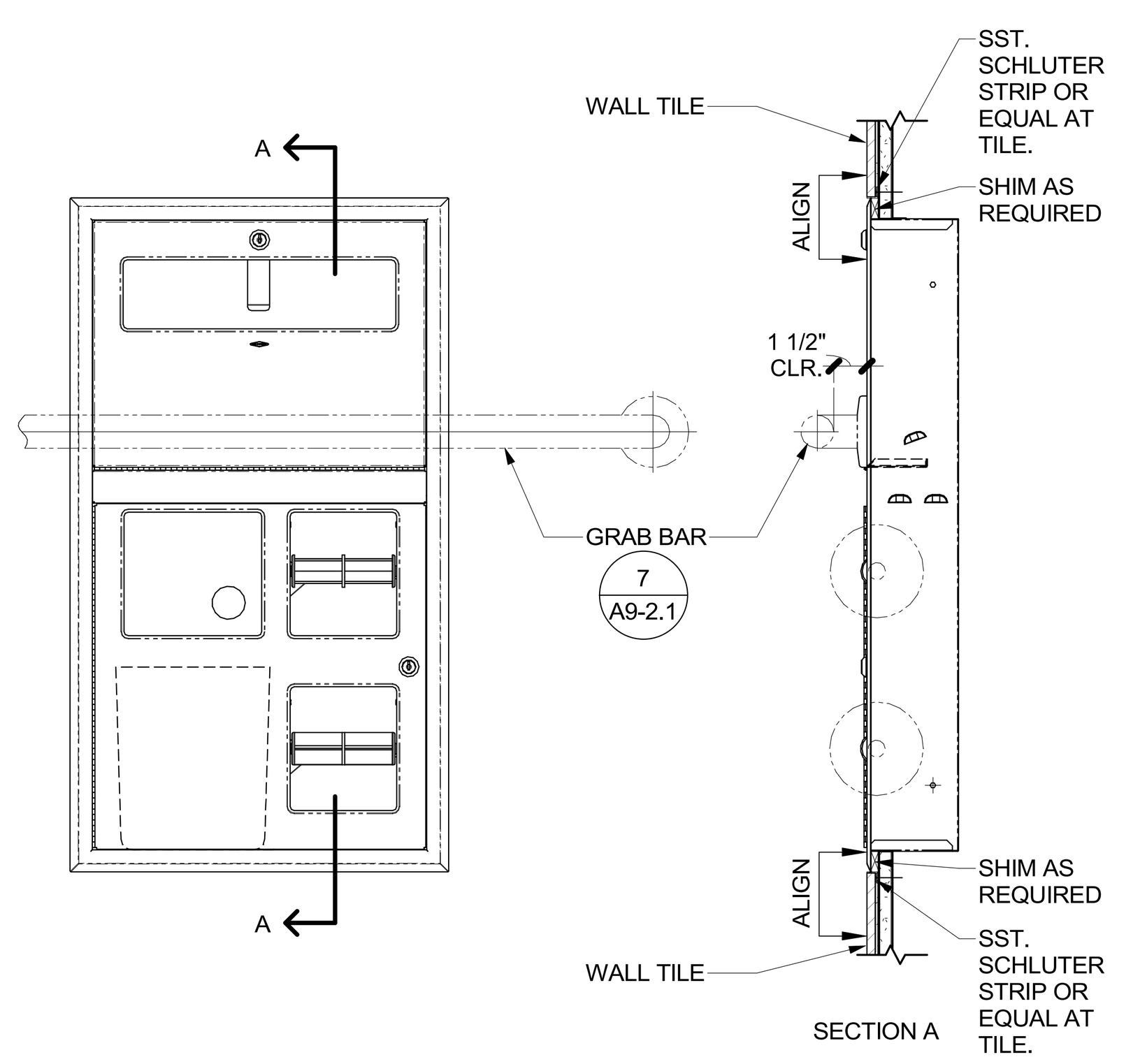
DOORS SHALL NOT SWING INTO THE CLEAR FLOOR SPACE REQUIRED FOR ANY FIXTURE.

SEE ENLARGED RESTROOM PLANS FOR FIXTURES REQUIRING THE 30 X 48 FLOOR SPACE.

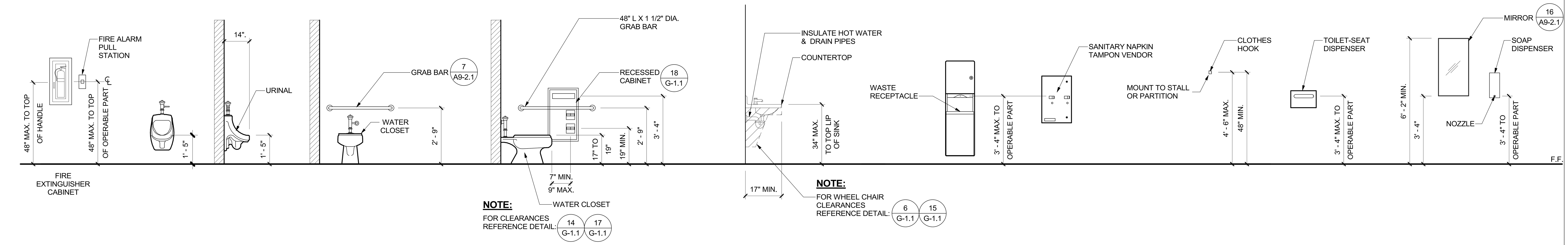
NOTES:

1. NO SHARP OR ABRASIVE SURFACES UNDER LAVATORY.
2. PROVIDE INSULATION WRAP FOR HOT WATER PIPE.
3. ALL KNEE & TOE AREAS ARE TO BE CLEAR.
4. MAXIMUM HEIGHT SHOWN TO TOP LIP OF SINK.

CLEAR FLOOR SPACE AT ADA FIXTURES 6
3/4" = 1'-0"



RECESSED SEAT-COVER DISPENSER 18
1 1/2" = 1'-0"



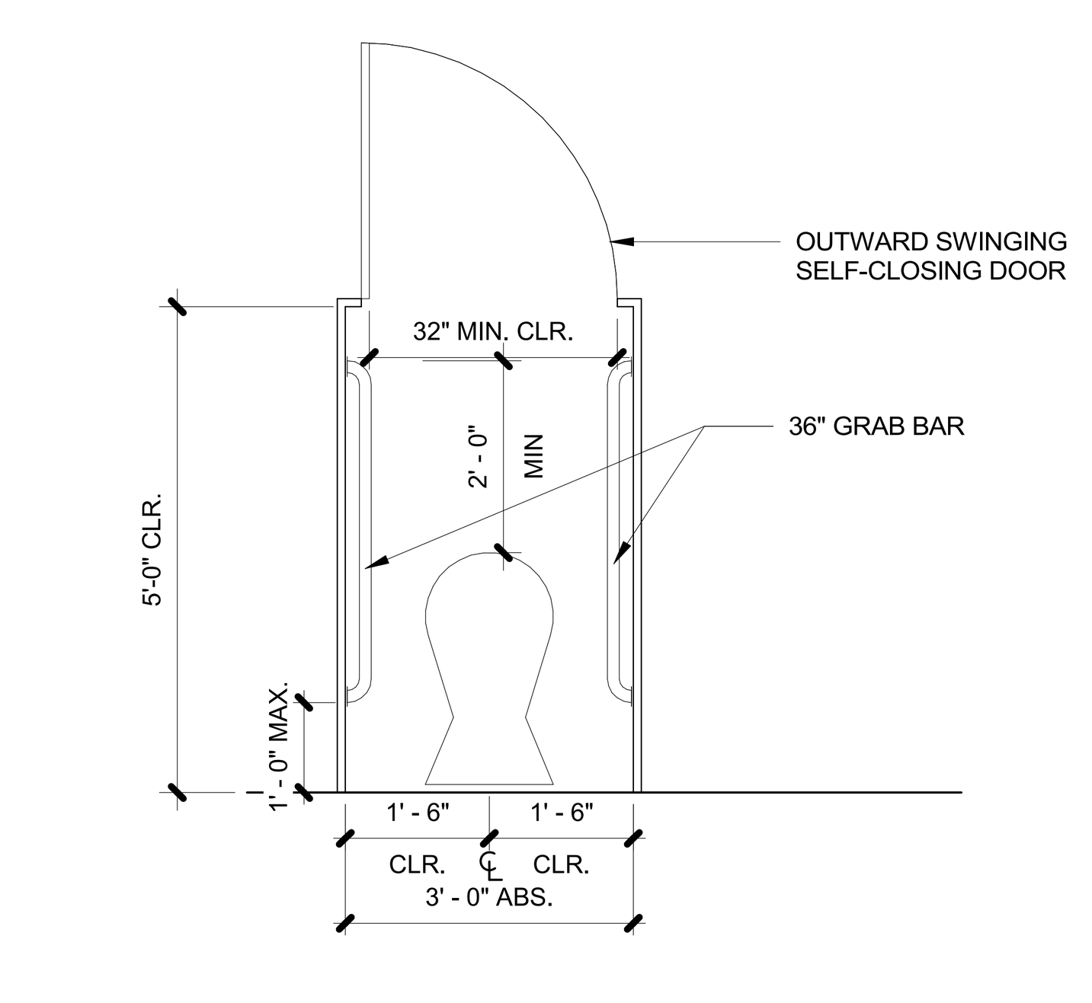
NOTE:

FOR CLEARANCES REFERENCE DETAIL: 14 G-1.1 17 G-1.1

NOTE:

FOR WHEEL CHAIR CLEARANCES REFERENCE DETAIL: 6 G-1.1 15 G-1.1

TYPICAL MOUNTING HEIGHTS 1
3/8" = 1'-0"



SEMI-AMBULATORY 17
1/2" = 1'-0"

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DATE: 6/24/19

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Irvine | California | 92612
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FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS

FILLMORE UNIFIED SCHOOL DISTRICT

555 Central Ave. Fillmore, CA. 93015

ISSUED FOR:	
SCHEMATIC DESIGN	11/16/2017
DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
DAVID JORDAN SMITH
C20495
EXP. 01/21
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

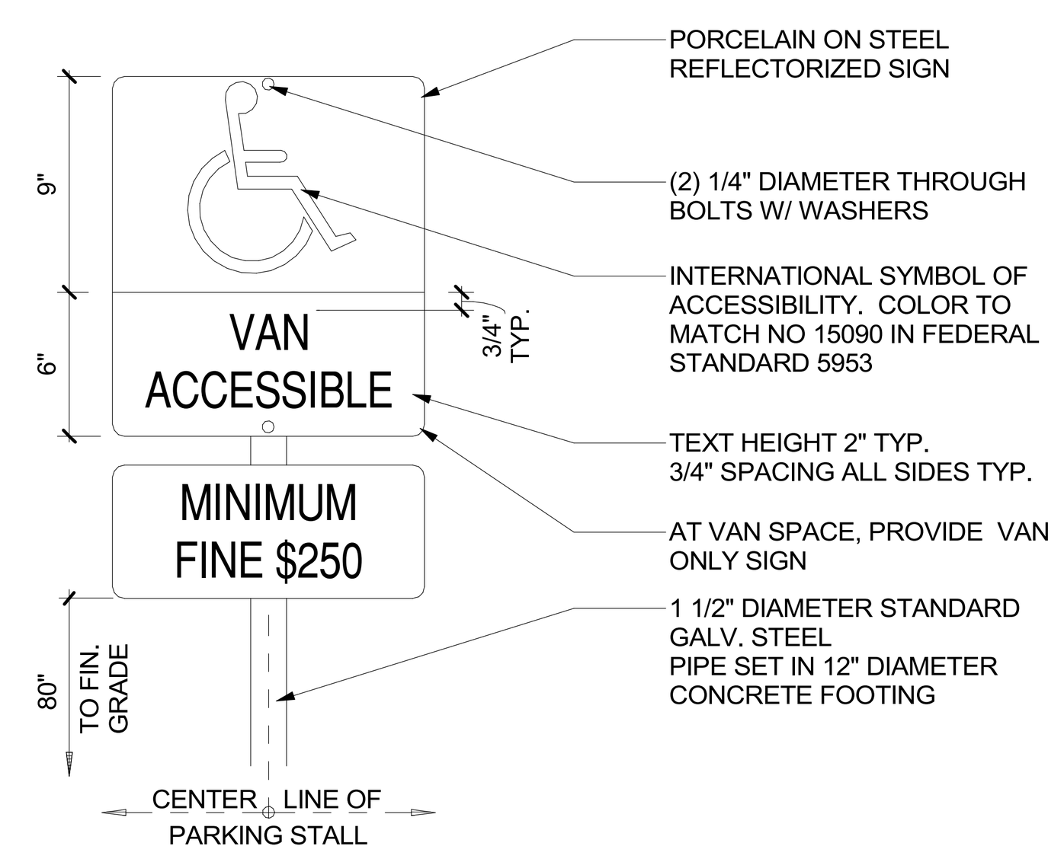
STANDARDS

SHEET NUMBER:

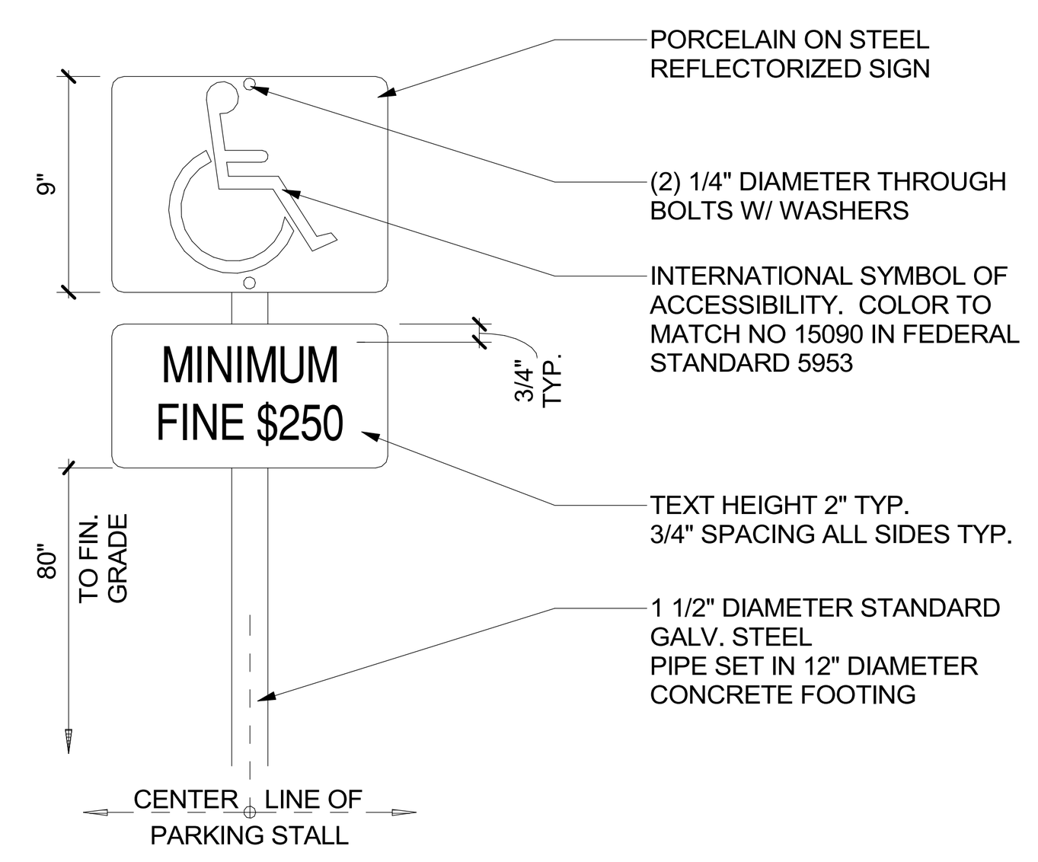
G-1.1

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19

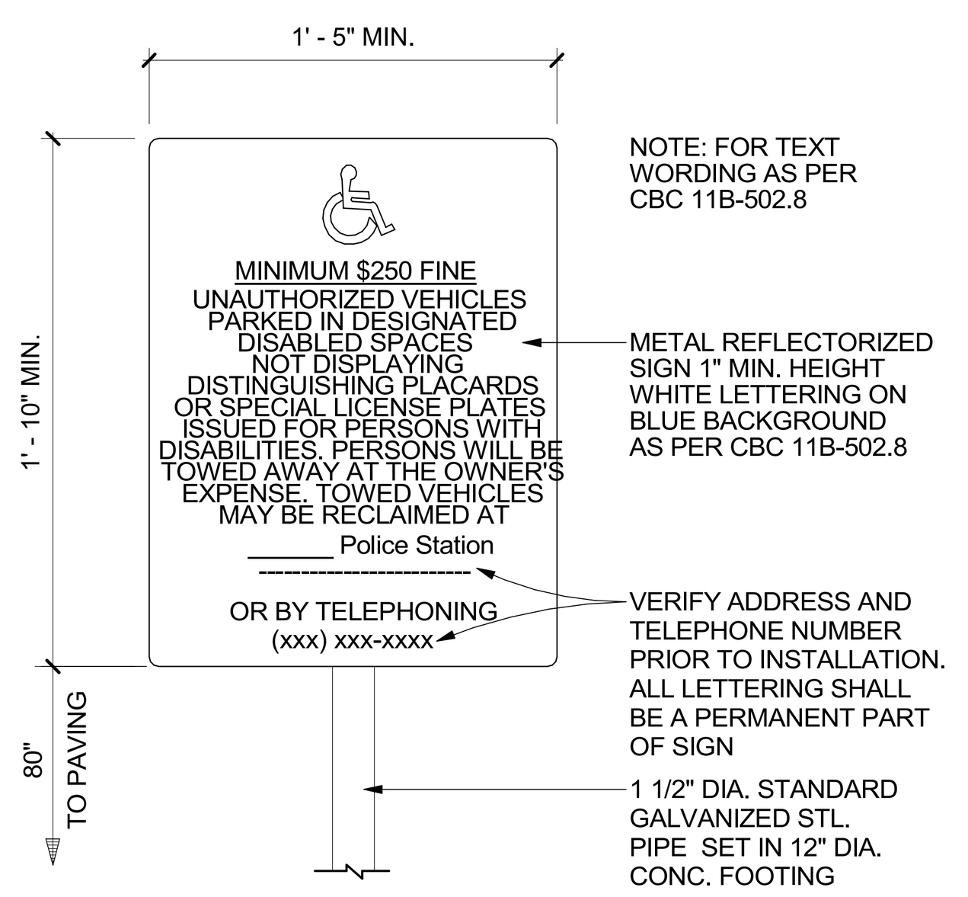
DSA A# 03-119532



ACCESSIBLE VAN - A



ACCESSIBLE CAR - B



SITE ENTRY SIGN - C

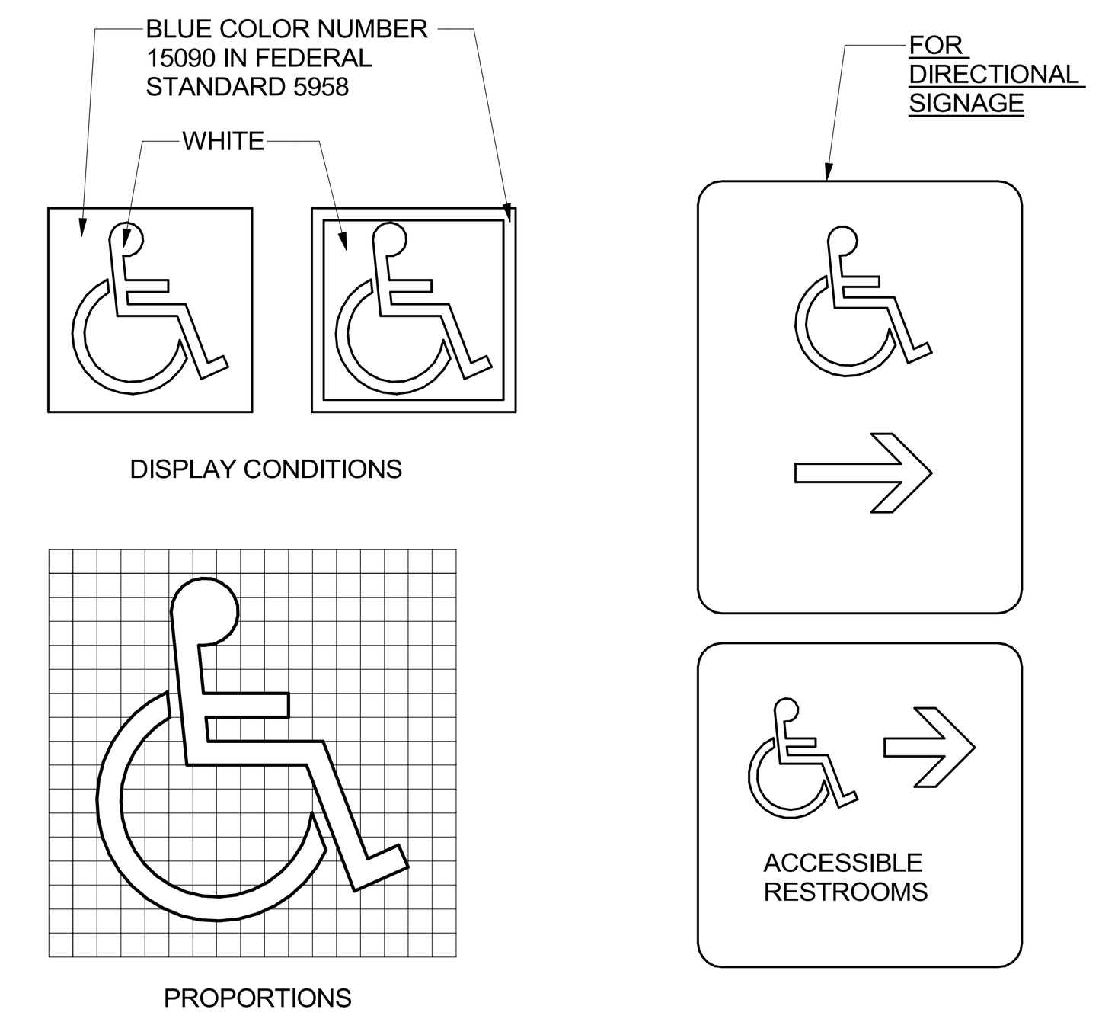
SITE SIGNAGE

1. EACH PARKING SPACE RESERVED FOR PERSONS WITH DISABILITIES SHALL BE IDENTIFIED BY A REFLECTORIZED SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE, CONSISTING OF A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE ON DARK BLUE BACKGROUND. THE SIGN SHALL NOT BE SMALLER THAN 70 SQ. INCHES IN AREA AND WHEN IN A PATH OF TRAVEL SHALL BE POSTED AT A MINIMUM HEIGHT OF 80" FROM THE BOTTOM OF THE SIGN TO THE PARKING SPACE FINISHED GRADE.
2. AN ADDITIONAL SIGN SHALL ALSO BE POSTED, IN A CONSPICUOUS PLACE, AT EACH ENTRANCE TO OFF PARKING FACILITIES, OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE. THE SIGN SHALL BE NOT LESS THAN 17" BY 22" IN SIZE WITH LETTERING NOT LESS THAN 1" IN HEIGHT, WHICH CLEARLY AND CONSPICUOUSLY STATES THE FOLLOWING:

"UNAUTHORIZED VEHICLES PARKED IN DESIGNATED ACCESSIBLE SPACES NOT DISPLAYING DISTINGUISHING PLACARDS OR LICENSE PLATES ISSUED FOR PERSONS WITH DISABILITIES MAY BE TOWED AWAY AT OWNER'S EXPENSE. TOWED VEHICLES MAY BE RECLAIMED AT ____ OR BY TELEPHONING ____."

NOTE: BLANK SPACES ARE TO BE FILLED IN WITH APPROPRIATE INFORMATION AS A PERMANENT PART OF THE SIGN.

ACCESSIBLE PARKING IDENTIFICATION SIGNS — 15 — 1 1/2" = 1'-0"

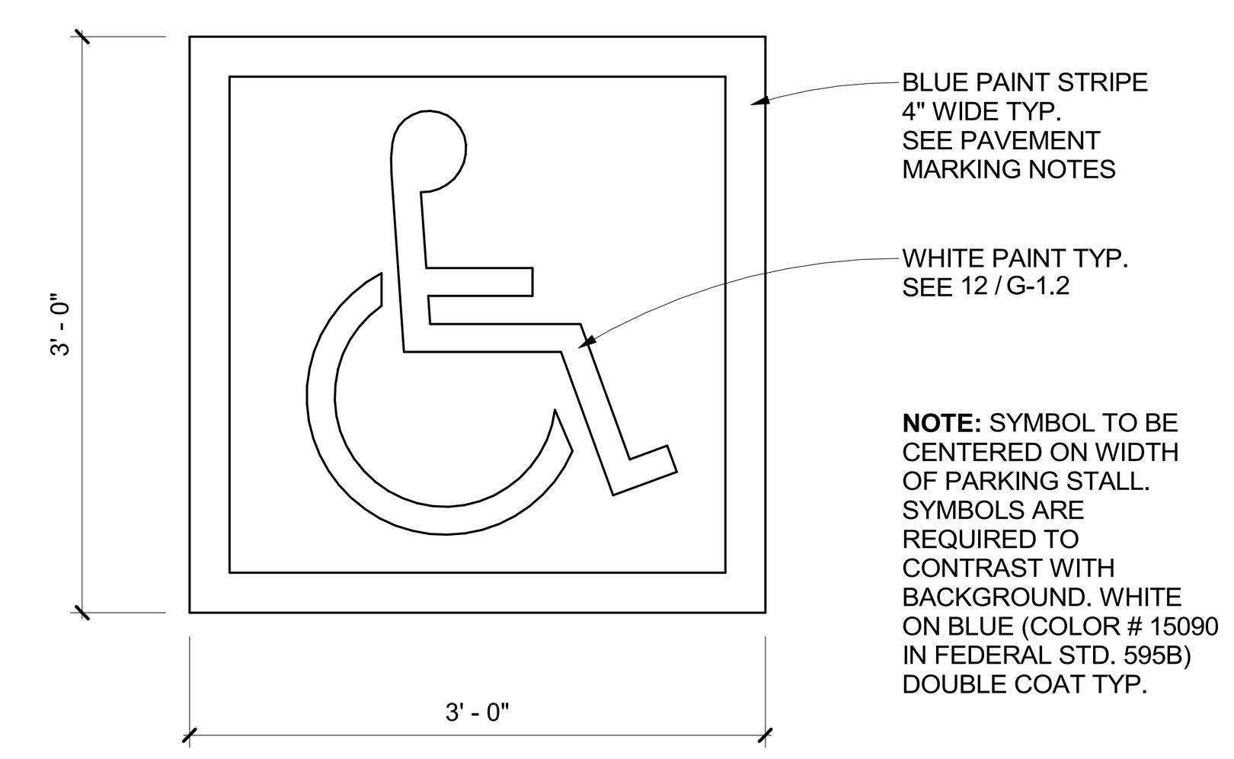


ALL ACCESSIBLE ENTRANCES SHALL BE IDENTIFIED WITH A WHITE FIGURE ON BLUE, 6" SQUARE MIN.

ACCESSIBLE INTERNATIONAL SYMBOL — 12 — 12" = 1'-0"

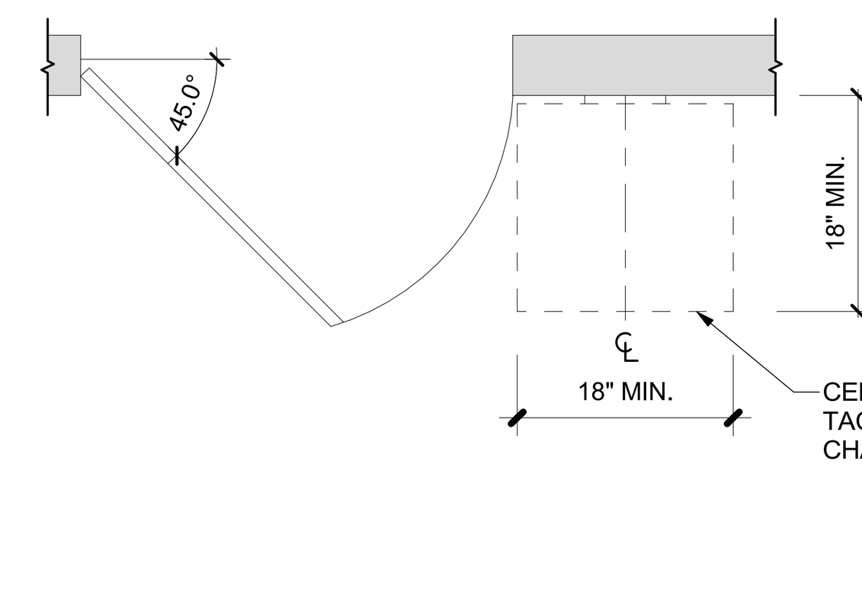
OUTLINING A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE ON BLUE BACKGROUND. THE PROFILE VIEW SHALL BE LOCATED SO THAT IT IS VISIBLE TO A TRAFFIC ENFORCEMENT OFFICER WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE AND SHALL BE 36 INCHES HIGH BY 36 INCHES WIDE.

PAVEMENT MARKINGS:
1. PAINTED LINES AND MARKINGS ON PAVEMENT SHALL BE 4" MINIMUM WIDE AND BLUE IN COLOR EQUAL TO COLOR NO. 15090 PER FEDERAL STANDARD 595B.



NOTE: SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOLS ARE REQUIRED TO CONTRAST WITH BACKGROUND. WHITE ON BLUE (COLOR # 15090 IN FEDERAL STD. 595B) DOUBLE COAT TYP.

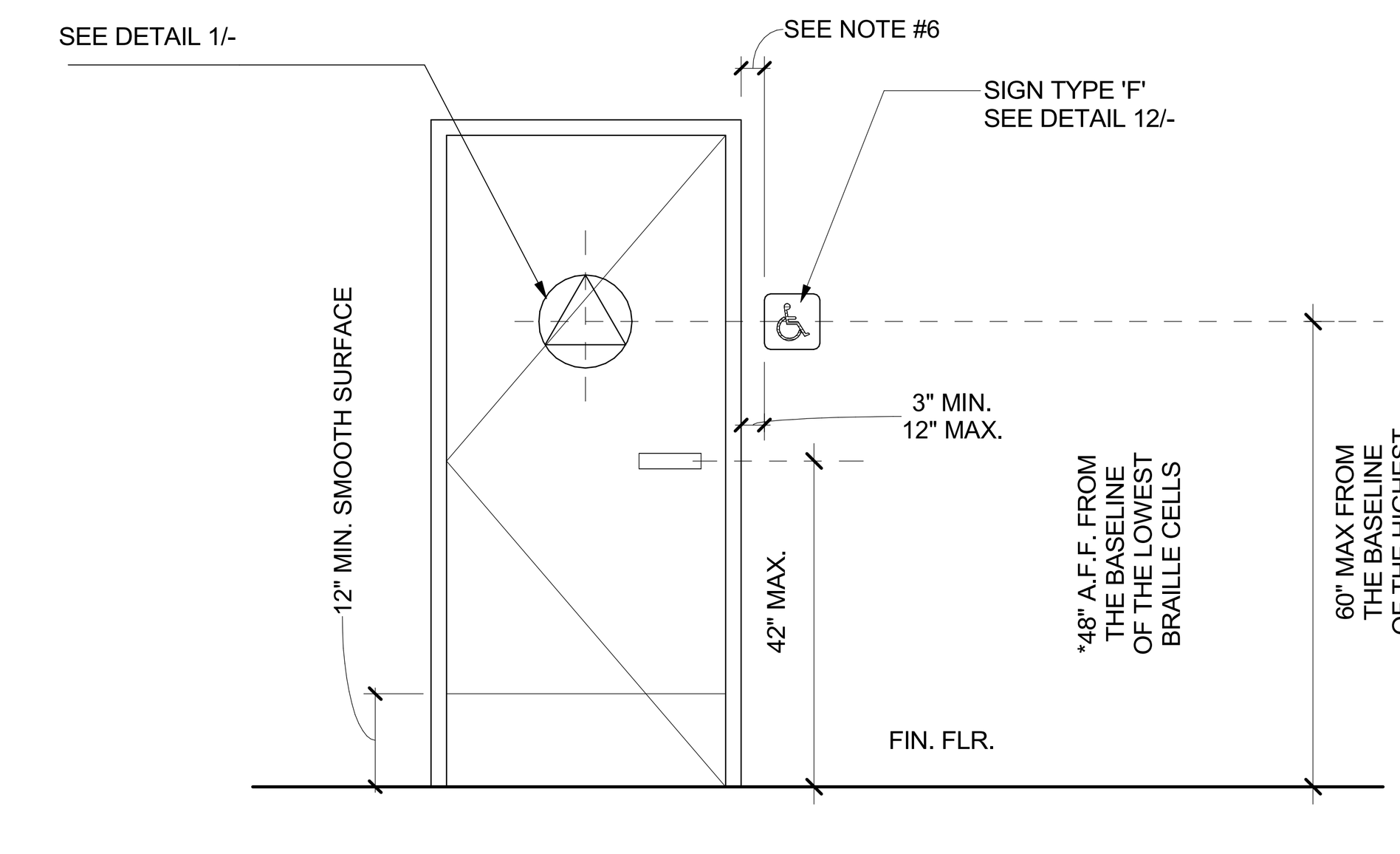
ACCESSIBLE PARKING SYMBOL — 11 — 1" = 1'-0"



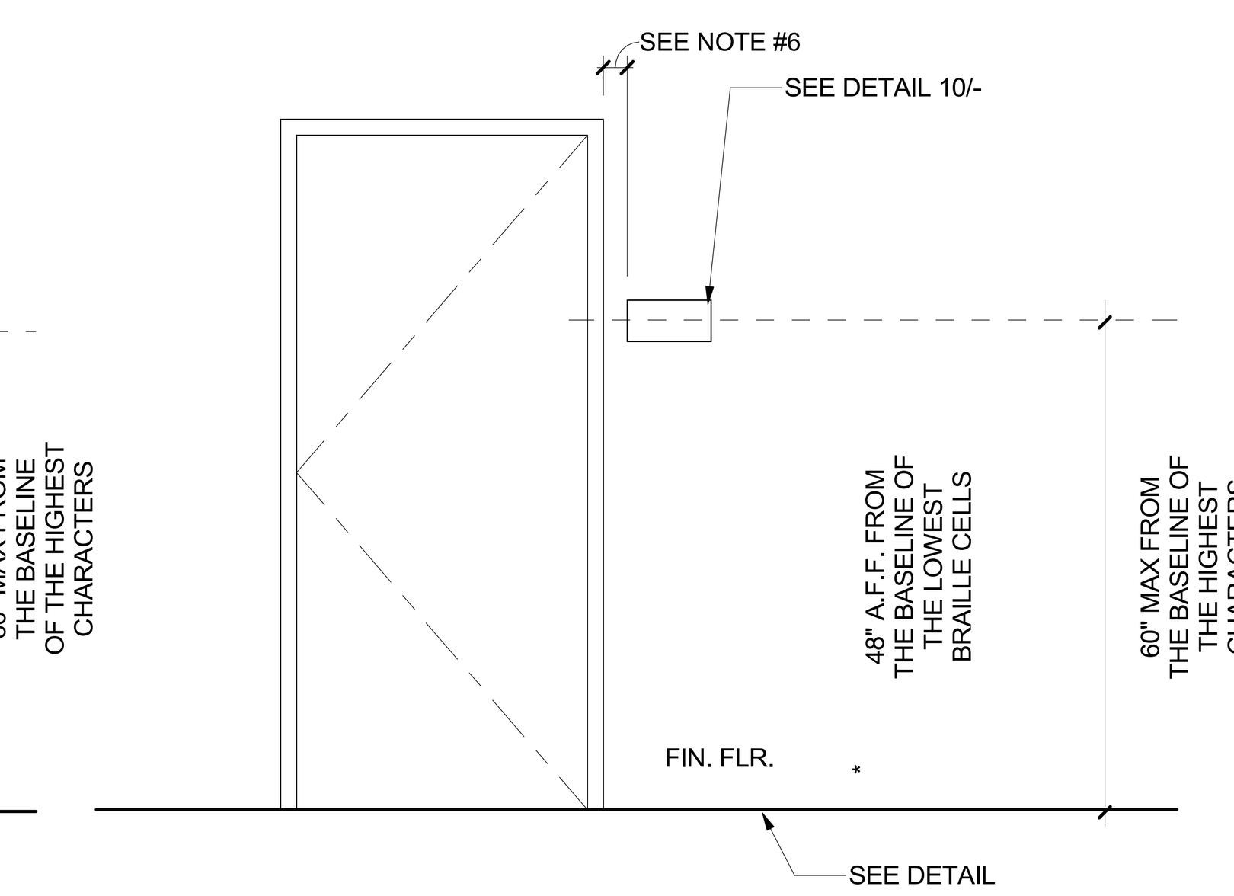
TACTILE SIGNS AT DOORS - C

NOTES

1. SIGNS WITH TACTILE CHARACTERS SHALL BE LOCATED 48" MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST BRAILLE CELLS AND 60" MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS.
2. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE.
3. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF.
4. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAFS, THE SIGN SHALL BE LOCATED TO THE RIGHT OF THE RIGHT HAND DOOR.
5. WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF A SINGLE DOOR OR AT THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE LOCATED ON THE NEAREST ADJACENT WALL.
6. IN MEETING CLEAR FLOOR SPACE, THE EDGE OF THE SIGN SHALL NOT BE LESS THAN 3" OR MORE THAN 12" FROM FRAME OF DOOR.



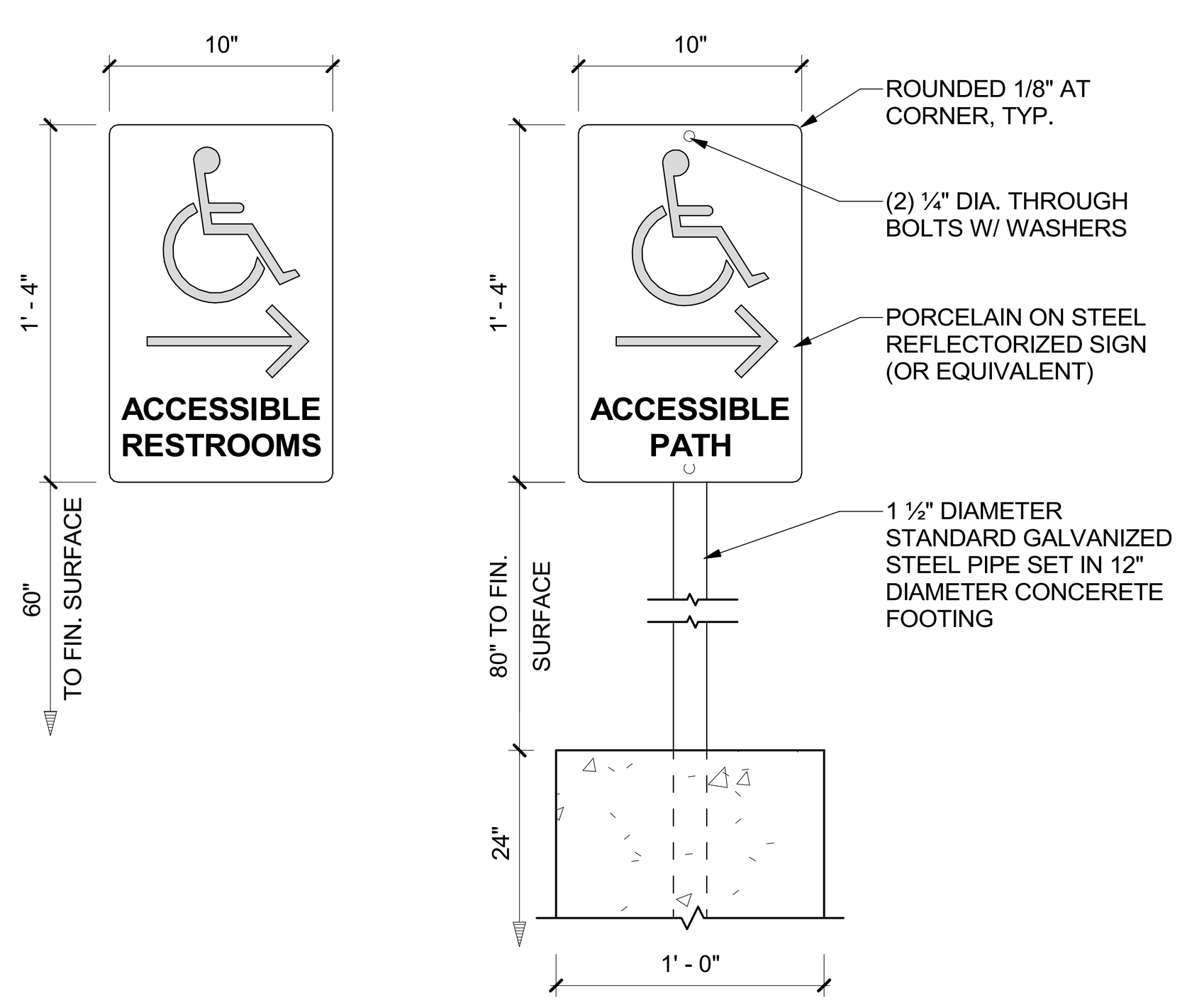
RESTROOM DOOR - B



TYPICAL DOOR - A

* **NOTE:** SEE NOTES AT DETAIL:

TYPICAL SIGN MOUNTING — 3 — 1/2" = 1'-0"



ACCESSIBLE DIRECTIONAL SIGNAGE — 18 — 1 1/2" = 1'-0"

NOTES:

1. PERMANENT ASSISTIVE LISTENING DEVICE RADIO FREQUENCY (FM)
   (1) T-31 FM TRANSMITTER BY WILLIAMS SOUND
   (2) R-31 RECIEVER BY WILLIAMS SOUND

   MIN. (2) REQUIRED
   CONTACT: HEARING PROMOTIONS (714) 669-0401
2. PROTABLE ASSISTIVE LISTENING DEVICE RADIO FREQUENCY (FM)
   (1) PFM T-30 TRANSMITTER BY HEARING HELPER
   (2) PFM R31 RECEIVER BY HEARING HELPER

   MIN. (2) REQUIRED
   CONTACT: HEARING HELPER (866) 432-7776
3. COORDINATE SPEAKER LOCATION WITH ARCHITECT.
4. LETTER STYLE: UPPERCASE SANS SERIF.

ASSISTIVE LISTENING SYSTEM SIGN — 17 — 1/2" = 1'-0"

1. CHARACTER TYPE

CHARACTERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM AND SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY GRADE 2 BRAILLE (SEE NOTE 5 BELOW). PER CBC SEC. 11B-703.

2. CHARACTER SIZE

RAISED CHARACTERS SHALL BE A MIN. OF 5/8" AND A MAXIMUM OF 2" HIGH.

3. FINISH AND CONTRAST

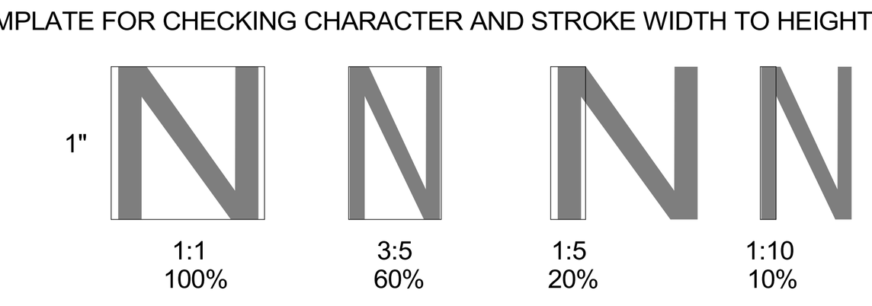
CONTRAST BETWEEN CHARACTERS, SYMBOLS AND THEIR BACKGROUND, MUST BE 70% MIN. AND HAVE A NON-GLARE FINISH. 11B-703.5.1, 11B-7.3.6.2, & 11B-703.7.1.

4. PROPORTIONS

CHARACTERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO OF BETWEEN 3:5 AND 1:1 AND A STROKE WIDTH-TO-HEIGHT RATIO OF BETWEEN 1:5 AND 1:10. 11B-703.2.4 & 11B-703.2.6.

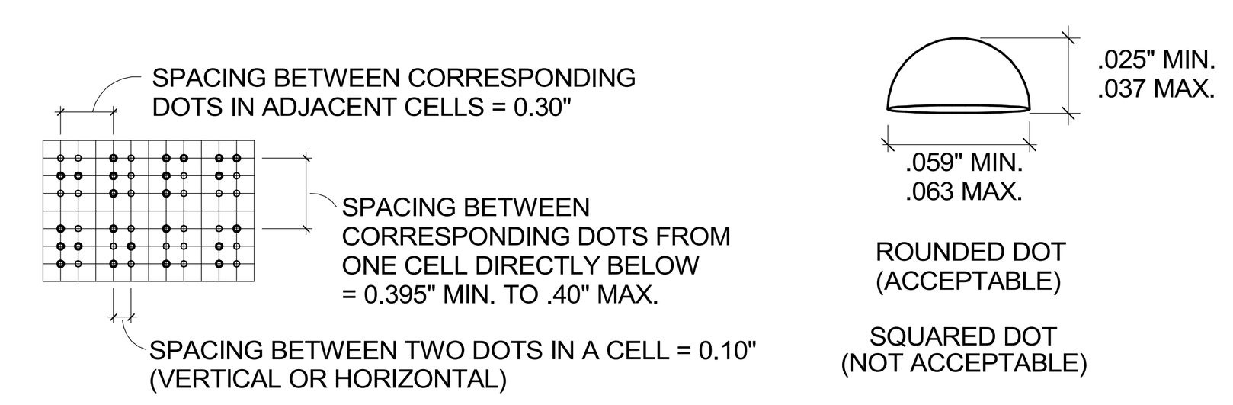
ALL LETTERS MEASURED MUST BE UPPERCASE. AFTER CHOOSING A TYPESTYLE TO TEST, BEGIN BY PRINTING THE LETTERS I, X, AND O AT 1" HIGH. PLACE THE TEMPLATE'S 1:1 SQUARE OVER THE X OR O, WHICHEVER IS NARROWER. IF THE CHARACTER IS NOT WIDER THAN 1", NOR NARROWER THAN THE 3:5 RECTANGLE, THE PROPORTIONS ARE CORRECT. USE THE 1:5 RECTANGLE TO DETERMINE IF THE STROKE OF THE I IS TOO BROAD, AND THE 1:10 RECTANGLE TO SEE IF IT IS TOO NARROW. IF ALL THE TESTS ARE PASSED, THE TYPESTYLE IS COMPLIANT WITH PROPORTION CODE.

TEMPLATE FOR CHECKING CHARACTER AND STROKE WIDTH TO HEIGHT PROPORTIONS:



5. BRAILLE

CALIFORNIA GRADE 2 BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. DOTS SHALL BE POSITIONED WITHIN CELLS PER THE SPACING SHOWN IN THE DIAGRAM BELOW. DOTS SHALL BE RAISED ABOVE THE BACKGROUND PER THE BELOW DIAGRAM. SEE SECTION 11B-703.3 &11B-703.3.1 FOR ADDITIONAL INFORMATION.

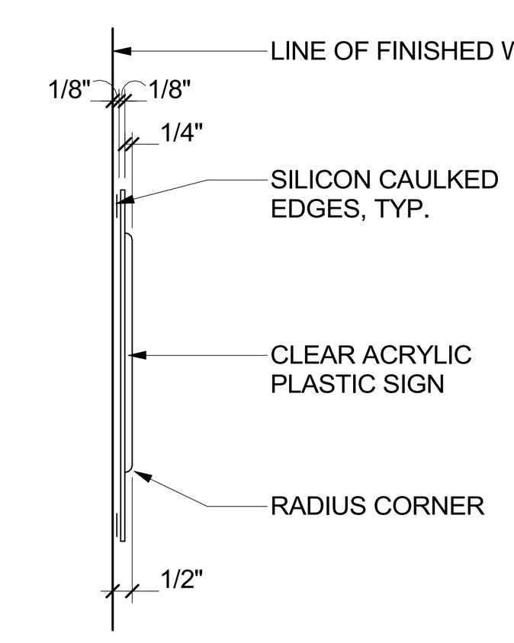


BRAILLE SHALL BE POSITIONED BELOW THE CORRESPONDING TEXT IN A HORIZONTAL FORMAT, FLUSH LEFT OR CENTERED. IF TEXT IS MULTI-LINED, BRAILLE SHALL BE PLACED BELOW THE ENTIRE TEXT. BRAILLE SHALL BE SEPARATED 3/8 INCH MINIMUM AND 1/2 INCH MAXIMUM FROM ANY OTHER TACTILE CHARACTERS AND 3/8 INCH MINIMUM FROM RAISED BORDERS AND DECORATIVE ELEMENTS.

6. SIGNS WITH RAISED CHARACTERS AND BRAILLE SHALL BE LOCATED 48 INCHES (1220 MM) MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST LINE OF BRAILLE AND 60 INCHES (1525 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS. MOUNTING LOCATION SHALL BE DETERMINED SO THAT A PERSON MAY APPROACH WITHIN 3 INCHES (76 MM) OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.

7. RAISED CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "0" IS 60 PERCENT MINIMUM AND 11 0 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I". STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15 PERCENT MAXIMUM OF THE HEIGHT OF THE CHARACTER.

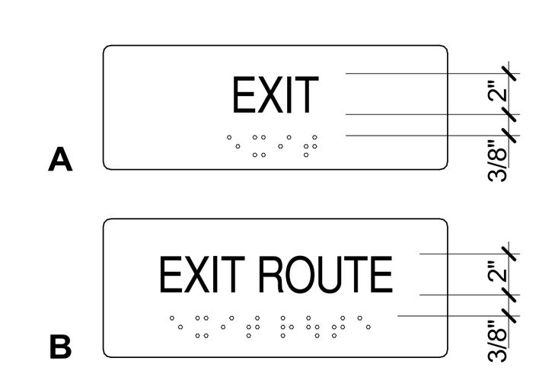
GRAPHIC ELEMENTS — 13 — 1/2" = 1'-0"



NOTES:

1. ATTACH SIGN WITH ADHESIVE ONLY AND CAULK EDGES WITH CLEAR SILICON. SIGN SHALL BE CENTER DOOR AND MOUNTED 60" (1525 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS.
2. CHARACTER HEIGHT, PROPORTION RAISED AND BRAILLE CHARACTERS AND PICTORIAL SYMBOL SIGN, FINISH AND CONTRAST, MOUNTING HEIGHT AND LOCATION SHALL COMPLY WITH THE REQUIREMENTS OF CBC.

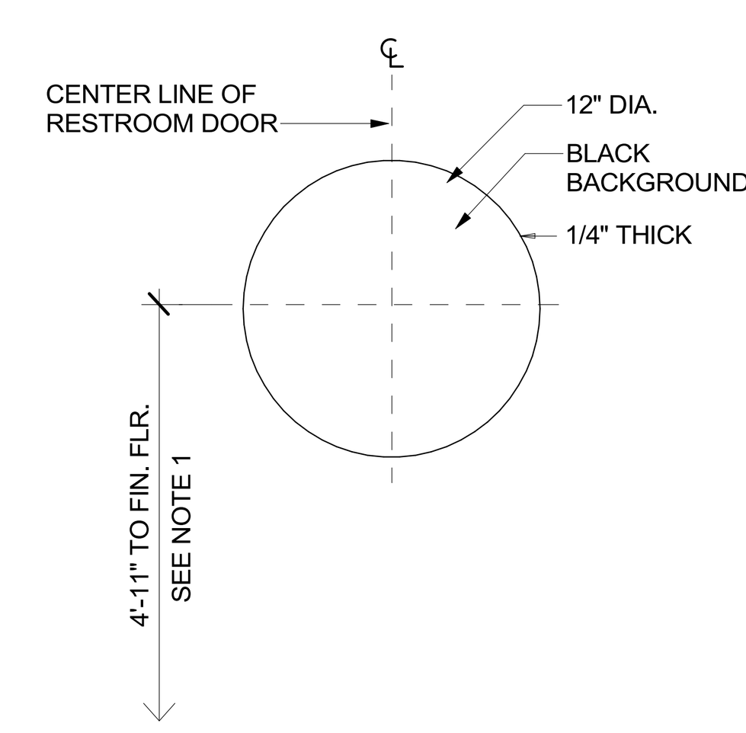
SIGN INSTALLATION — 10 — 1/2" = 1'-0"



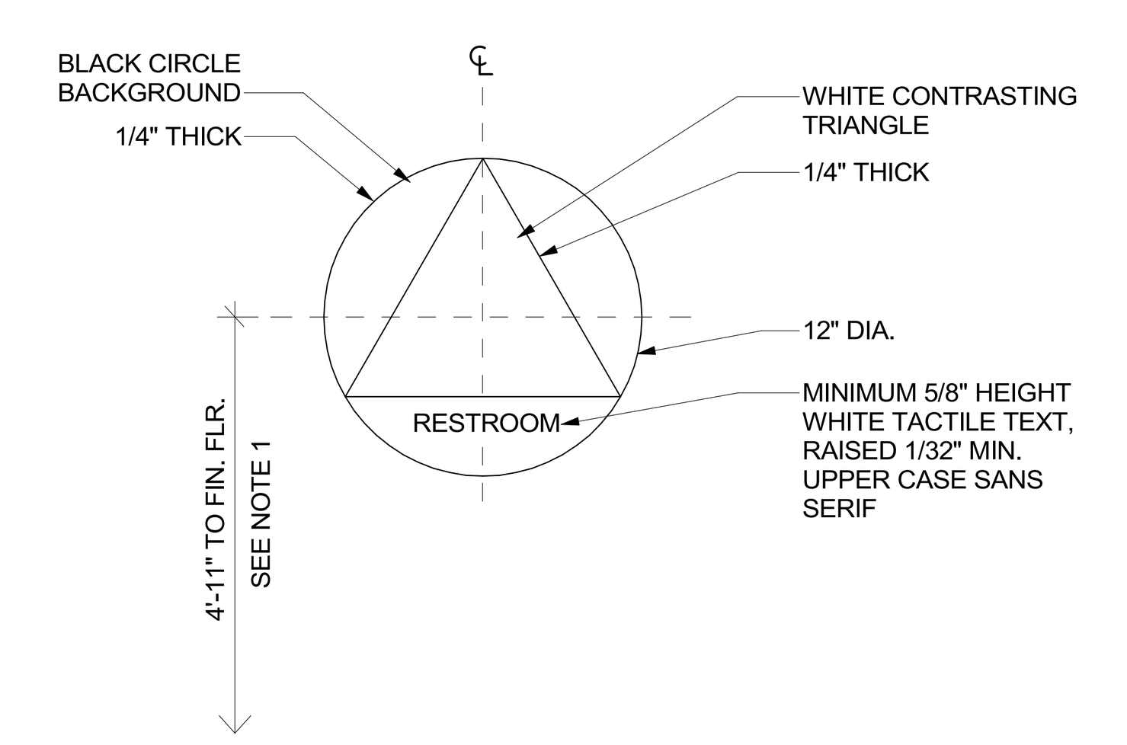
NOTE:
FOR BRAILLE REQUIREMENTS SEE: 13 / G-1.2

FOR MOUNTING REQUIREMENTS SEE: 10 / G-1.2

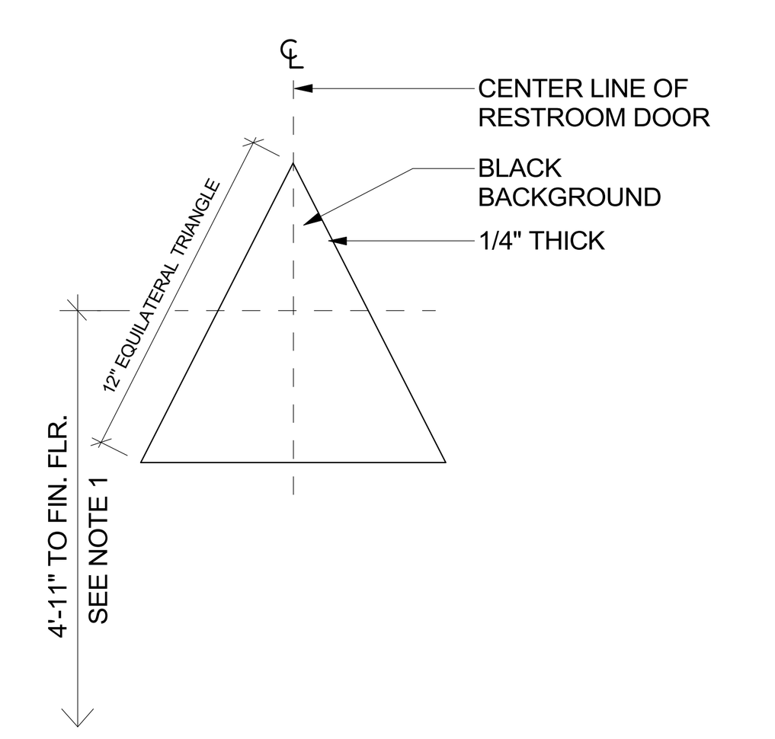
ACCESSIBLE ROOM SIGNS — 9 — 1/2" = 1'-0"



WOMEN RESTROOM - A
(SEE NOTE 2 & 5)



SINGLE OCCUPANT RESTROOM - C
(SEE NOTE 4 & 5)



MEN RESTROOM - B
(SEE NOTE 3 & 5)

NOTES

1. DOORWAYS LEADING TO TOILET ROOMS AND BATHING ROOMS SHALL BE IDENTIFIED BY A GEOMETRIC SYMBOL MOUNTED AT 58" MINIMUM AND 60" MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED FROM THE CENTERLINE OF THE SYMBOL. WHERE A DOOR IS PROVIDED THE SYMBOL SHALL BE MOUNTED WITHIN 1" OF THE VERTICAL CENTERLINE OF THE DOOR. CBC 11B-703.7.2.6
2. WOMEN'S TOILET AND BATHING FACILITIES SHALL BE IDENTIFIED BY A CIRCLE, 1/4" THICK AND 12" IN DIAMETER. THE CIRCLE SYMBOL SHALL CONTRAST WITH THE DOOR, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND. CBC 11B-703.7.2.6.2
3. MEN'S TOILET AND BATHING FACILITIES SHALL BE IDENTIFIED BY AN EQUILATERAL TRIANGLE, 1/4" THICK WITH EDGES 12" LONG AND A VERTEX POINTING UPWARD. THE TRIANGLE SYMBOL SHALL CONTRAST WITH THE DOOR, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND. CBC 11B-703.7.2.6.1
4. UNISEX TOILET AND BATHING FACILITIES SHALL BE IDENTIFIED BY A CIRCLE, 1/4" THICK AND 12" IN DIAMETER WITH A 1/4" THICK TRIANGLE WITH A VERTEX POINTING UPWARD SUPERIMPOSED ON THE CIRCLE AND WITHIN THE 12-INCH DIAMETER. THE TRIANGLE SYMBOL SHALL CONTRAST WITH THE CIRCLE SYMBOL, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND. THE CIRCLE SYMBOL SHALL CONTRAST WITH THE DOOR, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND. CBC 11B-703.7.2.6.3
5. EDGES SHALL BE EASED OR ROUNDED AT 1/16-INCH MIN. OR CHAMFERED AT 1/8-INCH MAXIMUM. CBC 11B-703.7.2.6.4

RESTROOM GEOMETRIC SYMBOLS — 1 — 3/4" = 1'-0"

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 6/24/19

WESTGROUP DESIGNS
ARCHITECTURE | PLANNING | INTERIOR DESIGN
19520 Jamboree Road | Suite 100
Irvine | California | 92612
949.250.0880 | FAX 949.250.0882
www.westgroupdesigns.com

FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS

FILLMORE UNIFIED SCHOOL DISTRICT

555 Central Ave. Fillmore, CA. 93015

ISSUED FOR:

SCHEMATIC DESIGN	11/16/2017
DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT DAVID JORDAN SMITH C20495 EXP. 3/31/21 Renewal Date STATE OF CALIFORNIA

SHEET TITLE:

STANDARDS

SHEET NUMBER:

G-1.2

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	WD	WD	05/08/19

DSA A# 03-119532

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
A5.504.5.3.1 Filters, Tier 1. In mechanically ventilated buildings, provide regularly occupied areas of the building with air infiltration media for outside and return air prior to occupancy that provides at least a MERV of 11. **A5.504.5.3.1.1 Filters, Tier 2.** In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13.			
5.504.7 Environmental tobacco smoke (ETS) control. Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows where outdoor areas are provided for smoking and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University or campus of the University of California, whichever are more stringent.	☒		
Indoor Moisture and Radon Control			
5.505.1 Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1203 and Chapter 14.1.[3]	☒		
Air Quality and Exhaust			
5.506.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 of the *California Energy Code* and Chapter 4 of CCR, Title 8 or the applicable local code, whichever is more stringent.[3]	☒		
5.506.2 Carbon dioxide (CO_2) monitoring. For buildings or additions equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, CCR, Section 120(c)(4).[3]	☒		
Environmental Comfort			
A5.507.1 Lighting and thermal comfort controls. Provide controls in the workplace as described in Sections A5.507.1.1 and A5.507.1.2.			
A5.507.1.1 Single-occupant spaces. Provide individual controls that meet energy use requirements in the *California Energy Code* by Sections A5.507.1.1.1 and A5.507.1.1.2.		☐	☐
A5.507.1.1.1 Lighting. Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.		☐	☐
A5.507.1.1.2 Thermal comfort. Provide individual thermal comfort controls for at least 50 percent of the building occupants by Items 1 and 2 in Section A5.507.1.1.2.		☐	☐
A5.507.1.2 Multi-occupant spaces. Provide lighting and thermal comfort system controls for all shared multi-occupant spaces.		☐	☐
A5.507.2 Daylight. Provide daylit spaces as required for toplighting and sidelighting in the *California Energy Code*. In constructing a design, consider Items 1 through 4 in Section A5.507.3.		☐	☐
A5.507.3 Views. Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finish floor for building occupants in 90 percent of all regularly occupied areas.		☐	☐
A5.507.3.1 Interior office spaces. Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.		☐	☐
A5.507.3.2 Multi-occupant spaces. Include in the calculation the square footage with direct line of sight to perimeter vision glazing.		☐	☐
5.507.4 Acoustical control. Employ building assemblies and components with STC values determined in accordance with ASTM E90 and ASTM E413 or OITC determined in accordance with ASTM E1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.	☒		
5.507.4.1 Exterior noise transmission, prescriptive method. Wall and floor-ceiling assemblies exposed to the noise source making up the building envelope shall have exterior wall and roof ceiling assemblies meeting a composite STC rating of at least 50 or a composite OITC rating of no less than 40 with exterior windows of a minimum STC of 40 or OITC of 30 in the locations described in Items 1 and 2. Also applies to addition envelope or altered envelope.	☒		
5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq}-1Hr during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30). Also applies to addition or alteration exterior wall.	☒ or		
5.507.4.2 Performance method. For buildings located as defined in Sections A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation. Also applies to addition envelope or altered envelope.	☒		
5.507.4.2.1 Site features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the project to mitigate sound migration to the interior. Also applies to addition envelope or altered envelope.	☒		
5.507.4.2.1 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.	☒		
5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Building Maintenance and Operation			
5.410.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials including organic waste for recycling.[3] **Exception:** Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.	☒		
5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30 percent or more in floor area, shall provide recyling areas on site. **Exception:** Additions within a tenant space resulting in less than a 30-percent increase in the tenant space floor area.	☒		
5.410.2 Commissioning. [N] For new buildings 10,000 square feet and over, building commissioning for all building systems covered by Title 24, Part 6, process systems and renewable energy systems shall be included in the design and construction processes of the building project. All occupancies other than I-occupancies and L-occupancies shall comply with the *California Energy Code* as prescribed in *California Energy Code* Section 120.8. For I-occupancies and L-occupancies which are not regulated by OSHPD or for I-occupancies and L-occupancies which are not regulated by the *California Energy Code* Section 100.0 Scope; all requirements in sections 5.410.2 through 5.410.2.6 shall apply. Commissioning requirements shall include items listed in Section 5.410.2. **Exceptions:** 1. Unconditioned warehouses of any size 2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses 3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 4. Open parking garages of any size, or open parking garage areas of any size, within a structure.	☒		
5.410.2.1 Owner's Project Requirements (OPR). [N] Documented before the design phase of the project begins the OPR shall include items listed in Section 5.410.2.1.	☒		
5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project to cover the systems listed in Section 5.410.2.2.	☒		
5.410.2.3 Commissioning plan. [N] A commissioning plan describing how the project will be commissioned shall include items listed in Section 5.410.2.3.	☒		
5.410.2.4 [N] Functional performance testing shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications.	☒		
5.410.2.5 Documentation and training. [N] A Systems manual and systems operations training are required.			
5.410.2.5.1 Systems manual. [N] The systems manual shall be delivered to the building owner or representative and facilities operator and shall include the items listed in Section 5.410.2.5.1.	☒		
5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and shall include items listed in Section 5.410.2.5.2.	☒		
5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.	☒		
5.410.4 Testing and adjusting. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet. Applies to new systems serving additions or alterations.	☒		
5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include, as applicable to the project, the systems listed in Section 5.410.4.2.	☒		
5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with applicable standards on each system as determined by the enforcing agency.	☒		
5.410.4.3.1 HVAC balancing. Before a new space-conditioning system serving a building or space is operated for normal use, balance in accordance with the procedures defined by national standards listed in Section 5.410.4.3.1 or as approved by the enforcing agency.	☒		
5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.	☒		
5.410.4.5 Operation and maintenance manual. Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.	☒		
5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.	☒		
Environmental Quality			
Fireplaces			
5.503.1 Fireplaces. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace or a sealed woodstove and refer to residential requirements in the *California Energy Code*, Title 24, Part 6, Subchapter 7, Section 150.	☒ As applicable		
5.503.1.1 Woodstoves. Woodstoves shall comply with US EPA New Source Performance Standards (NSPS) emission limits, where applicable, and shall have a permanent label indicating they are certified to meet the emission limits.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
5.304.3 Outdoor water use in rehabilitated landscape projects equal to or greater than 2,500 square feet. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review shall comply with Section 5.304.2, Item 1 or 2.[3]	☒		
5.304.4 Outdoor water use in landscape areas of 2,500 square feet or less. Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of MWELO or conform to the prescriptive compliance measures contained in MWELO's Appendix D.[3]	☒		
5.304.5 Graywater or rainwater use in landscape areas. For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than 2,500 square feet of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix D Section (5).[3]	☒	☐	☐
A5.304.6 Restoration of areas disturbed by construction. Restore all areas disturbed during construction by planting with local native and/or noninvasive vegetation.		☐	☐
A5.304.7 Previously developed sites. On previously developed or graded sites, restore or protect at least 50 percent of the site area with native and/or noninvasive vegetation.		☐	☐
A5.304.8 Graywater irrigation system. Install graywater collection system for onsite subsurface irrigation using graywater collected from bathtubs, showers, bathroom wash basins and laundry water. See *California Plumbing Code*.		☐	☐
Water Reuse			
A5.305.1 Nonpotable water systems. Nonpotable water systems for indoor and outdoor use shall comply with the current edition of the *California Plumbing Code*.		☐	☐
A5.305.2 Irrigation systems. Irrigation systems regulated by a local water efficient landscape ordinance or by the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) shall use recycled water.		☐	☐
Material Conservation and Resource Efficiency			
Efficient Framing Systems			
A5.404.1 Wood framing. Employ advanced wood framing techniques or OVE, as permitted by the enforcing agency. See sections A5.404.1.1 and a5.404.1.2 for additional requirements.		☐	☐
Material Sources			
A5.405.1 Regional materials. Select building materials or products for permanent installation on the project that have been harvested or manufactured in California or within 500 miles of the project site, meeting the criteria listed in Section A5.405.1.		☐	☐
A5.405.2 Bio-based materials. Select bio-based building materials per Section A5.405.2.1 or A5.405.2.2. **A5.405.2.1 Certified wood products.** Certified wood is an important component of green building strategies and the California Building Standards Commission will continue to develop a standard through the next code cycle.		☐	☐
A5.405.2.2 Rapidly renewable materials. Use materials made from plants harvested within a ten-year cycle for at least 2.5 percent of total materials value, based on estimated cost.		☐	☐
A5.405.3 Reused materials. Use salvaged, refurbished, refinished or reused materials for at least 5 percent of the total value, based on estimated cost of materials on the project.		☐	☐
A5.405.4 Recycled content. Use materials, equivalent in performance to virgin materials, with a total (combined) recycled content value (RCV) of: **Tier 1.** The RCV shall not be less than 10 percent of the total material cost of the project or use two products which meet the minimum recycled content levels in Table A5.405.4 for at least 75%, by cost, of all products in that category in the project		☒	
Tier 2. The RCV shall not be less than 15 percent of the total material cost of the project or use three products which meet the minimum recycled content levels in Table A5.405.4 for at least 75%, by cost, of all products in that category in the project.			☒
Note: Use the equations in the subsections for calculating total materials cost, recycled content, RCV of materials and assemblies, and total RCV.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Energy Efficiency			
Performance Requirements for Newly Constructed Buildings and Additions			
5.201.1 Scope. Building meets or exceeds the requirements of the California Building Energy Efficiency Standards.[3]	☒	☒[2]	☒[2]
A5.203.1 Energy efficiency. Nonresidential, high-rise residential and hotel/motel buildings that include lighting and/or mechanical systems shall comply with Sections A5.203.1.1 and either A5.203.1.2.1 or A5.203.1.2.2. Newly constructed buildings, as well as additions and alterations, are included in the scope of these sections. Buildings permitted without lighting or mechanical systems shall comply with Section A5.203.1.1 but are not required to comply with Sections A5.203.1.1.2 or A5.203.1.2.		☐	☐
A5.203.1.1 Tier 1 and Tier 2 prerequisites. Each of the following efficiency measures is required for all applicable components of the building project		☒[2]	☒[2]
A5.203.1.1.1 Outdoor lighting. Newly installed outdoor lighting power is no greater than 90 percent of the Title 24, Part 6 calculated value of allowed outdoor lighting power.		☒[2]	☒[2]
A5.203.1.1.2 Service water heating in restaurants. Newly constructed restaurants 8,000 square feet or greater and with service water heaters rated 75,000 Btu/h or greater installed a solar water-heating system with a minimum solar savings fraction of 0.15. See exceptions 1 and 2.		☒[2]	☒[2]
A5.203.1.2 Performance standard. Comply with one of the advanced efficiency levels indicated below. **A5.203.1.2.1 Tier 1.** Buildings complying with the first level of advanced energy efficiency shall have an Energy Budget that is no greater than indicated below, depending on the type of energy systems included in the building project. If the newly con- structed building, addition or alteration does not include indoor lighting or mechanical systems, then no additional perfor- mance requirements above Title 24, Part 6 are required. 1. For building projects that include indoor lighting or mechanical systems, but not both: No greater than 95 percent of the Title 24, Part 6, Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission. 2. For building projects that include indoor lighting and mechanical systems: No greater than 90 percent of the Title 24, Part 6 Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission.		☒[2]	
A5.203.1.2.2 Tier 2. Buildings complying with the second level of advanced energy efficiency shall have an Energy Budget that is no greater than indicated below, depending on the type of energy systems included in the building project. If the newly constructed building, addition or alteration does not include indoor lighting or mechanical systems, then no additional perfor- mance requirements above Title 24, Part 6 are required. 1. For building projects that include indoor lighting or mechanical systems, but not both: No greater than 90 percent of the Title 24, Part 6, Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission. 2. For building projects that include indoor lighting and mechanical systems: No greater than 85 percent of the Title 24, Part 6, Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission. **Note:** For Energy Budget calculations, high-rise residential and hotel/motel buildings are considered nonresidential buildings.			☒[2]
Renewable Energy			
A5.211.1 On-site renewable energy. Use on-site renewable energy for at least 1 percent of the electrical service overcurrent protection device rating calculated in accordance with the 2016 *California Electrical Code* or 1KW, whichever is greater, in addition to the electrical demand required to meet 1 percent of natural gas and propane use calculated in accordance with the 2016 *California Plumbing Code*. **A5.211.1.1 Documentation.** Calculate renewable on-site system to meet the requirements of Section A5.211.1. Factor in net-metering, if offered by local utility, on an annual basis.		☐	☐
A5.211.3 Green power. Participate in the local utility's renewable energy portfolio program that provides a minimum of 50-percent electrical power from renewable sources. Maintain documentation through utility billings.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLISTS[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Requirements			
Project meets all of the requirements of Divisions 5.1 through 5.5.	☒	☐	☐
Planning and Design			
Site Selection			
A5.103.1 Community connectivity. Locate project on a previously developed site within a 1/2- mile radius of at least ten basic services, listed in Section A5.103.1.		☐	☐
A5.103.2 Brownfield or greyfield site redevelopment or infill area development. Select for development a brownfield in accordance with Section A5.103.2.1 or on a greyfield or infill site as defined in Section A5.106.3.2. **A5.103.2.1 Brownfield redevelopment.** Develop a site documented as contaminated and fully remediated or on a site defined as a brownfield.		☐	☐
Site Preservation			
A5.104.1.1 Local zoning requirement in place. Exceed the zoning's open space requirement for vegetated open space on the site by 25 percent.		☐	☐
A5.104.1.2 No local zoning requirement in place. Provide vegetated open space area adjacent to the building equal to the building footprint area.		☐	☐
A5.104.1.3 No open space required in zoning ordinance. Provide vegetated open space equal to 20 percent of the total project site area.		☐	☐
Deconstruction and Reuse of Existing Structures			
A5.105.1.1 Existing building structure. Maintain at least 75 percent of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing) based on surface area. **Exceptions:** 1. Window assemblies and nonstructural roofing material. 2. Hazardous materials that are remediated as a part of the project. 3. A project with an addition of more than two times the square footage of the existing building.		☐	☐
A5.105.1.2 Existing nonstructural elements. Reuse existing interior nonstructural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50 percent of the area of the completed building (including additions). **Exception:** A project with an addition of more than two times the square footage of the existing building.		☐	☐
A5.105.1.3 Salvage. Salvage additional items in good condition such as light fixtures, plumbing fixtures and doors for reuse on this project in an onsite storage area or for salvage in dedicated collection bins. Document the weight or number of the items salvaged. See Items 1 and 2.		☐	☐
Site Development			
5.106.1 Storm water pollution prevention. Newly constructed projects and additions which disturb less than one acre of land shall prevent the pollution of storm water runoff from the construction activities through local ordinance in Section 5.106.1.1	☒		
or Best management practices (BMP) in Section 5.106.1.2.	or ☒		
A5.106.2 Storm water design. Design storm water runoff rate and quantity in conformance with Section A5.106.2.1 and storm water runoff quality by Section A5.106.2.2 or by local requirements, whichever are stricter.	☐	☐	☐
A5.106.2.1 Storm water runoff rate and quantity. Implement a storm water management plan resulting in no net increase in rate and quantity of storm water runoff from existing to developed conditions. **Exception:** If the site is already greater than 50 percent impervious, implement a storm water management plan resulting in a 25-percent decrease in rate and quantity.	☐	☐	☐
A5.106.2.2 Storm water runoff quality. Use post construction treatment control best management practices (BMPs) to mitigate (infiltrate, filter or treat) storm water runoff from the 85th percentile 24-hour runoff event (for volume-based BMPs) or the runoff produced by a rain event equal to two times the 85th percentile hourly intensity (for flow-based BMPs).	☐	☐	☐
A5.106.3 Low impact development (LID). Reduce peak runoff in compliance with Section 5.106.1. Employ at least two of the following methods or other best management practices to allow rainwater to soak into the ground, evaporate into the air or collect in storage receptacles for irrigation or other beneficial uses. LID strategies include, but are not limited to those listed in Section A5.106.3.		☐	☐
A5.106.3.1 Implementation. If applicable, coordinate LID projects with the local Regional Water Quality Control Board, which may issue a permit or otherwise require LID.		☐	☐
A5.106.3.2 Greyfield or infill site. Manage 40 percent of the average annual rainfall on the site's impervious surfaces through infiltration, reuse or evapotranspiration.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Outdoor Air Quality			
5.508.1 Ozone depletion and global warming reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.	As applicable		
5.508.1.1 CFCs. Install HVAC and refrigeration equipment that does not contain CFCs.[3]	☒		
5.508.1.2 Halons. Install fire suppression equipment that does not contain Halons.[1]	☒		
A5.508.1.3 Hydrochlorofluorocarbons (HCFCs). Install HVAC and refrigeration equipment that does not contain HCFCs.		☐	☐
A5.508.1.4 Hydrofluorocarbons (HFCs). Install HVAC complying with either of the following: 1. Install HVAC, refrigeration and fire suppression equipment that do not contain HFCs or that do not contain HFCs with a global warming potential greater than 150.		☐	☐
2. Install HVAC and refrigeration equipment that limit the use of HFC refrigerant through the use of a secondary heat transfer fluid with a global warming potential no greater than 1.		☐	☐
5.508.2 Supermarket refrigerant leak reduction. New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global- warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities. **Exception:** Refrigeration systems containing low-global warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO_2), and potentially other refrigerants.	☒ As applicable		
5.508.2.1 Refrigerant piping. Piping compliant with the *California Mechanical Code* shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below. **5.508.2.1.1 Threaded pipe.** Threaded connections are permitted at the compressor rack. **5.508.2.1.2 Copper pipe.** Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less. **5.508.2.1.2.1 Anchorage.** 1/4 inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils. **5.508.2.1.3 Flared tubing connections.** Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil. **Exception:** Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations. **5.508.2.1.4 Elbows.** Short radius elbows are only permitted where space limitations prohibit use of long radius elbows. **5.508.2.2 Valves.** Valves and fittings shall comply with the *California Mechanical Code* and as follows. **5.508.2.2.1 Pressure relief valves.** For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve. **5.508.2.2.1.1 Pressure detection.** A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve. **5.508.2.2.2 Access valves.** Only Schrader access valves with a brass or steel body are permitted for use. **5.508.2.2.2.1 Valve caps.** For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic. **5.508.2.2.2.2 Seal caps.** If designed for it, the cap shall have a neoprene O-ring in place. **5.508.2.2.2.2.1 Chain tethers.** Chain tethers to fit over the stem are required for valves designed to have seal caps. **Exception:** Valves with seal caps that are not removed from the valve during stem operation. **5.508.2.3 Refrigerated service cases.** Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel; or be coated to prevent corrosion from these substances. **5.508.2.3.1. Coil coating.** Consideration shall be given the heat transfer efficiency of coil coating to maximize energy efficiency.			

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Pollutant Control			
A5.504.1 Indoor air quality (IAQ) during construction. Maintain IAQ as provided in Sections A5.504.1.1 and A5.504.1.2.			
A5.504.1.1 Temporary ventilation. Provide temporary ventilation during construction in accordance with Section 121 of the *California Energy Code*, CCR, Title 24, Part 6 and Chapter 4 of CCR, Title 8 and as listed in Items 1 and 2 in Section A5.504.1.1.		☐	☐
A5.504.1.2 Additional IAQ measures. Employ additional measures as listed in Items 1 through 5 in Section A5.504.1.2.		☐	☐
5.504.1 Temporary ventilation. If the HVAC system is used during construction, use return air filters with a MERV of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy. Applies to additions or alterations.	☒		
A5.504.2 IAQ postconstruction. Flush out the building per Section A5.504.2 prior to occupancy or if the building is occupied.		☐	☐
A5.504.2.1 IAQ Testing. A testing alternative may be employed after all interior finishes have been installed, using testing protocols recognized by the United State Environmental Protection Agency (U.S. EPA) and in accordance with Section A5.504.2.1.2. Retest as required in Section A5.504.2.1.3.		☐	☐
A5.504.2.1.1 Maximum levels of contaminants. Allowable levels of contaminant concentrations measured by testing shall not exceed the following:			
1. Carbon Monoxide (CO): 9 parts per million, not to exceed outdoor levels by 2 parts per million;		As applicable	As applicable
2. Formaldehyde: 27 parts per billion;		☐	☐
3. Particulates (PM10): 50 micrograms per cubic meter;		☐	☐
4. 4-Phenylcyclohexene (4-PCH): 6.5 micrograms per cubic meter; and		☐	☐
5. Total Volatile Organic Compounds (TVOC): 300 micrograms per cubic meter.		☐	☐
A5.504.2.1.2 Test protocols. Testing of indoor air quality should include the elements listed in Items 1 through 4.		☐	☐
A5.504.2.1.3 Noncomplying building areas. For each sampling area of the building exceeding the maximum concentrations specified in Section A5.504.2.1.1, flush out with outside air and retest samples taken from the same area. Repeat the procedures until testing demonstrates compliance.		☐	☐
5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.	☒		
5.504.4 Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6. **5.504.4.1 Adhesives, sealants, caulks.** Adhesives and sealants used on the project shall meet the requirements of the following standards.			
1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2.	☒		
2. Aerosol adhesives and smaller unit sizes of adhesives and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.	☒		
5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with Table 5.504.4.3 unless more stringent local limits apply.	☒		
5.504.4.3.1 Aerosol paints and coatings. Aerosol paints and coatings shall meet the Product- Weighted MIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (CCR, Title 17, Section 94520, et seq.).	☒		
5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency.	☒		
5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the standards listed in Section 5.504.4.4.	☒		
5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.	☒		
5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.	☒		
5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 5.504.4.5.	☒		
A5.504.4.5.1 No added formaldehyde, Tier 1. Use composite wood products approved by the ARB as no-added formaldehyde (NAF) based resins or ultra-low emitting formaldehyde (ULEF) resins.			☒
5.504.4.5.3 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:	☒ As applicable	☐	☐
1. Product certifications and specifications.	☒		
2. Chain of custody certifications.	☒		
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).	☒		
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards.	☒		
5. Other methods acceptable to the enforcing agency.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
A5.405.5 Cement and concrete. Use cement and concrete made with recycled products and complying with the following sections: **A5.405.5.1 Cement.** Cement shall comply with one of the following standards: 1. Portland cement shall meet ASTM C150. 2. Blended hydraulic cement shall meet ASTM C595. 3. Other Hydraulic Cements shall meet ASTM C1157.		☐	☐
A5.405.5.2 Concrete. Unless otherwise directed by the Engineer of Record, use concrete manufactured with cementitious materials in accordance with Sections A5.405.5.2.1 and A5.405.5.2.1.1, as approved by the enforcing agency.		☐	☐
A5.405.5.2.1 Supplementary cementitious materials (SCMs). Use concrete made with one or more of the SCMs listed in Section A5.405.5.2.1.		☐	☐
A5.405.5.2.1.1 Mix design equation. Use any combination of one or more SCMs, satisfying Equation A4.5-14. **Exception:** Minimums in mix designs approved by the Engineer of Record may be lower where high early strength is needed.		☐	☐
A5.405.5.3 Additional means of compliance. Any of the following measures shall be permitted to be employed for the production of cement or concrete, depending on their availability and suitability, in conjunction with Section A5.405.5.2. **A5.405.5.3.1 Cement.** The following measures may be used in the manufacture of cement.			
A5.405.5.3.1.1 Alternative fuels. Where permitted by state or local air quality standards.		☐	☐
A5.405.5.3.1.2 Alternative power. Alternate electric power generated at the cement plant and/or green power purchased from the utility meeting the requirements of Section A5.211.		☐	☐
A5.405.5.3.2 Concrete. The following measures may be used in the manufacture of concrete, **A5.405.5.3.2.1 Alternative energy.** Renewable or alternative energy meeting the requirements of Section A5.211.		☐	☐
A5.405.5.3.2.2 Recycled aggregates. Concrete made with one or more of the materials listed in Section A5.405.5.3.2.2.		☐	☐
A5.405.5.3.2.3 Mixing water. Water recycled by the local water purveyor or water reclaimed from manufacturing processes and conforming to ASTM C1602.		☐	☐
A5.405.5.3.2.4 High strength concrete. Concrete elements designed to reduce their total size compared to standard 3,000 psi concrete, as approved by the Engineer of Record.		☐	☐
Enhanced Durability and Reduced Maintenance			
A5.406.1.1 Service life. Select materials for longevity and minimal deterioration under conditions of use.		☐	☐
A5.406.1.2 Reduced maintenance. Select materials that require little, if any, finishing.		☐	☐
A5.406.1.3 Recyclability. Select materials that can be re-used or recycled at the end of their service life.		☐	☐
Weather Resistance and Moisture Management			
5.407.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by *California Building Code*, Section 1403.2 and *California Energy Code*, Section 150, manufacturer's installation instructions or local ordinance, whichever is more stringent.[3]	☒		
5.407.2 Moisture control. Employ moisture control measures by the following methods; **5.407.2.1 Sprinklers.** Design and maintain landscape irrigation systems to prevent irrigation spray on structures.	☒		
5.407.2.2 Entries and openings. Design exterior entries and openings to prevent water intrusion into buildings as follows. **5.407.2.2.1 Exterior door protection.** Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following: 1. An installed awning at least 4 feet in depth. 2. The door is protected by a roof overhang at least 4 feet in depth. 3. The door is recessed at least 4 feet. 4. Other methods which provide equivalent protection.	☒		
5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Elevators, Escalators and Other Equipment			
A5.212.1 Elevators and escalators. In buildings with more than one elevator or two escalators, provide systems and controls to reduce the energy demand of elevators and escalators as follows. Document systems operation and controls in the project specifications and commissioning plan. **A5.212.1.1 Elevators.** Traction elevators shall have a regenerative drive system that feeds electrical power back into the building grid when the elevator is in motion.			
A5.212.1.1.1 Car lights and fan. A parked elevator shall turn off its car lights and fan automatically until the elevator is called for use.		☐	☐
A5.212.1.2 Escalators. An escalator shall have a variable voltage variable frequency (VVVF) motor drive system that is fully regenerative when the escalator is in motion.		☐	☐
A5.212.1.4 Controls. Controls that reduce energy demand shall meet requirements of CCR, Title 8, Chapter 4, Subchapter 6 and shall not interrupt emergency operations for elevators required in CCR, Title 24, Part 2, *California Building Code*.		☐	☐
Energy Efficient Steel Framing			
A5.213.1 Steel framing. Design for and employ techniques to avoid thermal bridging.		☐	☐
Water Efficiency and Conservation			
Indoor Water Use			
5.303.1 Meters. Separate meters shall be installed for the uses described in Sections 5.303.1.1 and 5.303.1.2. **5.303.1.1 New buildings or additions in excess of 50,000 square feet.** Separate submeters shall be installed as follows: 1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.	☒		
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems: a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s)	☒		
b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s)	☒		
c. Steam and hot-water boilers with energy input more than 500,000 Btu/h (147 kW)	☒		
5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant within a new building or an addition that is projected to consume more than 1,000 gal/day (3800 L/day).	☒		
A5.303.2.3.1 Tier 1 – 12-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 12 percent shall be provided. By either the prescriptive or performance method.		☒	
A5.303.2.3.2 Tier 2 – 20-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. (Calculate savings by Water Use Worksheets)			☒
A5.303.2.3.3 25-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 25 percent shall be provided. (Calculate savings by Water Use Worksheets)			☒
A5.303.2.3.4 Nonpotable water systems for indoor use. Utilizing nonpotable water systems (such as captured rainwater, treated graywater, and recycled water) intended to supply water closets, urinals, and other allowed uses, may be used in the calculations demonstrating the 12-, 20- or 25-percent reduction. The nonpotable water systems shall comply with the current edition of the *California Plumbing Code*.		☐	
5.303.3 Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:	☒		
5.303.3.1 Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets. **Note:** The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.	☒		
5.303.3.2 Urinals. **5.303.3.2.1 Wall-mounted urinals.** The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.	☒		
5.303.3.2.2 Floor-mounted urinals. The effective flush volume of floor-mounted urinals shall not exceed 0.5 gallons per flush.	☒		
5.303.3.3 Showerheads. **5.303.3.3.1 Single showerhead.** Showerheads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.	☒		
5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. **Note:** A hand-held shower shall be considered a showerhead.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
5.106.4 Bicycle parking. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 105, comply with Section 5.106.4.2. **5.106.4.1 Bicycle parking. [BSC-CG]** Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the applicable local ordinance, whichever is stricter.	☒		
5.106.4.1.1 Short-term bicycle parking. If the new project or addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack. **Exception:** Additions or alterations which add nine or fewer visitor vehicular parking spaces.	☒		
5.106.4.1.2 Long-term bicycle parking. For buildings with 10 or more tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking spaces being added, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and shall meet one of the following: 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 2. Lockable bicycle rooms with permanently anchored racks; or 3. Lockable, permanently anchored bicycle lockers. **Note:** Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates. **A5.106.4.3 Changing rooms.** For buildings with over 10 tenant-occupants, provide changing/shower facilities in accordance with Table A5.106.4.3 or document arrangements with nearby changing/shower facilities.	☒		
A5.106.5.1 Designated parking for clean air vehicles. Provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in: **A5.106.5.1.1 Tier 1 10% of total spaces** per Table A5.106.5.1.1.		☐	
A5.106.5.1.2 Tier 2 12% of total spaces per Table A5.106.5.1.2.			☐
A5.106.5.1.3 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: CLEAN AIR/ VANPOOL/EV	☐		
A5.106.5.1.4 Vehicle designations. Building managers may consult with local community Transit Management Associations (TMAs) for methods of designating qualifying vehicles, such as issuing parking stickers. See Notes 1 and 2	☐		
5.106.5.2 Designated parking. In new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2.	☒		
5.106.5.2.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: CLEAN AIR/ VANPOOL/EV **Note:** Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.	☒		
5.106.5.3 Electric vehicle (EV) charging. [N] Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). **5.106.5.3.1 Single charging space requirements. [N]** **5.106.5.3.2 Multiple charging spaces requirements. [N]** **5.106.5.3.3 EV charging space calculation. [N]** per Table 5.106.5.3.3 (approx. 6%) **5.106.5.3.4 [N] Identification.** **5.106.5.3.5 [N]** EV spaces count as designated parking.	☒	☐	☐
A5.106.5.3.1 Tier 1. per Table A5.106.5.3.1 (approx. 8%)		☐	
A5.106.5.3.2 Tier 2. per Table A5.106.5.3.2 (approx. 10%)			☐
A5.106.5.3.3 Identification. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as "EV CAPABLE." The raceway termination location shall be permanently and visi- bly marked as "EV CAPABLE."		☐	
A5.106.5.3.4 Future charging spaces qualify as designated parking as described in Section A5.106.5.1 Designated parking for clean air vehicles. See Notes 1,2 and 3.			☐
A5.106.6 Parking capacity. Design parking capacity to meet but not exceed minimum local zoning requirements. **A5.106.6.1 Reduce parking capacity.** With the approval of the enforcement authority, employ strategies to reduce on-site parking area by 1. Use of on street parking or compact spaces, illustrated on the site plan or		☐	☐
2. Implementation and documentation of programs that encourage occupants to carpool, ride share or use alternate transportation.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device that indicates the level of refrigerant in the receiver. **5.508.2.5 Pressure testing.** The system shall be pressure tested during installation prior to evacuation and charging. **5.508.2.5.1 Minimum pressure.** The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum. **5.508.2.5.2 Leaks.** Check the system for leaks, repair any leaks, and retest for pressure using the same gauge. **5.508.2.5.3 Allowable pressure change.** The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge. **5.508.2.6 Evacuation.** The system shall be evacuated after pressure testing and prior to charging. **5.508.2.6.1 First vacuum.** Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes. **5.508.2.6.2 Second vacuum.** Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes. **5.508.2.6.3 Third vacuum.** Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.			

1. Green building measures in this table may be mandatory if adopted by a city, county, or city and county as specified in Section 101.7.
2. Required prerequisite for this Tier.
3. These measures are currently required elsewhere in statute or in regulation.
4. This application checklist is non-regulatory, intended only as an aid to the user and may not contain complete code language. Refer to Chapter 5 and Appendix Chapter A5 for complete code provisions.

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
5.504.4.6 Resilient flooring systems. For 80 percent of floor area receiving resilient flooring, install resilient flooring which meets one of the following: 1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; 2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010; 3. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria Interpretation for EQ 7.0 and 7.1 (formerly EQ. 2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or 4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program). **A5.504.4.6.1 Verification of compliance.** Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.	☒		
A5.504.4.7 Resilient flooring systems, Tier 1. For 90 percent of floor area receiving resilient flooring, installed resilient flooring shall meet at least one of the following: 1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; 2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010; 3. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria Interpretation for EQ 7.0 and 7.1 (formerly EQ. 2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or 4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program).		☒	
A5.504.4.7.1 Resilient flooring systems, Tier 2. For 100 percent of floor area to scheduled to receive resilient flooring, install resilient flooring shall meet at least one of the following: 1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; 2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010; 3. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria Interpretation for EQ 7.0 and 7.1 (formerly EQ. 2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or 4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program).			
A5.504.4.7.2 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.		☒	☒
A5.504.4.8 Thermal insulation, Tier 1. Comply with the standards listed in Items 1 through 3.		☒	
A5.504.4.8.1 Thermal insulation, Tier 2 Thermal insulation, No-added Formaldehyde. Install thermal insulation which complies with Tier 1 plus does not contain any added formaldehyde.			☒
A5.504.4.8.2 Verification of compliance. Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission limits.		☒	☒
A5.504.4.9 Acoustical ceilings and wall panels. Comply with Chapter 8 in Title 24, Part 2 and with the VOC- emission limits defined in the 2009 CHPS criteria and listed on its High Performance Products Database.		☐	☐
A5.504.4.9.1 Verification of compliance. Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits. **Note:** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program may also be used.		☐	☐
A5.504.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.		☐	☐
A5.504.5.1 Entryway systems. Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors as listed in Items 1 through 3 in Section A5.504.5.1.		☐	☐
A5.504.5.2 Isolation of pollutant sources. In rooms where activities produce hazardous fumes or chemicals, exhaust them and isolate them from their adjacent rooms as listed in Items 1 through 3 in Section A5.504.5.2.		☐	☐
5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a MERV of 8. MERV 8 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual. **Exceptions:**	☒		
1. An ASHRAE 10-percent to 15-percent efficiency filter shall be permitted for an HVAC unit meeting the 2013 *California Energy Code* having 60,000 Btu/h or less capacity per fan coil, if the energy use of the air delivery system is 0.4 W/cfm or less at design air flow. 2. Existing mechanical equipment. **5.504.5.3.1 Labeling.** Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
Construction Waste Reduction, Disposal and Recycling			
5.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.	☒ or		
5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan that complies with Items 1 through 4 of this section.	☒		
5.408.1.2 Waste management company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction waste material diverted from the landfill complies with this section. **Exceptions to Sections 5.408.1.1 and 5.408.1.2:** 1. Excavated soil and land-clearing debris 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist. 3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets	☒		
5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 50 percent minimum requirement as approved by the enforcing agency.	☒		
5.408.1.4 Documentation. Provide documentation of the waste management plan that meets the requirements listed in Sections 5.408.1.1 through 5.408.1.3, and the plan is accessible to the enforcement authority.	☒		
5.408.2 Universal Waste. [A]Additions and alterations to a building or tenant space that meet the scoping provisions in Section 301.3 for nonresidential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste materials shall be included in the construction documents. **Note:** Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/OEARA_REGS_UWR_FinalText.pdf			
5.408.3 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. **Exception:** Reuse, either on-or off-site, of vegetation or soil contaminated by disease or pest infestation.	☒		
A5.408.3.1 Enhanced construction waste reduction–Tier 1. Divert to recycle or salvage at least 65% of nonhazardous construction and demolition waste generated at the site. Any mixed recyclables that are sent to mixed-waste recycling facilities shall include a qualified third party verified facility average diversion rate. Verification of diversion rates shall meet minimum certification eligibility guidelines, acceptable to the local enforcing agency.		☒	
A5.408.3.1.1 Enhanced construction waste reduction–Tier 2. Divert to recycle or salvage at least 80% of nonhazardous construction waste generated at the site.			☒
A5.408.3.1.2 Verification of compliance. A copy of the completed waste management report or documentation of certification of the waste management company utilized shall be provided. **Exceptions:** 1. Excavated soil and land-clearing debris 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist 3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.		☒	☒
Life Cycle Assessment			
A5.409.1 General. Life cycle assessment shall be ISO 14044 compliant. The service life of the building and materials assemblies shall not be less than 60 years.		☐	☐
A5.409.2 Whole building life cycle assessment. Conduct a whole building life assessment, including operating energy, showing that the building project achieves at least a 10-percent improvement for at least three of the impacts listed in Section A5.409.2.2, one of which shall be climate change, compared to a reference building.		☐	☐
A5.409.3 Materials and system assemblies. If whole building analysis of the project is not elected, select a minimum of 50% of materials or assemblies based on life cycle assessment of at least three for the impacts listed in Section A5.409.2.2, one of which shall be climate change.		☐	☐
A5.409.4 Substitution for prescriptive standards. Performance of a life cycle assessment completed in accordance with Section A5.409.2 may be substituted for other prescriptive provisions of Division A5.4, including those made mandatory through local adoption of Tier 1 or Tier 2 in Division A5.6.		☐	☐
A5.409.5 Verification of compliance. Documentation of compliance shall be provided as follows: 1. The assessment is performed in accordance with ISO 14044.		☐	☐
2. The project meets the requirements of other parts of Title 24.		☐	☐
3. A copy of the analysis shall be made available to the enforcement authority.		☐	☐
4. A copy of the analysis and any maintenance or training recommendations shall be included in the operation and maintenance manual. See notes for available tools.		☐	☐

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
A5.303.3 Appliances and fixture commercial application. Appliances and fixtures shall meet the following: 1. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations*.		☐	☐
2. Dishwashers shall meet the criteria in Section A5.303.3(2)(a) and (b).		☐	☐
3. Ice makers shall be air cooled.		☐	☐
4. Food steamers shall be connectionless or boilerless . and shall consume no more than 2 gallons of water per pan per hour, including condensate water, for batch type steamers, and no more than 5 gallons of water per pan per hour, including condensate water, for cook to order steamers.		☐ ☐	☐ ☐
5. The use and installation of water softeners that discharge to the community sewer system may be limited or prohibited by local agencies if certain conditions are met.		☐	☐
6. Combination ovens shall use a maximum of 1.5 gallons of water per hour per pan, including condensate water.		☐	☐
7. Commercial pre-rinse spray valves manufactured on or after January 1, 2006 shall function at equal to or less than 1.6 gpm (0.10 L/s) at 60 psi (414 kPa) and a. Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate b. Be equipped with an integral automatic shutoff c. Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gpm (0.08 L/s) or less 8. Food waste pulping systems shall use no more than 2 gpm of potable water. 8.1. Note: potable water excludes on-site graywater use, such as dishwasher discharge water.			
A5.303.4 Water conserving plumbing fixtures and fittings **A5.303.4.1 Nonwater supplied urinals.** Nonwater supplied urinals are installed in accordance with the *California Plumbing Code*. Where approved, Hybrid urinals, as defined in Chapter 2, shall be considered waterless urinals. **5.303.4 Faucets and fountains** **5.303.3.4.1 Nonresidential lavatory faucets.** Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi. **5.303.3.4.2 Kitchen faucets.** Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. **5.303.3.4.3 Wash fountains.** Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches) at 60 psi]. **5.303.3.4.4 Metering faucets.** Metering faucets shall not deliver more than 0.20 gallons per cycle. **5.303.3.4.5 Metering faucets for wash fountains.** Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per cycle/20 [rim space (inches) at 60 psi]. **Note:** Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.		☐	☐
5.303.4 Commercial kitchen equipment. **5.303.4.1 Food waste disposers.** Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water. **Note:** This code section does not affect local jurisdiction authority to prohibit or require disposer installation.	☒		
5.303.5 Areas of additions or alteration. For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 and 5.303.4 shall apply to new fixtures in additions or areas of alterations to the building.	☒		
A5.303.5 Dual plumbing. New buildings and facilities shall be dual plumbed for potable and recycled water systems for toilet flushing when recycled water is available as determined by the enforcement authority.		☐	☐
5.303.6 Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code* and in Chapter 6 of this code.	As applicable ☒		
Outdoor Water Use			
5.304.1 Scope. The provisions of Section 5.304 Outdoor Water Use reference the mandatory Model Water Efficiency Landscape Ordinance (MWELO) contained within Chapter 2.7, Division 2, Title 23, *California Code of Regulations*.[3]	☒		
A5.304.2 Outdoor water use. For new water service not subject to the provisions of *Water Code* Section 535, separate meters or submeters shall be installed for indoor and outdoor water use for landscaped areas of at least 500 square feet but not more than 1,000 square feet.		☐	☐
5.304.2 Outdoor water use in landscape areas equal to or greater than 500 square feet.[3] When water is used for outdoor irrigation for new construction projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check or design review, one of the following shall apply: 1. A local water efficient landscape ordinance that is, based on evidence in the record, at least as effective in conserving water as the updated model ordinance adopted by the Department of Water Resources (DWR) per Government Code Section 65595 (c). 2. The California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, *California Code of Regulations*.	☒		

continued

SECTION A5.602
NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST—continued[4]

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY[1] CALGreen Tier 1	CALGreen Tier 2
A5.106.7 Exterior walls. Meet requirements in the current edition of the *California Energy Code* and comply with either Section A5.106.7.1 or A5.106.7.2 for wall surfaces: **A5.106.7.1 Fenestration.** Provide vegetative or man-made shading devices for all fenestration on east-, south- and west-facing walls.			
A5.106.7.1.1 East and west walls. Shading devices shall have 30% coverage to a height of 20 feet or to the top of the exterior wall, whichever is less.		☐	☐
A5.106.7.1.2 South walls. Shading devices shall have 60% coverage to a height of 20 feet or to the top of the exterior wall, whichever is less.		☐	☐
A5.106.7.2 Opaque wall areas. Use wall surfacing with SRI 25 (aged), for 75% of opaque wall areas. See Exception and Note.		☐	☐
5.106.8 Light pollution reduction. [N] Outdoor lighting systems shall be designed and installed to comply with the following: 1. The minimum requirements in the *California Energy Code* for Lighting Zones 1–4 as defined in Chapter 10 of the *California Administrative Code*; and 2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11; and 3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent. **Exceptions: [N]** 1. Luminaires that qualify as exceptions in Section 140.7 of the *California Energy Code* 2. Emergency lighting 3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6. 4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction **Note: [N]** See also *California Building Code*, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways.	☒ or ☒		
5.106.10 Grading and paving. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include those shown in Items 1–5. See exception for additions or alterations.	☒		
A5.106.11 Heat island effect. Reduce nonroof heat islands and roof heat islands as follows: **A5.106.11.1 Hardscape alternatives.** Use one or a combination of strategies 1 through 2 for 50 percent of site hardscape or put 50 percent of parking underground.		☐	☐
1. Use light colored materials with an initial solar reflectance value of at least 30 as determined in accordance with ASTM Standards E1918 or C1549.		☐	☐
2. Use open-grid pavement system or pervious or permeable pavement system.		☐	☐
A5.106.11.2 Cool roof for reduction of heat island effect. Use roofing materials having a minimum aged solar reflectance, thermal emittance complying with Sections A5.106.11.2.2 and A5.106.11.2.3 or a minimum aged or Solar Reflectance Index (SRI) equal to or greater than the values shown in:		☐	☐
Table A5.106.11.2.2 – Tier 1 or		☒	
Table A5.106.11.2.3 – Tier 2 **Exceptions:** 1. Roof constructions that have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 lb/sf. 2. Roof area covered by building integrated solar photovoltaic and building integrated solar thermal panels. **A5.106.11.2.1 Solar reflectance.** Roofing materials shall have a minimum aged solar reflectance equal to or greater than the values specified in Table A5.106.11.2.2 for Tier 1 and Table A5.106.11.2.3 for Tier 2. If Cool Roof Rating Council (CRRC) testing for aged reflectance is not available for any roofing products, the aged value shall be determined using the CRRC certified initial value using the equation paged = [0.2 + ß [pinitial – 0.2], where pinitial = the initial solar reflectance and soiling resistance, ß, listed by product type in Table A5.106.11.2.1. Solar reflectance may also be certified by other supervisory entities approved by the Energy Commission pursuant to Title 24, Part 1, California Administrative Code. **A5.106.11.2.2 Thermal emittance.** Roofing materials shall have a CRRC initial or aged thermal emittance as determined in accordance with ASTM E408 or C1371 equal to or greater than those specified in Table A5.106.11.2.2 for Tier 1 and Table A5.106.11.2.3 for Tier 2. Thermal emittance may also be certified by other supervisory entities approved by the Energy Commission pursuant to Title 24, Part 1, California Administrative Code. **A5.106.11.2.3 Solar reflectance index alternative.** Solar Reflectance Index (SRI) equal to or greater than the values specified in Table A5.106.11.2.2 for Tier 1 and Table A5.106.11.2.3 for Tier 2 may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance. SRI values used to comply with this section shall be calculated using the Solar Reflectance Index (SRI) Calculation Worksheet (SRI-WS) developed by the California Energy Commission or in compliance with ASTM E1980-01 as specified in the California Energy Code, Section 118(i)3. Solar reflectance values used in the SRI-WS shall be based on the aged reflectance value of the roofing product or the equation in section A5.106.11.2.1 if the CRRC certified aged solar reflectance are not available. CertifiedThermal emittance used in the SRI-WS may be either the initial value or the aged value listed by the CRRC.Solar reflectance and thermal emittance may also be certified by other supervisory entities approved by the Commission pursuant to Title 24, Part 1, California Administrative Code. See Note: **A5.106.11.3 Verification of compliance.** If no documentation is available, an inspection shall be conducted to ensure roofing materials meet cool roof aged solar reflectance and thermal emittance or SRI values.			☒

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DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT DAVID JORDAN SMITH C20495 EXP. 01/21 Renewal Date STATE OF CALIFORNIA

SHEET TITLE:

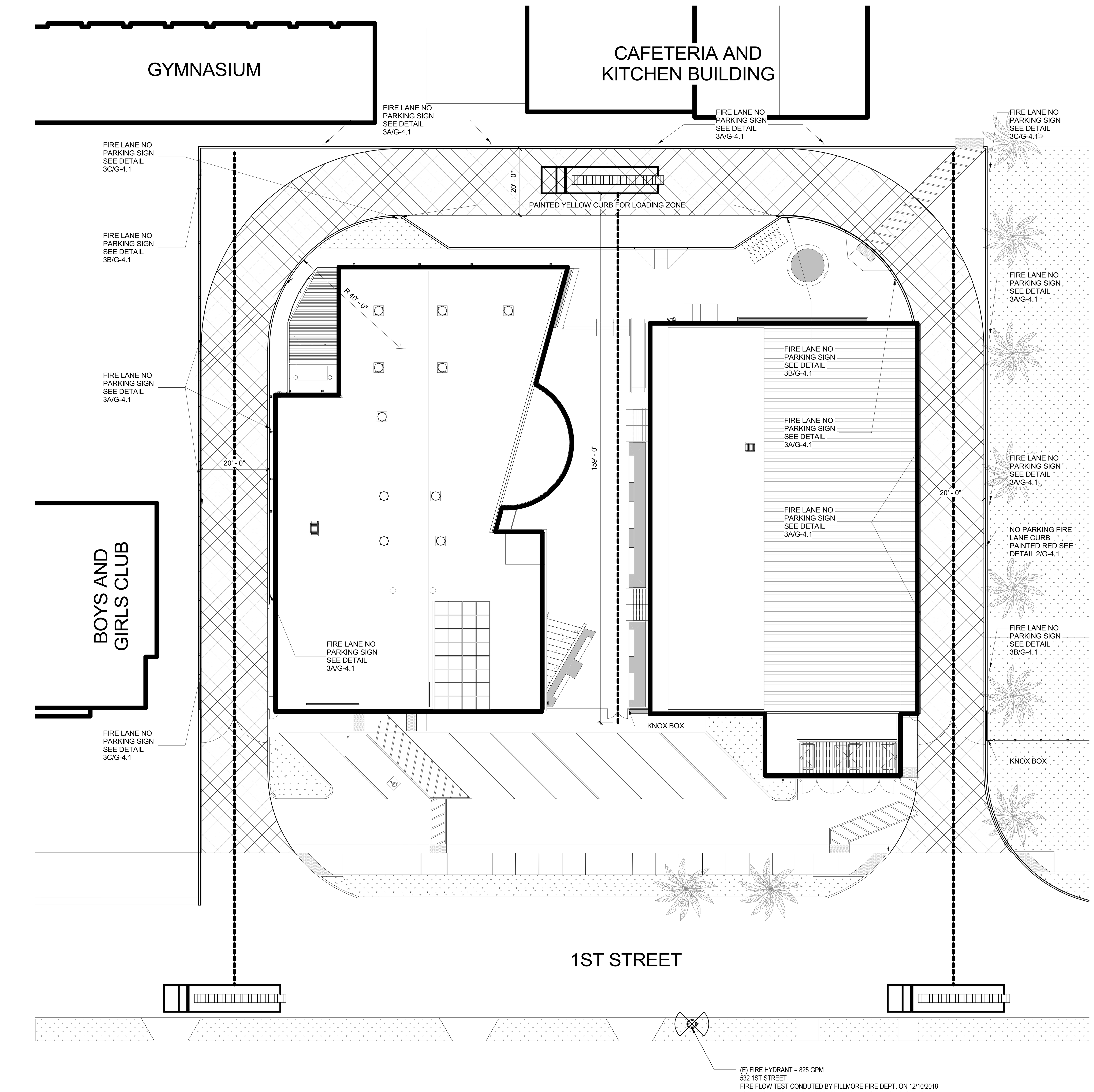
CALGREEN COMPLIANCE FORMS

SHEET NUMBER:

G-2.1

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19

DSA A# 03-119532



FIRE ACCESS PLAN 1
1/16" = 1'-0"

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1–3 below is to be provided for all project types indicated above. Information associated with items 4–7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the local fire authority (LFA) is only required when an alternate design means is being requested.

Page 1 of the completed form must be imaged onto the fire access site plan. When an alternate design/means is proposed, completed pages 1 *and* 2 are to be imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy 09-01.

PROJECT INFORMATION
School District/Owner: Fillmore Unified School District
Project Name/School: Fillmore High School
Project Address: 555 Central Ave. Fillmore, CA. 93015

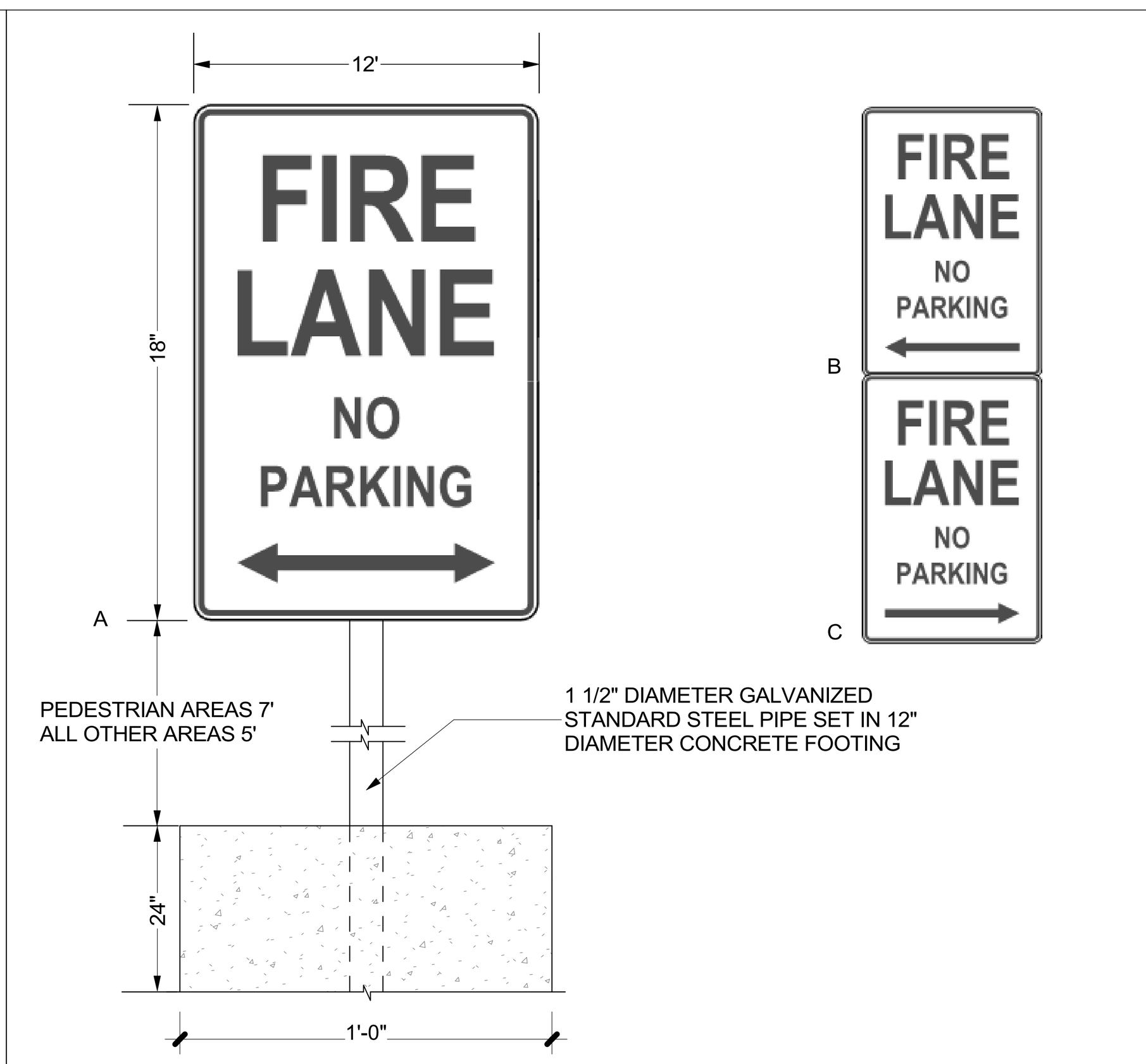
FIRE & LIFE SAFETY INFOMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☒		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☒		No ☐
3.	Is the project located within a designated fire hazard severity zone as established by Cal-Fire? *(If yes, indicate fire hazard zone classification below)*	Yes ☐		No ☒
	Refer to the following for fire hazard zone locations: www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.				
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.				
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.				
6a.	**Acceptable Alternate**: The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.				
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

DSA 810 (rev 10-22-18) — Page 1 of 4
DIVISION OF THE STATE ARCHITECT — DEPARTMENT OF GENERAL SERVICES — STATE OF CALIFORNIA

LEGEND

- FIRE ACCESS, 20' WIDE
- FIRE HYDRANT
- FIRE HOSE (250' MAX FROM TRUCK)
- FIRE TRUCK



FIRE LANE NO PARKING SIGN 3
NOT TO SCALE

FIRE LANE CURB 2
NOT TO SCALE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 6/24/19

WESTGROUP DESIGNS
ARCHITECTURE | PLANNING | INTERIOR DESIGN
19520 Jamboree Road | Suite 100
Irvine | California | 92612
949.250.0880 | FAX 949.250.0882
www.westgroupdesigns.com

FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS
FILLMORE UNIFIED SCHOOL DISTRICT
555 Central Ave. Fillmore, CA. 93015

ISSUED FOR:	
SCHEMATIC DESIGN	11/16/2017
DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

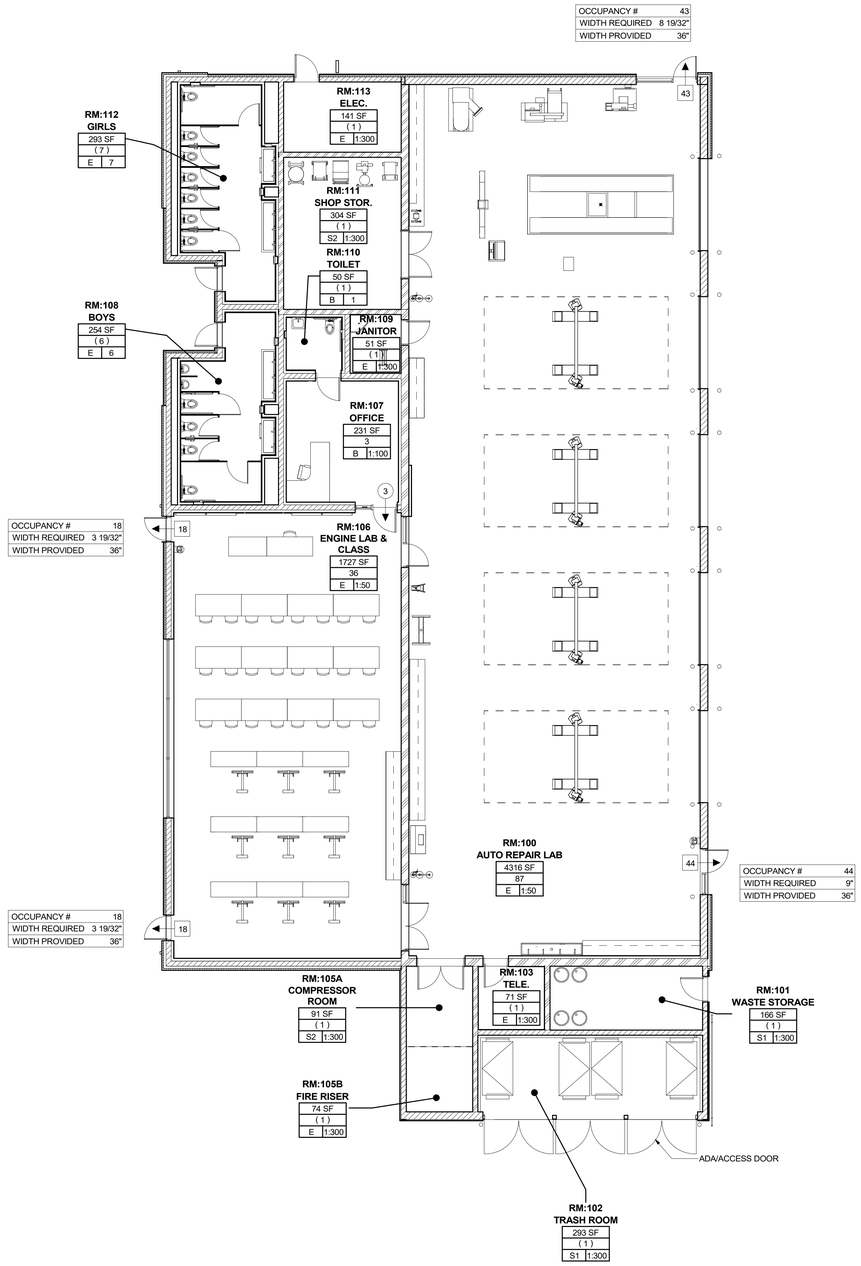
DSA SUBMITTAL

REGISTRATION/SIGNATURE:

SHEET TITLE:
FIRE ACCESS

SHEET NUMBER:
G-4.1

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	WD	WD	05/08/19



NORTH

FLOOR EGRESS PLAN BLDG A | 1 | 1/8" = 1'-0"

LEGEND

COMMON PATH OF EGRESS TRAVEL

EXIT ACCESS TRAVEL DISTANCE

OCCUPANCY #	XX
WIDTH REQUIRED	0"
WIDTH PROVIDED	0"

OCCUPANCY NUMBER
DOOR WIDTH REQUIRED
DOOR WIDTH PROVIDED

0 — INDIVIDUAL ROOM OCCUPANT LOAD

0 — COMBINED ROOM OCCUPANT LOAD

RM: ###	ROOM NUMBER
ROOM NAME	ROOM NAME
XXX SF	SQUARE FOOTAGE
XX	OCCUPANT LOAD*
X-1 1 XXX	OCCUPANT LOAD FACTOR
	OCCUPANCY GROUP

*NUMBERS IN ( ) ARE ROOM EXITING OCCUPANCY AND NOT INCLUDED AS PART OF BUILDING OCCUPANT LOAD.

METAL STUD WALL: (20 GA) METAL STUDS @ 16" O.C., U.N.O.

CMU WALL, SEE STRUCTURAL FOUNDATION PLANS SHEETS (REFERENCE CBC TABLE 721.1 (2) FOR RATING REQUIREMENTS)

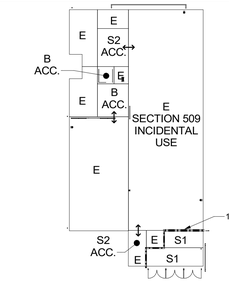
CMU SMOKE BARRIER/ 1 HR FIRE RATED WALL

SMOKE BARRIER /1 HR FIRE RATED WALL

CODE ANALYSIS

CONSTRUCTION TYPE		
TYPE		VB
SPRINKLED WITH FULLY AUTOMATIC FIRE DETECTION AND ALARM SYSTEM WITH VOICE EVACUATION		YES
MAIN OCCUPANCY		E
ANCILLARY OCCUPANCIES		S1, S2, B
MIXED OCCUPANCY SEPARATION TYPE		ACCESSORY
ALLOWABLE BUILDING HEIGHT		
E OCCUPANCY	60'	2 STORY
ALLOWABLE BUILDING AREA		
E OCCUPANCY		28,500 SF
ACTUAL AREA		
B		280 SF
E		7,406 SF
S-1		433 SF
S-2		394 SF
	TOTAL	8,513 SF
ACCESSORY OCCUPANCY SECTION 508.2		
BUILDING TOTAL		8,513 SF
10% ALLOWABLE		851 SF
B OCCUPANCY	107 OFFICE	231 SF
	110 TOILET	49 SF
S-2 OCCUPANCY	111 SHOP STORAGE	304 SF
	105A COMPR. ROOM	90 SF
	TOTAL	674 SF

INCIDENTAL USE DIAGRAM



INCIDENTAL USES TABLE 509

1. IN GROUP E OCCUPANCIES, LABORATORIES, AND VOCATIONAL SHOPS NOT CLASSIFIED AS GROUP H - 1-HOUR SEPARATION IS NOT REQUIRED IF AUTOMATIC SPRINKLER SYSTEM IS PROVIDED.
2. PER DSA IR A-26 ITEM 1.5 SHOPS FOR WOODWORKING, AUTO, METAL/WELDING, AND SIMILAR USES SHALL BE CLASSIFIED AS GROUP E OCCUPANCIES WITH AN OCCUPANT LOAD FACTOR OF 50 (NET).

OCCUPANCY SEPARATION TABLE 508.4	
E/S-1	1-HOUR

FIRE RESISTANCE RATING TABLE 601	
PRIMARY STRUCTURAL FRAME	0 HR
BEARING WALLS	
EXTERIOR	0 HR
INTERIOR	0 HR
NON BEARING WALLS & PARTITIONS	
EXTERIOR	0 HR
INTERIOR	0 HR
FLOOR CONSTRUCTION & SECONDARY MEMBERS	0 HR
ROOF CONSTRUCTION & SECONDARY MEMBERS	0 HR

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
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SS ☑ FLS ☑ ACS ☑
DATE: 6/24/19

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REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT DONALD JORDAN SMITH C20495 EXP. 8/31 Renewal Date STATE OF CALIFORNIA

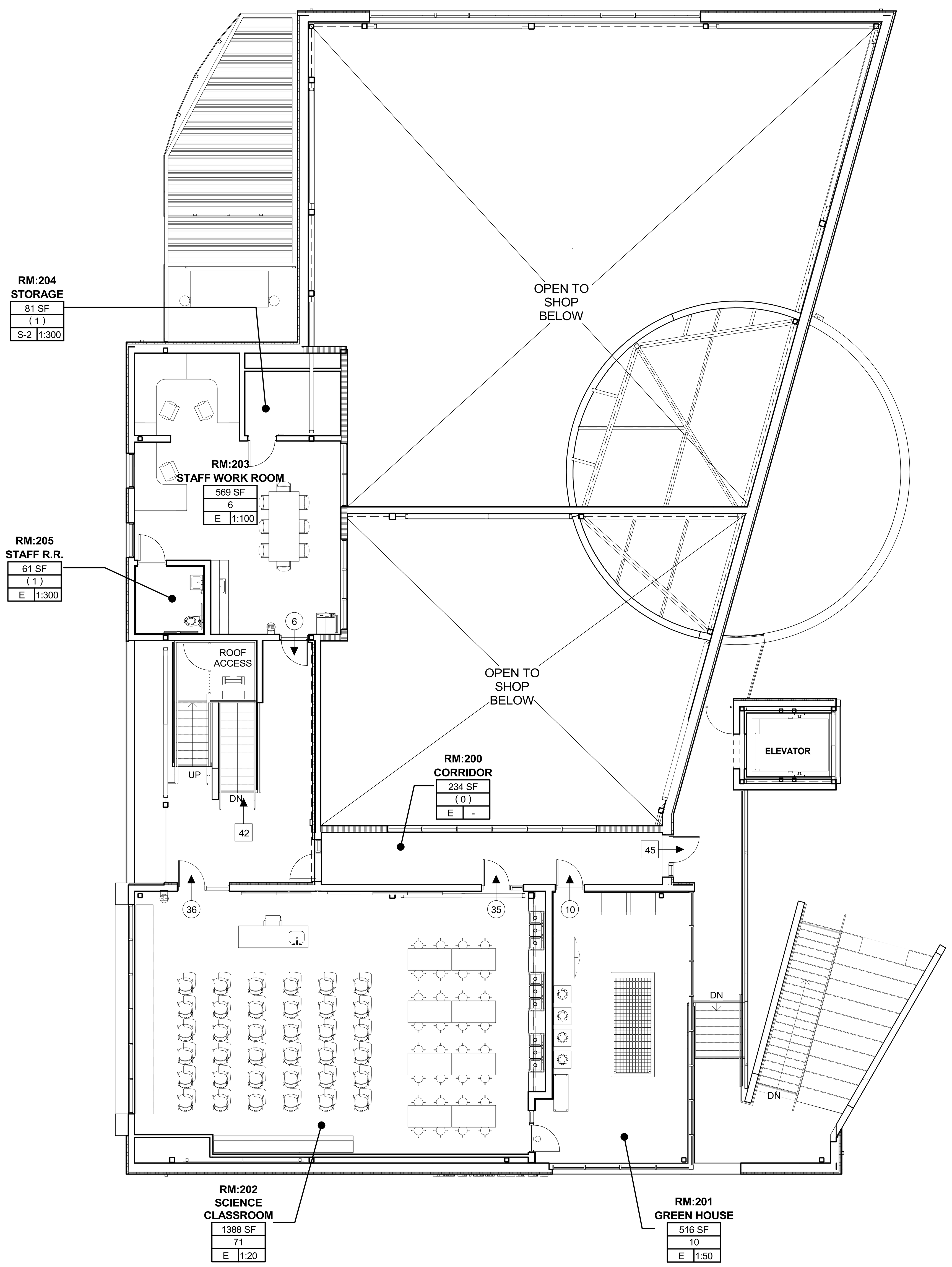
SHEET TITLE:

CODE ANALYSIS BUILDING A

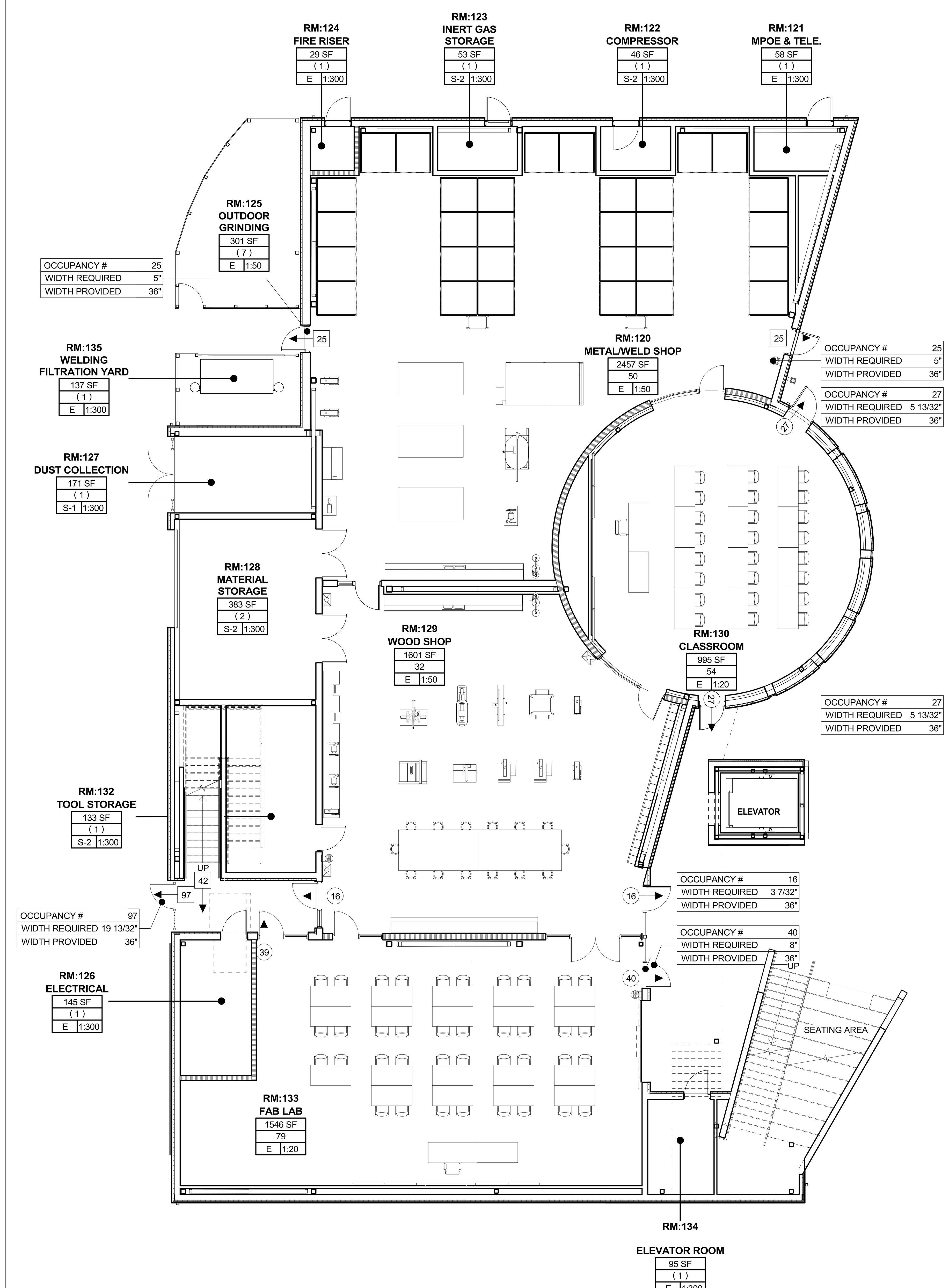
SHEET NUMBER:

G-5.1

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19



2ND FLOOR - EGRESS PLAN BLDG B 2 1/8" = 1'-0"



1ST FLOOR EGRESS PLAN BLDG B 1 1/8" = 1'-0"

LEGEND

- COMMON PATH OF EGRESS TRAVEL
- EXIT ACCESS TRAVEL DISTANCE
- OCCUPANCY # XX — OCCUPANCY NUMBER
- WIDTH REQUIRED 0" — DOOR WIDTH REQUIRED
- WIDTH PROVIDED 0" — DOOR WIDTH PROVIDED
- INDIVIDUAL ROOM OCCUPANT LOAD
- COMBINED ROOM OCCUPANT LOAD
- RM: ### — ROOM NUMBER
- ROOM NAME — ROOM NAME
- XXX SF — SQUARE FOOTAGE
- XX — OCCUPANT LOAD*
- X-1 1:XXX — OCCUPANT LOAD FACTOR / OCCUPANCY GROUP

*NUMBERS IN ( ) ARE ROOM EXITING OCCUPANCY AND NOT INCLUDED AS PART OF BUILDING OCCUPANT LOAD.

- METAL STUD WALL: (20 GA) METAL STUDS @ 16" O.C., U.N.O.
- CMU WALL, SEE STRUCTURAL FOUNDATION PLANS SHEETS (REFERENCE CBC TABLE 721.1 (2) FOR RATING REQUIREMENTS)
- CMU SMOKE BARRIER/ 1 HR FIRE RATED WALL
- SMOKE BARRIER /1 HR FIRE RATED WALL

CODE ANALYSIS

CONSTRUCTION TYPE		
TYPE		VB
SPRINKLED WITH FULLY AUTOMATIC FIRE DETECTION AND ALARM SYSTEM WITH VOICE EVACUATION		YES
MAIN OCCUPANCY		E
ANCILLARY OCCUPANCIES		S1, S2, B
MIXED OCCUPANCY SEPARATION TYPE		ACCESSORY
ALLOWABLE BUILDING HEIGHT		
E OCCUPANCY	60'	2 STORY
ALLOWABLE BUILDING AREA		
E OCCUPANCY		28,500 SF

ACCESSORY OCCUPANCY SECTION 508.2

1ST FLOOR TOTAL BUILDING AREA 8,750 S.F. x 10% = 875 S.F.

ACCESSORY NOT TO EXCEED **875 TOTAL S.F.**

	ROOM	AREA (S.F.)	NOTES
S-2	INERT GAS STORAGE	53	ACCESSORY PER 508.2
S-2	COMPRESSOR	46	ACCESSORY PER 508.2
S-1	DUST	171	ACCESSORY PER 508.2
S-2	MATERIAL STORAGE	386	ACCESSORY PER 508.2
S-2	TOOL STORAGE	142	1 HR SEPARATION FOR USE BELOW STAIR
	TOTAL	798 S.F.	< 875 S.F.

2ND FLOOR TOTAL BUILDING AREA 3,937 S.F. x 10% = 394 S.F.

ACCESSORY NOT TO EXCEED **394 TOTAL S.F.**

	ROOM	AREA (S.F.)	NOTES
S-2	STORAGE	81	ACCESSORY PER 311.1-1
	TOTAL	81 S.F.	< 394 S.F.

OCCUPANCY ANALYSIS

ROOM 204: STORAGE
E OCCUPANCY PER 311.1.1

ROOM 205: STAFF WORK ROOM
E OCCUPANCY PER 303.1.2-2 OR 303.1.3

FIRE RESISTANCE RATING TABLE 601	
PRIMARY STRUCTURAL FRAME	0 HR
BEARING WALLS	
EXTERIOR	0 HR
INTERIOR	0 HR
NON BEARING WALLS & PARTITIONS	
EXTERIOR	0 HR
INTERIOR	0 HR
FLOOR CONSTRUCTION & SECONDARY MEMBERS	0 HR
ROOF CONSTRUCTION & SECONDARY MEMBERS	0 HR

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REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT C20495 STATE OF CALIFORNIA

SHEET TITLE:

CODE ANALYSIS BUILDING B

SHEET NUMBER:

G-5.2

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19

UL Evaluation Report

UL ER R3501-02

Issued: June 12, 2015

Visit UL's On-Line Certifications Directory: http://www.ul.com/erdirectory for current status of report.

UL Category Code: ULFP

CSI MasterFormat®

DIVISION: 09 00 00 - FINISHES
Sub-level 2: 09 20 00 – Plaster and Gypsum Board
Sub-level 3: 09 21 00 – Plaster and Gypsum Board Assemblies
Sub-level 4: 09 21 16 – Gypsum Board Assemblies
Sub-level 5: 09 21 16.23 – Gypsum Board Shaft Wall Assemblies

Sub-level 3: 09 29 00 – Gypsum Board
Sub-level 4: 09 29 82 – Gypsum Board Fireproofing

COMPANY:

National Gypsum Company
Technology & Innovation Center
5901 Carnegie Blvd
Charlotte, NC 28209-4635
www.NationalGypsum.com

1. SUBJECT:

- One, Two, Three, and Four-Hour Fire-Resistive Interior Partition Systems
- One and Two-Hour Ceiling Assemblies
- Two-Hour Horizontal Membrane and Duct Protection Assemblies

The assemblies consist of steel studs and tracks faced with Gold Bond Fire-Shield Shaftliner gypsum board on one side and Gold Bond gypsum board on the other side.

Gold Bond Shaftliner Products

UL PRODUCT DESIGNATION	TRADENAME	THICKNESS, inches
FSW	Gold Bond® Fire-Shield® Shaftliner	1
FSW	Gold Bond® Fire-Shield® Shaftliner XP	1
FSW-7	Gold Bond® eXP® Extended Exposure Shaftliner	1
FSK-C	Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C	1/2 or 5/8

Underwriters Laboratories Inc.
333 Pfingsten Road, Northbrook, IL 60062-2096 USA
T: 847.272.8800 / F: 847.272.8129 / W: UL.com

Gold Bond Gypsum Board Products

UL PRODUCT DESIGNATION	TRADENAME	THICKNESS, inches
FSMR-C	Gold Bond® XP® Fire-Shield® C Gypsum Board	1/2 or 5/8
FSW-C	Gold Bond® Fire-Shield® C Gypsum Board	1/2 or 5/8
FSK	Gold Bond® Kal-Kore® Fire-Shield® Plaster Base	5/8
FSW	Gold Bond® Fire-Shield® Gypsum Board	5/8
FSW or FSW-3	Gold Bond® XP® Fire-Shield® Gypsum Board	5/8
FSW-5	Gold Bond® Hi Abuse® XP® Fire-Shield® Gypsum Board	5/8
FSW-5	Gold Bond® Hi Impact® XP® Fire-Shield® Gypsum Board	5/8
SoundBreak XP	Gold Bond® SoundBreak® XP® Gypsum Board	5/8
FSW-6	Gold Bond® eXP® Interior Extreme® Gypsum Panel	5/8
FSW-6	Gold Bond® eXP® Interior Extreme® AR Gypsum Panel	5/8
FSW-6	Gold Bond® eXP® Interior Extreme® IR Gypsum Panel	5/8
FSW-6	Gold Bond® eXP® Fire-Shield® Tile Backer	5/8

2. SCOPE OF EVALUATION

Compliance with the following codes:

- 2006, 2009, 2012, 2015 International Building Code (IBC)
- 2006, 2009, 2012, 2015 International Residential Code (IRC)

The products were evaluated for the following properties:

- Fire-resistance-rated construction
- Structural
- Physical Properties
- Surface Burning Characteristics
- Noncombustibility

3. REFERENCED DOCUMENTS

- Acceptance Criteria for Determining Limiting Heights of Composite Walls Constructed of Gypsum Board and Steel Studs, AC86, dated July 1995.
- ANSI/UL 263, 14th Ed (ASTM E119), Fire Tests of Building Construction and Materials.
- ANSI/UL 723, 10th Ed (ASTM E 84), Test for Surface Burning Characteristics of Building Materials.
- ASTM E 136-12, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
- ASTM C1178-08, Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
- ASTM C1396-13, Standard Specification for Gypsum Board.
- ASTM C1658-12, 12, Standard Specification for Glass Mat Gypsum Panels
- ASTM C1766-13, Standard Specification for Factory-Laminated Gypsum Panel Products.
- AC10, Acceptance Criteria for Quality Documentation, dated June 2014.

4. USES

The Gold Bond® Interior Partition Systems are designed for use where one, two, three, or four-hour fire resistive non-load bearing partitions are required when installed in accordance with 2006 IBC Sections 707.5 and 708.4, 2009 IBC Sections 708.5 and 709.4 and 2012 IBC and 2015 Sections 708.4 and 713. The partitions may be erected from one side and left unfinished on the service equipment or shaft side. When used to enclose stairs or other occupied areas, they may be finished on both sides. The systems consist of 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner and either 5/8 inch (16 mm) thick Gold Bond® Fire-Shield® Gypsum Board or 1/2 inch (13 mm) thick Gold Bond® Fire-Shield® C Gypsum Board, supported by 2-1/2 inch (63.5 mm), 4 inch (102 mm), or 6 inch (152 mm) No. 25 gage [0.020 inch (0.51 mm)] or No. 20 gage [0.033 inch (0.83 mm)] galvanized steel CT, CH, or I-studs, and J-tracks. Allowable partition heights are indicated in Tables 1 and 2, and are based on testing in accordance with the July 1995 edition of AC86.

5. PRODUCT DESCRIPTION

5.1 Steel:

The steel studs are fabricated from galvanized steel complying with ASTM A653 SS Grade 40, with a minimum yield strength of 40,000 psi (275 MPa). The J-tracks are fabricated from galvanized steel complying with ASTM A653 CS Grade 33, with a minimum yield strength of 33,000 psi (228 MPa). Studs and tracks are roll-formed from steel having a minimum design bare-steel thickness of 0.020 inch (0.51 mm) or 0.33 inch (0.83 mm) and a G40 galvanized coating.

5.2 Shaftliner Panels and Gypsum Board Panels:

For the purpose of this report, the trade name or UL product designation for any of the products may be used.

The Shaftliner Panels and Gypsum Board Panels described in this report are recognized as a Class A finish material with a flame spread index of 25 or less and smoke-developed index of 450 or less, when tested in accordance with UL723 (ASTM E84) as set forth in Section 803.1.1 of the 2006, 2009, 2012, or 2015 IBC. These boards, having a noncombustible core of gypsum complying with ASTM E136, are considered a noncombustible material, as described in Section 703.4.2 of the 2006 and 2009 IBC or 703.5.2 of the 2012 and 2015 IBC.

The products described comply with the requirements of ASTM C1396, C1658, C1178 or C1766 as noted below.

Gold Bond Shaftliner Products

TRADENAME	ASTM STANDARD
Gold Bond® Fire-Shield® Shaftliner	C1396
Gold Bond® Fire-Shield® Shaftliner XP	C1396
Gold Bond® eXP® Extended Exposure Shaftliner	C1658

Gold Bond Gypsum Board Products

TRADENAME	ASTM STANDARD
Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C	C1396
Gold Bond® XP® Fire-Shield® C Gypsum Board	C1396
Gold Bond® Fire-Shield® C Gypsum Board	C1396
Gold Bond® Kal-Kore® Fire-Shield® Plaster Base	C1396
Gold Bond® Fire-Shield® Gypsum Board	C1396
Gold Bond® XP® Fire-Shield® Gypsum Board	C1396
Gold Bond® Hi Abuse® XP® Fire-Shield® Gypsum Board	C1396
Gold Bond® Hi Impact® XP® Fire-Shield® Gypsum Board	C1396
Gold Bond® SoundBreak® XP® Gypsum Board	C1766
Gold Bond® eXP® Interior Extreme® Gypsum Panel	C1658
Gold Bond® eXP® Interior Extreme® AR Gypsum Panel	C1658
Gold Bond® eXP® Interior Extreme® IR Gypsum Panel	C1658
Gold Bond® eXP® Fire-Shield® Tile Backer	C1178

6. INSTALLATION

6.1 General:

The manufacturers published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation.

6.2 Fire-Resistance-Rated Assemblies:

The assemblies described in this section have been evaluated in accordance with the 2006 IBC Sections 703.2 and 707.4, 2009 IBC Sections 703.2 and 708.4, and 2012 and 2015 IBC Sections 703 and 713.4 for fire resistance and are utilized in the UL Fire-Resistive-Rated Designs indicated below. Refer to the UL Fire Resistance Certification information for File R3501 (CKNX) for applicable UL design coverage and details of the fire-resistance-rated assemblies designated as "UL Designs" in this report. Fire resistance ratings are only applicable when the assemblies are constructed in accordance with the published designs. Non-UL fire resistance designs are specificed in Sections 6.3.1 and 6.3.2.

6.2.1 One-Hour Shaftwall Partition – UL Designs U499, W419-System A only - (Figure 1)

The construction consists of steel studs and tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and on the opposite side with one layer of 5/8 in. thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C, Gold Bond® XP Fire-Shield® C, Gold Bond® Fire-Shield® C, Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Gold Bond® Fire-Shield®, Gold Bond® XP Fire-Shield®, Gold Bond® Hi Abuse® XP Fire-Shield®, Gold Bond® Hi Impact® XP Fire-Shield®, Gold Bond® SoundBreak® XP, Gold Bond® eXP Interior Extreme®, Gold Bond® eXP Interior Extreme® AR, Gold Bond® eXP Interior Extreme® IR, or Gold Bond® eXP Fire-Shield® Tile Backer. The J-track is installed along the ceiling line and vertically to abutting partitions using suitable fasteners spaced a maximum of 24 inches (610 mm) on center. The J-track is installed along the floor line. CT-, CH- or I-studs are installed at 24" (610 mm) on center. Shaftliner panels are erected vertically with peripheral shaftliner panel edges fastened to the J-tracks using 1-5/8 inch (41 mm) Type S screws spaced 24 inches (610 mm) on center. The other edge and edges of adjacent shaftliner panels are secured between the CT-, CH-, or I-stud flanges. On the opposite side, one layer of 5/8 inch (15.9 mm) thick Fire-Shield Type X gypsum board panels are fastened to the studs with 1 inch (25.4 mm) Type S bugle head screws spaced 12 inches (305 mm) on center along the edges and in the field of the boards.

As an option, resilient furring channels fabricated from minimum 25 MSG corrosion protected steel are installed horizontally and spaced vertically 24 inches (610 mm) on center. Flange portion of channels are attached to each intersecting stud with 1/2 inch (12.7 mm) long Type S or S-12 pan head steel screws on side of stud opposite the 1 inch (25.4 mm) liner panels. When resilient furring channels are used, Fire-Shield Type X gypsum board is attached vertically to furring channels with 1 inch long Type S steel screws spaced 12 (305 mm) inches on center.

Any UL Classified Batts and Blankets (BZJZ) mineral wool or glass fiber insulation may be used (optional) to partially or completely fill the wall cavity. As an alternative to mineral wool or glass fiber insulation, sprayed fiber insulation (100% Borate Formulation) or spray-applied cellulose insulation may be used in the wall cavity.

UL design W419 – System A is similar to design U499 except that steel clips may be used to attach the furring channels to the studs. Clips are spaced a maximum of 24 in. OC and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling S-12 steel screw through center grommet.

6.2.2 Two-Hour Shaftwall Partition – UL Designs U497, W419-System B only - (Figure 2)

The construction consists of steel studs and tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and on the opposite side with two layers of 1/2 inch (12.7 mm) thick Gold Bond® Fire-Shield® C, Gold Bond® XP Fire-Shield® C, or Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C gypsum board, or two layers of 5/8 inch thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C, Gold Bond® XP Fire-Shield® C, Gold Bond® Fire-Shield® C, Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Gold Bond® Fire-Shield®, Gold

Bond® XP Fire-Shield®, Gold Bond® Hi Abuse® XP Fire-Shield®, Gold Bond® Hi Impact® XP Fire-Shield®, Gold Bond® eXP Interior Extreme®, Gold Bond® eXP Interior Extreme® AR, Gold Bond® eXP Interior Extreme® IR, or Gold Bond® eXP Fire-Shield® Tile Backer. The J-track is installed along the ceiling line and vertically to abutting partitions using suitable fasteners spaced a maximum of 24 inches (610 mm) on center. The J-track is installed along the floor line. CT-, CH- or I-studs are installed at 24 inches (610 mm) on center. Shaftliner panels are erected vertically with peripheral shaftliner panel edges fastened to the J-tracks using 1-5/16 inch (33 mm) Type S screws spaced 24 inches (610 mm) on center. The other edge and edges of adjacent shaftliner panels are secured between the CT-, CH- or I-stud flanges. On the opposite side, two layers of 1/2 inch (12.7 mm) thick Gold Bond® Fire-Shield® C, Gold Bond® XP Fire-Shield® C, or Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C gypsum board panels, or two layers of 5/8 in. thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C, Gold Bond® XP Fire-Shield® C, Gold Bond® Fire-Shield® C, Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Gold Bond® Fire-Shield®, Gold Bond® XP Fire-Shield®, Gold Bond® Hi Abuse® XP Fire-Shield®, Gold Bond® Hi Impact® XP Fire-Shield®, Gold Bond® eXP Interior Extreme®, Gold Bond® eXP Interior Extreme® AR, Gold Bond® eXP Interior Extreme® IR, or Gold Bond® eXP Fire-Shield® Tile Backer are fastened to the studs with the base layer installed vertically and fastened to the studs and tracks using 1 inch (25.4 mm) long Type S bugle head screws spaced 24 inches (610 mm) on center. The face layer is installed vertically over the base layer and fastened to the stud framing using 1-5/8 inch (41 mm) long Type S screws spaced 12 inches (305 mm) on center. Joints between base and face layers are staggered 24 inches (610 mm) horizontally and 12 inches (305 mm) vertically. Face layer joints covered with tape and joint compound. Exposed screw heads covered with joint compound.

As an option, resilient furring channels fabricated from minimum 25 MSG corrosion protected steel are installed horizontally and spaced vertically 24 inches (610 mm) on center. Flange portion of channels are attached to each intersecting stud with 1/2 inch (12.7 mm) long Type S or S-12 pan head steel screws on side of stud opposite the 1 inch (25.4 mm) liner panels. When resilient furring channels are used, the base layer is attached vertically to furring channels with 1 inch (25.4 mm) long Type S steel screws spaced 24 inches (610 mm) on center. The face layer is attached vertically and fastened to furring channels with 1-5/8 inch (25.4 mm) long Type S steel screws spaced 24 inches (610 mm) on center.

Any UL Classified Batts and Blankets (BZJZ) mineral wool or glass fiber insulation may be used (optional) to partially or completely fill the wall cavity.

UL design W419 – System B is similar to design U497 except it allows the substitution of 2 layers of 5/16 inch (7.9 mm) thick gypsum board of the same types noted above in place of one layer of 5/8 inch (15.9 mm) thick gypsum board installed either vertically or horizontally. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 inch (7.9 mm) thick layer is attached with fasteners as described above and spaced a maximum of 24 inches (610 mm) on center.

6.2.3 Two-Hour Shaftwall Partition (Finished Both Sides) – UL Designs U498, W419-System C only - (Figure 3)

The construction consists of steel studs and tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and one layer of 1/2 inch (12.7 mm) thick Gold Bond® Fire-Shield® C, Gold Bond® XP Fire-Shield® C, or Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C gypsum board, or one layer of 5/8 inch thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C, Gold Bond® XP Fire-Shield® C, Gold Bond® Fire-Shield® C, Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Gold Bond® Fire-Shield®, Gold Bond® XP Fire-Shield®, Gold Bond® Hi Abuse® XP Fire-Shield®, Gold Bond® Hi Impact® XP Fire-Shield®, Gold Bond® eXP Interior Extreme®, Gold Bond® eXP Interior Extreme® AR, Gold Bond® eXP Interior Extreme® IR, or Gold Bond® eXP Fire-Shield® Tile Backer gypsum board fastened to steel framing using 2-5/8 in. long Type S bugle head screws spaced 12 in. (305 mm) on centers. The J-track is installed along the ceiling line and vertically to abutting partitions using suitable fasteners spaced a maximum of 24 inches (610 mm) on center. The J-track is installed along the floor line. CT-, CH- or I-studs are installed at 24" (610 mm) on center. Shaftliner panels are erected vertically with peripheral shaftliner panel edges fastened to the J-tracks using 1-5/8 inch (41 mm) Type S screws spaced 24 inches (610 mm) on center. The other edge and edges of adjacent shaftliner panels are secured between the CT-, CH- or I-stud flanges. On each side, one layer of 1/2 inch (12.7 mm) thick Gold Bond® Fire-

Shield® C, Gold Bond® XP Fire-Shield® C, or Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C gypsum board, or one layer of 5/8 inch thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C, Gold Bond® XP Fire-Shield® C, Gold Bond® Fire-Shield® C, Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Gold Bond® Fire-Shield®, Gold Bond® XP Fire-Shield®, Gold Bond® Hi Abuse® XP Fire-Shield®, Gold Bond® Hi Impact® XP Fire-Shield®, Gold Bond® eXP Interior Extreme®, Gold Bond® eXP Interior Extreme® AR, Gold Bond® eXP Interior Extreme® IR, or Gold Bond® eXP Fire-Shield® Tile Backer gypsum board panels are installed horizontally or vertically over the studs and fastened to the studs and tracks using 1 inch (25.4 mm) long Type S bugle head screws spaced 12 inches (305 mm) on center. Face layer joints are staggered horizontally 24 inches (610 mm) on each side of the wall. Face layer joints covered with tape and joint compound. Exposed screw heads covered with joint compound.

As an option, resilient furring channels fabricated from minimum 25 MSG corrosion protected steel are installed horizontally and spaced vertically 24 inches (610 mm) on center. Flange portion of channels are attached to each intersecting stud with 1/2 inch (12.7 mm) long Type S or S-12 pan head steel screws on side of stud opposite the 1 inch (25.4 mm) liner panels. When resilient furring channels are used, the base layer is attached vertically to furring channels with 1 inch long Type S steel screws spaced 12 (305 mm) inches on center.

Any UL Classified Batts and Blankets (BZJZ) mineral wool or glass fiber insulation may be used (optional) to partially or completely fill the wall cavity. As an alternative to mineral wool or glass fiber insulation, sprayed fiber insulation (100% Borate Formulation) or spray-applied cellulose insulation may be used in the wall cavity.

6.2.4 Three-Hour Shaftwall Partition – UL Designs W414, W419-System D only (Figure 4)

The construction consists of steel studs and tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and on the opposite side with three layers of 5/8 inch (15.9 mm) thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C or Gold Bond® Fire-Shield® C gypsum board. The J-track is installed along the ceiling line and vertically to abutting partitions using suitable fasteners spaced a maximum of 24 inches (610 mm) on center. The J-track is installed along the floor line. CT-, CH- or I-studs are installed at 24 inches (610 mm) on center. Shaftliner panels are erected vertically with peripheral shaftliner panel edges fastened to the J-tracks using 1-5/8 inch (41 mm) Type S screws spaced 12 inches (305 mm) on center. The other edge and edges of adjacent shaftliner panels are secured between the CT-, CH- or I-stud flanges. On the opposite side, three layers of 5/8 inch (15.9 mm) thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C or Gold Bond® Fire-Shield® C gypsum board panels are installed vertically over the studs with joints staggered 24 inches (610 mm) horizontally. The base layer is fastened to the studs and tracks using 1 inch (25.4 mm) long Type S bugle head screws spaced 24 inches (610 mm) on center at the perimeter and in the field. The second layer is fastened to the studs with 1-5/8 inch (41.3 mm) long Type S bugle head steel screws spaced 12 inches (305 mm) on center at the perimeter and in the field. Joints in second layer are fastened to the base layer of gypsum board with 1-1/2 inch (38.1 mm) long Type G screws spaced 12 inches (305 mm) on center vertically 2 inches (51 mm) from each side of the joint. The face layer is fastened to the studs with 2-1/4 inch (57.1 mm) long Type S bugle head screws spaced 12 inches (305 mm) on center and staggered 6 inches so as not to hit the screws in the previous layer. Joints in the third layer are fastened to inner layers with 1-1/2 inch (38.1 mm) long Type G screws spaced 12 inches (305 mm) on center vertically 2 inches (51 mm) from each side of the joint. Face layer joints covered with tape and joint compound. Exposed screw heads covered with joint compound.

6.2.5 Four-Hour Shaftwall Partition – UL Designs V451, W419-System E only (Figure 5)

The construction consists of steel studs and tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and on the opposite side with five layers of 5/8 inch (15.9 mm) thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C or Gold Bond® Fire-Shield® C gypsum board. The J-track is installed along the ceiling line and vertically to abutting partitions using suitable fasteners spaced a maximum of 24 inches (610 mm) on center. The J-track is installed along the floor line. CT-, CH- or I-studs are installed at 24 inches (610 mm) on center. Shaftliner panels are erected vertically with peripheral shaftliner panel edges fastened to the J-tracks using 1-5/8 inch (41 mm) Type S screws spaced 24 inches (610 mm) on center. The other edge and edges of adjacent shaftliner panels are secured between the CT-, CH- or I-stud flanges. On the opposite side, five layers of 5/8 inch (15.9 mm) thick Gold Bond® Kal-Kore® Fire-Shield® Plaster Base C or Gold Bond® Fire-Shield® C

gypsum board panels are installed vertically over the studs with joints staggered 24 inches (610 mm) horizontally. The base layer is fastened to the studs and tracks using 1-1/8 inch (28.5 mm) long Type S bugle head screws spaced 12 inches (610 mm) on center. The second layer is fastened to the studs with 1-5/8 inch (41.3 mm) long Type S bugle head steel screws spaced 12 inches (305 mm) on center. Butt joints in second layer are fastened to the base layer of gypsum board with 1-1/2 inch (38.1 mm) long Type G screws spaced 8 inches (203 mm) on each side of the joint. The third layer is fastened to studs with 2-1/4 inch long Type S bugle head screws spaced 12 inches on center. The third layer is fastened to inner layers with 1-1/2 inch long Type G screws space 12 inches on center vertically centered between the studs. Butt joints in the third layer are fastened to inner layers with 1-1/2 inch long Type G bugle head screws spaced 8 inches on center on both sides of the joint. Minimum 22 MSG galvanized steel hat-shaped furring channels spaced 16 inches on center are fastened to studs with 2-1/4 inch long Type S bugle head steel screws. Screws alternate from top to bottom flange at each stud intersection. The fourth layer is fastened to the furring channels with 1-1/8 inch long Type S bugle head steel screws spaced 12 inches (305 mm) on center. Butt joints in fourth layer shall be centered over furring channels and fastened with 1-1/8 inch long Type S bugle head screws spaced 8 inches on center on both sides of the joint. The face layer is fastened to the furring channels with 1-5/8 inch long Type S bugle head screws spaced 12 inches (305 mm) on center. The face layer is also fastened to the fourth layer with 1-1/2 inch long Type G screws spaced 16 inches on center along the vertical joints centered between the furring channels. Butt joints in the face layer are centered over the furring channels and fastened with 1-5/8 inch long Type S bugle head screws spaced 8 inches on center on both sides of the joint. Screws and butt joints are staggered. Face layer joints covered with tape and joint compound. Exposed screw heads covered with joint compound.

UL design V451 is identical to design W419 – System E except on the opposite side, five layers of 5/8 inch (15.9 mm) thick Gold Bond® Fire-Shield® C gypsum board panels are installed vertically over the studs with joints staggered 24 inches (610 mm) horizontally.

6.3 Ceiling and Horizontal Applications

6.3.1 One- and Two-Hour Ceilings or Underside of Stair Application (Figure 6)

The system provides fire-resistive protection on corridor ceilings and on the underside of stairs. The I-stud system, as described in section 6.2.1 for one-hour construction and in section 6.2.2 for two-hour construction, is installed in a horizontal orientation. The I-studs are supported by J-tracks that are attached to existing vertical wall framing members using mechanical fasteners spaced a maximum of 24 inches (610 mm) on center. The fasteners must have a minimum allowable load of 200 pounds (889.6 N) in shear or pullout. The I-studs are attached to the J-tracks at each end using two 1/2 inch (12.7 mm) Type S pan head screws. Maximum horizontal spans are noted in Table 3.

6.3.2 Two-Hour Ceiling, Horizontal Membrane and Duct Protection (Figure 7)

The test was conducted in accordance with the method specified ASTM E119-83, except for the sample size. The assembly constructed measured 6 ft. 6 in. by 6 ft. 6 in. (2 m by 2 m)) and was exposed to the fire over an area of 5 ft. 4 in. by 5 ft. 4 in. (1.6 m by 1.6 m). The standard specifies that the area exposed to the fire shall not be less than 180 ft^2 with neither dimension less than 12 ft. (3.66 m). The J-track and I-stud systems are installed in a horizontal orientation as described for two-hour construction in section 6.2.2 except three layers of 1/2 inch (12.7 mm) Fire-Shield C gypsum board are attached to the open stud face side. The base and middle layers are applied parallel to the stud framing with edge joints offset one stud cavity. The base layer is fastened to studs with 1 inch (25.4 mm) long Type S screws spaced 24 inches (610 mm) on center. The middle layer is fastened to the studs with 1-5/8 inch (41 mm) long Type S screws spaced 24 inches (610 mm) on center. The face layer is applied perpendicular to the stud framing with butt joints between studs. Face layer fastened to studs with 2-1/4 inch (57 mm) type S screws spaced 12 inches (305 mm) on center. Butt joints are fastened to inner layers with 1-1/2 inch (38 mm) long Type G screws spaced 8 inches (203 mm) on center. Face layer joints and screw heads may be exposed or sealed with a joint tape system.

6.3.3 Two-Hour Ceiling, Horizontal Membrane and Duct Protection UL Design G586 (Figures 7 & 8)

The construction consists of steel studs, C-Channels and J-tracks faced on one side with the 1 inch (25.4 mm) thick Gold Bond® Fire-Shield® Shaftliner, Gold Bond® Fire Shield® Shaftliner XP, or Gold Bond® eXP® Extended Exposure Shaftliner panel and on the opposite side with three layers of 5/8 inch (15.9 mm) thick Gold Bond® Fire-Shield® C gypsum board. The steel studs are C-T shaped and measure nominally 1-1/2 in. (38 mm) wide by 4 in.(101 mm) deep and are fabricated from No. 20 MSG galvanized steel. Studs fit into J-track and fastened at top and bottom with 1/2 in. (12.7 mm) Type S screws. "T" shaped section of the studs face upward for installation of gypsum board shaftliner panels. "C" shaped section of studs face downward for attachment of gypsum board. Bottom screws fastened through bottom leg of J-track into stud. Top screws fastened through top of studs into top leg of J-track. Shaftliner panels measuring 1 in. (25.4 mm) thick and supplied in 24 in. (610 mm) widths. The panels are cut 1 in. (25.4 mm) less that the J-track to J-track spacing. The long edges of the shaftliner panels are inserted into the T-shaped section of the C-T studs. The corners of the panels are secured to the J-tracks using 1-5/8 in. (41 mm) Type S screws. On the opposite side, 5/8 inch (15.9 mm) thick Gold Bond® Fire-Shield® C gypsum board panels are installed in three layers. The base layer is installed with the long direction perpendicular to the direction of the studs with 1 in. (25.4 mm) Type S screws spaced 12 in.(305 mm) on center, starting 1-1/2 in. (38 mm) from the side joints. Butt joint screws are placed 1/2 in. (12.7 mm) from joint edge. The second layer is attached with the long direction perpendicular to the direction of the studs with the side joints staggered a minimum of 24 in. (610 mm) from the base layer. The second layer is attached using 1-5/8 in. (41 mm) Type S screws spaced 12 in. (305 mm) on center starting 1-1/2 in. (38 mm) and then 6 in. (152 mm) from the side joints. The butt joint screws are placed 1/2 in. (12.7 mm) from joint edge and staggered a minimum of 24 in. (610 mm) from base layer. Face layer is attached with long dimension parallel to the direction of the studs with 2-1/4 in. (57 mm) Type S screws spaced 12 in. (305 mm) on center starting 1/2 in. (12.7 mm) and then 3 in. (76 mm) from butt joints. The side joint screws are 1-1/2 in. (38 mm) from joint edges.

Maximum unsupported length of studs not to exceed 96 in. (2.4 m). When spans exceed 96 inches, a splice shall be constructed using minimum 6 in. (152 mm) deep, minimum 1-1/4 in. (32 mm) legs C-Channels fabricated from No. 25 MSG galvanized steel. The C-Channels are attached to minimum 8 gauge steel hanger wire hung through holes in the C-Channel. The hanger wire is spaced nominally 24 in. (610 mm) on center. The J-track is formed from No. 20 MSG galvanized steel and is used to support the C-T studs. The J-track is secured to both sides of the C-Channel and edges of the adjacent wall assembly so that the 2 in. (51 mm) leg is on top and the 1 in. (25.4 mm) leg is on the bottom facing the finished gypsum side of the ceiling, and flush with the bottom leg of the C-Channel. The J-track is secured to the C-Channel and wall assembly with 1/2 in. (12.7 mm) Type S screws spaced 24 in. (610 mm) on center along centerline of the J-tracks. Where the J-tracks form a butt joint, screws are placed at both the top and bottom of both sides of the butt joint. Nominal 2 in. (51 mm) thick by 6 in. (152 mm) wide mineral wool glued to surface of gypsum board on both sides and across full length of C-Channel with construction adhesive.

7. CONDITIONS OF USE

7.1 General:

The Shaftliner Gypsum Panels and Gypsum Board products described in sections 5.2 of this report, comply with, or are suitable alternatives to what is specified in, those codes listed in section 2.0 of this report, subject to the following conditions:

7.2 The products must be manufactured, identified, and installed in accordance with this report, the manufacturer's published installation instructions, and the applicable code. If there is a conflict between the manufacturers published installation instructions and this report, this report governs.

7.3 All fire resistive assemblies shall be built in accordance with the applicable published UL design(s) or as otherwise described within this report.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119532 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 6/24/19

WESTGROUP DESIGNS
ARCHITECTURE | PLANNING | INTERIOR DESIGN
19520 Jamboree Road | Suite 100
Irvine | California | 92612
949.250.0880 | FAX 949.250.0882
www.westgroupdesigns.com

FILLMORE HIGH SCHOOL - NEW CTE BUILDINGS
FILLMORE UNIFIED SCHOOL DISTRICT
555 Central Ave. Fillmore, CA. 93015

ISSUED FOR:

SCHEMATIC DESIGN	11/16/2017
DESIGN DEVELOPMENT	09/21/2018
CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
DAVID JORDAN SMITH
C20495
EXP. 01/21
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

UL REPORTS

SHEET NUMBER:

G-5.3

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19

7.4 Studs are manufactured by one of the following:

1. ClarkDietrich Building Systems
2. Marino\WARE
3. SCAFCO
4. CEMCO

7.5 See UL Online Certifications Directory for products evaluated as a part of fire-resistance-rated assemblies in accordance with UL263, Gypsum Board (CKNX).

7.6 See UL Online Certifications Directory for products evaluated for Surface Burning Characteristics in accordance with UL723, Gypsum Board (BWFR).

7.7 The Shaftliner, gypsum panels and gypsum board products described in this report are manufactured by National Gypsum Company, located at the manufacturing locations named below, under the UL LLC Classification and Follow-Up Service Program, which includes inspections in accordance with the quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

Manufacturing locations:
Gibsonton, FL
Burlington, NJ
Baltimore, MD
Ft. Dodge, IA
Medicine Lodge, KS
Long Beach, CA
Mt. Holly, NC
National City, MI
Phoenix, AZ
Portsmouth, NH
Richmond, CA
Rotan, TX
Garden City, GA
Shippingport, PA
Shoals, IN
Waukegan, IL
Westwego, LA

8. SUPPORTING EVIDENCE

8.1 Manufacturer's product literature and quality documentation.

8.2 Reports in accordance with AC86, Acceptance Criteria for Determining Limiting Heights of Composite Walls Constructed of Gypsum Board and Steel Studs, dated July 1995.

8.3 UL Classification reports in accordance with UL263 (ASTM E119). See UL Product Certification Category for Gypsum Board (CKNX).

8.4 Reports in accordance ASTM E119 for Horizontal Membrane and Duct Protection

8.5 UL Classification reports in accordance with UL723 (ASTM E84). See UL Product Certification Categories, Gypsum Board (BWFR).

8.6 Reports in accordance with ASTM C1396, C1177, C1658 and C1766.

8.7 Reports in accordance with ASTM E136.

9. IDENTIFICATION

The gypsum board products described in section 5.2 of this evaluation report are identified by a marking bearing the report holder's name (National Gypsum Company), the plant identification, the product designation, and the UL Classification Mark. Gold Bond Shaftliner products are also identified with the evaluation report number UL ER3501-02. The validity of the evaluation report is contingent upon this identification appearing on the product.

Each stud member as described in this evaluation report is identified by the manufacturer's name, the steel thickness, and the yield strength.

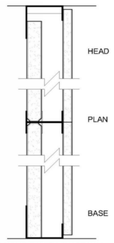
10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

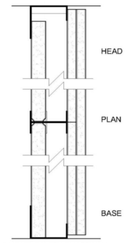
10.3 The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via UL Online Certifications Directory: www.ul.com/erdirectory

FIGURE 1



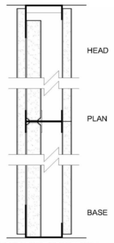
1 HOUR CAVITY SHAFTWALL
(NON-LOAD BEARING)

FIGURE 2



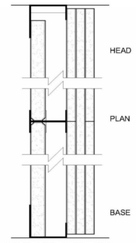
2 HOUR CAVITY SHAFTWALL
(NON-LOAD BEARING)

FIGURE 3



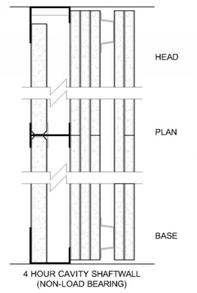
2 HOUR CAVITY SHAFTWALL
(NON-LOAD BEARING)

FIGURE 4



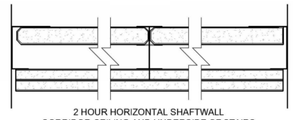
3 HOUR CAVITY SHAFTWALL
(NON-LOAD BEARING)

FIGURE 5

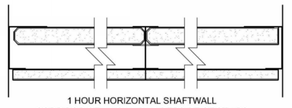


4 HOUR CAVITY SHAFTWALL
(NON-LOAD BEARING)

FIGURE 6

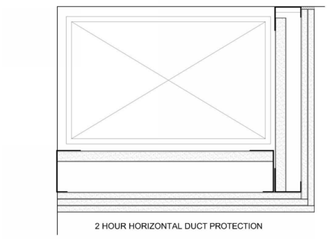


2 HOUR HORIZONTAL SHAFTWALL
CORRIDOR CEILING AND UNDERSIDE OF STAIRS



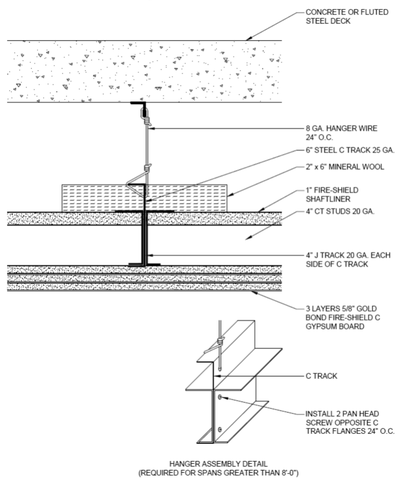
1 HOUR HORIZONTAL SHAFTWALL
CORRIDOR CEILING AND UNDERSIDE OF STAIRS

FIGURE 7



2 HOUR HORIZONTAL DUCT PROTECTION

Figure 8



HANGER ASSEMBLY DETAIL
(REQUIRED FOR SPANS GREATER THAN 8'-0")

TABLE 1 – ALLOWABLE WALL HEIGHTS[1,2] FOR NATIONAL GYPSUM 2 HR C-T STUD ASSEMBLIES[3]

Stud Depth (inches)	Steel design thickness (gauge/inch)	Deflection	Transverse Design Load (psf)			
			5	7.5	10	15
2-1/2	25 / 0.0231	L/120	16 ft. 10 in.	13 ft. 8 in.	11 ft. 10 in.	8 ft. 6 in.
		L/180	13 ft. 8 in.	11 ft. 3 in.	9 ft. 10 in.	8 ft. 3 in.
		L/240	11 ft. 10 in.	9 ft. 10 in.	8 ft. 8 in.	7 ft. 3 in.
		L/360	9 ft. 10 in.	8 ft. 3 in.	7 ft. 3 in.	6 ft. 2 in.
2-1/2	20 / 0.0346	L/120	16 ft. 10 in.	14 ft. 4 in.	12 ft. 11 in.	11 ft. 1 in.
		L/180	14 ft. 4 in.	12 ft. 4 in.	11 ft. 1 in.	9 ft. 6 in.
		L/240	12 ft. 11 in.	11 ft. 1 in.	9 ft. 11 in.	8 ft. 7 in.
		L/360	11 ft. 1 in.	9 ft. 6 in.	8 ft. 7 in.	7 ft. 5 in.
4	25 / 0.0231	L/120	21 ft. 8 in.	16 ft. 6 in.	12 ft. 3 in.	8 ft. 2 in.
		L/180	18 ft. 1 in.	15 ft. 3 in.	12 ft. 5 in.	8 ft. 3 in.
		L/240	16 ft. 0 in.	13 ft. 7 in.	12 ft. 1 in.	8 ft. 3 in.
		L/360	13 ft. 7 in.	11 ft. 6 in.	10 ft. 4 in.	8 ft. 3 in.
4	20 / 0.0346	L/120	23 ft. 0 in.	20 ft. 12 in.	18 ft. 7 in.	15 ft. 5 in.
		L/180	21 ft. 0 in.	17 ft. 9 in.	15 ft. 10 in.	13 ft. 6 in.
		L/240	18 ft. 7 in.	15 ft. 10 in.	14 ft. 1 in.	12 ft. 1 in.
		L/360	15 ft. 10 in.	13 ft. 6 in.	12 ft. 1 in.	10 ft. 4 in.
6	20 / 0.0346	L/120	28 ft. 0 in.	24 ft. 9 in.	20 ft. 6 in.	13 ft. 8 in.
		L/180	28 ft. 0 in.	24 ft. 9 in.	20 ft. 6 in.	13 ft. 8 in.
		L/240	26 ft. 6 in.	22 ft. 2 in.	19 ft. 7 in.	13 ft. 8 in.
		L/360	22 ft. 2 in.	18 ft. 8 in.	16 ft. 7 in.	13 ft. 8 in.

For SI: 1 inch – 25.4 mm
1 foot = 305 mm
1 psf = 48 Pa

[1]Allowable heights are based on transverse load tests complying with AC86, dated July 1995, with studs spaced a maximum of 24 inches on center.
[2]Limiting height is based on the lesser height of deflection or strength.
[3]The hourly ratings indicate that the assemblies described by this table were constructed the same as the hourly fire-rated assemblies described in this report. The fire-rated assemblies were tested at 10 ft. height as per standards ASTM E119 and UL263.

TABLE 2 – ALLOWABLE WALL HEIGHTS[1,2] FOR NATIONAL GYPSUM 1- and 2 HR I-STUD ASSEMBLIES[3]

Wall System	Steel thickness (gage/inch)	Deflection	Transverse Design Load (psf)			
			5	7.5	10	15
1 hour 2-1/2 in. Shaftwall	25 / 0.0183	L/120	13 ft. 4 in.	11 ft. 7 in.	10 ft. 1 in.	8 ft. 3 in.
		L/240	10 ft. 7 in.	9 ft. 3 in.	8 ft. 5 in.	7 ft. 4 in.
		L/360	9 ft. 3 in.	8 ft. 11 in.	7 ft. 4 in.	6 ft. 5 in.
1 hour 2-1/2 in. Shaftwall	20 / 0.0325	L/120	15 ft. 2 in.	13 ft. 3 in.	12 ft. 1 in.	10 ft. 7 in.
		L/240	12 ft. 1 in.	10 ft. 7 in.	9 ft. 7 in.	8 ft. 4 in.
		L/360	10 ft. 7 in.	9 ft. 2 in.	8 ft. 4 in.	7 ft. 4 in.
1 hour 4 in. Shaftwall	25 / 0.0183	L/120	17 ft. 11 in.	14 ft. 10 in.	12 ft. 10 in.	9 ft. 9 in.
		L/240	14 ft. 3 in.	12 ft. 5 in.	11 ft. 4 in.	9 ft. 5 in.
		L/360	12 ft. 5 in.	10 ft. 10 in.	9 ft. 5 in.	8 ft. 3 in.
1 hour 4 in. Shaftwall	20 / 0.0325	L/120	20 ft. 0 in.	18 ft. 2 in.	16 ft. 6 in.	14 ft. 3 in.
		L/240	16 ft. 6 in.	14 ft. 5 in.	13 ft. 1 in.	11 ft. 5 in.
		L/360	14 ft. 5 in.	12 ft. 7 in.	11 ft. 5 in.	9 ft. 4 in.
1 hour 6 in. Shaftwall	20 / 0.0325	L/120	24 ft. 0 in.	22 ft. 10 in.	19 ft. 9 in.	16 ft. 2 in.
		L/240	20 ft. 11 in.	18 ft. 4 in.	16 ft. 8 in.	14 ft. 6 in.
		L/360	18 ft. 4 in.	16 ft. 0 in.	14 ft. 6 in.	10 ft. 11 in.
2 hour 2-1/2 in. Shaftwall	25 / 0.0183	L/120	14 ft. 7 in.	12 ft. 4 in.	10 ft. 9 in.	8 ft. 9 in.
		L/240	11 ft. 7 in.	10 ft. 1 in.	9 ft. 2 in.	8 ft. 0 in.
		L/360	10 ft. 1 in.	8 ft. 10 in.	8 ft. 0 in.	7 ft. 0 in.
2 hour 2-1/2 in. Shaftwall	20 / 0.0325	L/120	17 ft. 9 in.	15 ft. 6 in.	14 ft. 1 in.	12 ft. 4 in.
		L/240	14 ft. 1 in.	12 ft. 4 in.	11 ft. 2 in.	8 ft. 9 in.
		L/360	12 ft. 4 in.	9 ft. 8 in.	8 ft. 9 in.	7 ft. 8 in.
2 hour 4 in. Shaftwall	25 / 0.0183	L/120	19 ft. 10 in.	16 ft. 3 in.	14 ft. 0 in.	10 ft. 2 in.
		L/240	16 ft. 2 in.	14 ft. 2 in.	11 ft. 6 in.	10 ft. 0 in.
		L/360	14 ft. 2 in.	11 ft. 0 in.	10 ft. 0 in.	8 ft. 9 in.
2 hour 4 in. Shaftwall	20 / 0.0325	L/120	23 ft. 2 in.	20 ft. 2 in.	18 ft. 1 in.	14 ft. 9 in.
		L/240	18 ft. 4 in.	16 ft. 1 in.	14 ft. 7 in.	11 ft. 1 in.
		L/360	16 ft. 1 in.	14 ft. 0 in.	11 ft. 1 in.	9 ft. 8 in.

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CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
JORDAN SMITH
C20495
EXP. 5/31/
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

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SHEET NUMBER:

G-5.4

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18413	Author	Checker	05/08/19

TABLE 2 – ALLOWABLE WALL HEIGHTS[1,2] FOR NATIONAL GYPSUM 1- and 2 HR I-STUD ASSEMBLIES[3]

(Continued)

Wall System	Steel thickness (gage/inch)	Deflection	Transverse Design Load (psf) 5	7.5	10	15
2 hour 6 in. Shaftwall	20 / 0.0325	L/120	28 ft. 0 in.	23 ft. 11 in.	20 ft. 9 in.	16 ft. 11 in.
		L/240	22 ft. 9 in.	19 ft. 10 in.	18 ft. 0 in.	12 ft. 10 in.
		L/360	19 ft. 10 in.	17 ft. 4 in.	12 ft. 10 in.	11 ft. 2 in.
2 hour 2-1/2 in. Stairwell	25 / 0.0183	L/120	13 ft. 11 in.	12 ft. 2 in.	11 ft. 0 in.	9 ft. 8 in.
		L/240	11 ft. 0 in.	9 ft. 8 in.	8 ft. 9 in.	7 ft. 8 in.
		L/360	9 ft. 8 in.	8 ft. 5 in.	7 ft. 8 in.	6 ft. 8 in.
2 hour 2-1/2 in. Stairwell	20 / 0.0325	L/120	16 ft. 7 in.	14 ft. 6 in.	13 ft. 2 in.	11 ft. 6 in.
		L/240	13 ft. 2 in.	11 ft. 6 in.	9 ft. 10 in.	8 ft. 7 in.
		L/360	11 ft. 6 in.	10 ft. 0 in.	8 ft. 7 in.	7 ft. 6 in.
2 hour 4 in. Stairwell	25 / 0.0183	L/120	20 ft. 2 in.	17 ft. 8 in.	16 ft. 0 in.	11 ft. 11 in.
		L/240	16 ft. 0 in.	11 ft. 11 in.	10 ft. 10 in.	9 ft. 5 in.
		L/360	11 ft. 11 in.	10 ft. 5 in.	9 ft. 5 in.	8 ft. 3 in.
2 hour 4 in. Stairwell	20 / 0.0325	L/120	22 ft. 3 in.	19 ft. 6 in.	17 ft. 8 in.	15 ft. 6 in.
		L/240	17 in. 8 in.	15 ft. 6 in.	14 ft. 1 in.	10 ft. 8 in.
		L/360	15 ft. 6 in.	11 ft. 9 in.	10 ft. 8 in.	9 ft. 4 in.
2 hour 6 in. Stairwell	20 / 0.0325	L/120	28 ft. 0 in.	24 ft. 10 ft.	22 ft. 7 in.	19 ft. 9 in.
		L/240	22 ft. 7 in.	19 ft. 9 in.	17 ft. 11 in.	12 ft. 3 in.
		L/360	19 ft. 9 in.	13 ft. 6 in.	12 ft. 3 in.	10 ft. 9 in.

For SI: 1 inch – 25.4 mm
1 foot = 305 mm
1 psf = 48 Pa

[1]Allowable heights are based on transverse load tests complying with AC86, dated July 1995, with studs spaced a maximum of 24 inches on center.
[2]Limiting height is based on the lesser height of deflection or strength.
[3]The hourly ratings indicate that the assemblies described by this table were constructed the same as the hourly fire-rated assemblies described in this report. The fire-rated assemblies were tested at 10 ft. heights as per standards ASTM E119 and UL263.

TABLE 3 – MAXIMUM HORIZONTAL SPANS[1,2]

I-STUD SIZE AND THICKNESS Inches (Gauge)	CORRIDOR CEILINGS AND UNDERSIDE OF STAIRS: One layer of 5/8" gypsum on one side and one layer 1" Shaftliner on the other side	Two layers of 1/2" gypsum board one side and one layer of 1" Shaftliner on the other side	Two layers of 5/8" gypsum board on one side and one layer of 1" Shaftliner on the other side	HORIZONTAL MEMBRANE AND DUCT PROTECTION: Three layers of 1/2" gypsum board on one side and one layer of 1" Shaftliner on the other side
2-1/2 (25)	7' 8"	7' 8"	7' 7"	5' 4""
2-1/2 (20)	8' 8"	9' 4"	9' 2"	5' 4"
4 (25)	10' 3"	10' 9"	10' 7"	5' 4"
4 (20)	11' 9"	12' 1"	11' 11"	5' 4"
6 (20)	14' 10'	14' 10"	14' 8"	5' 4"

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm

[1] Calculations based on systems supporting twice their own dead weights and should not be used where there is access to an attic or loft space above, or anywhere where there is any probability of storage above.
[2] Spans are based upon a deflection limitation of L/240.

UL PRODUCT CATEGORY

Assembly Usage Disclaimer

XHBN - Joint Systems

See General Information for Joint Systems

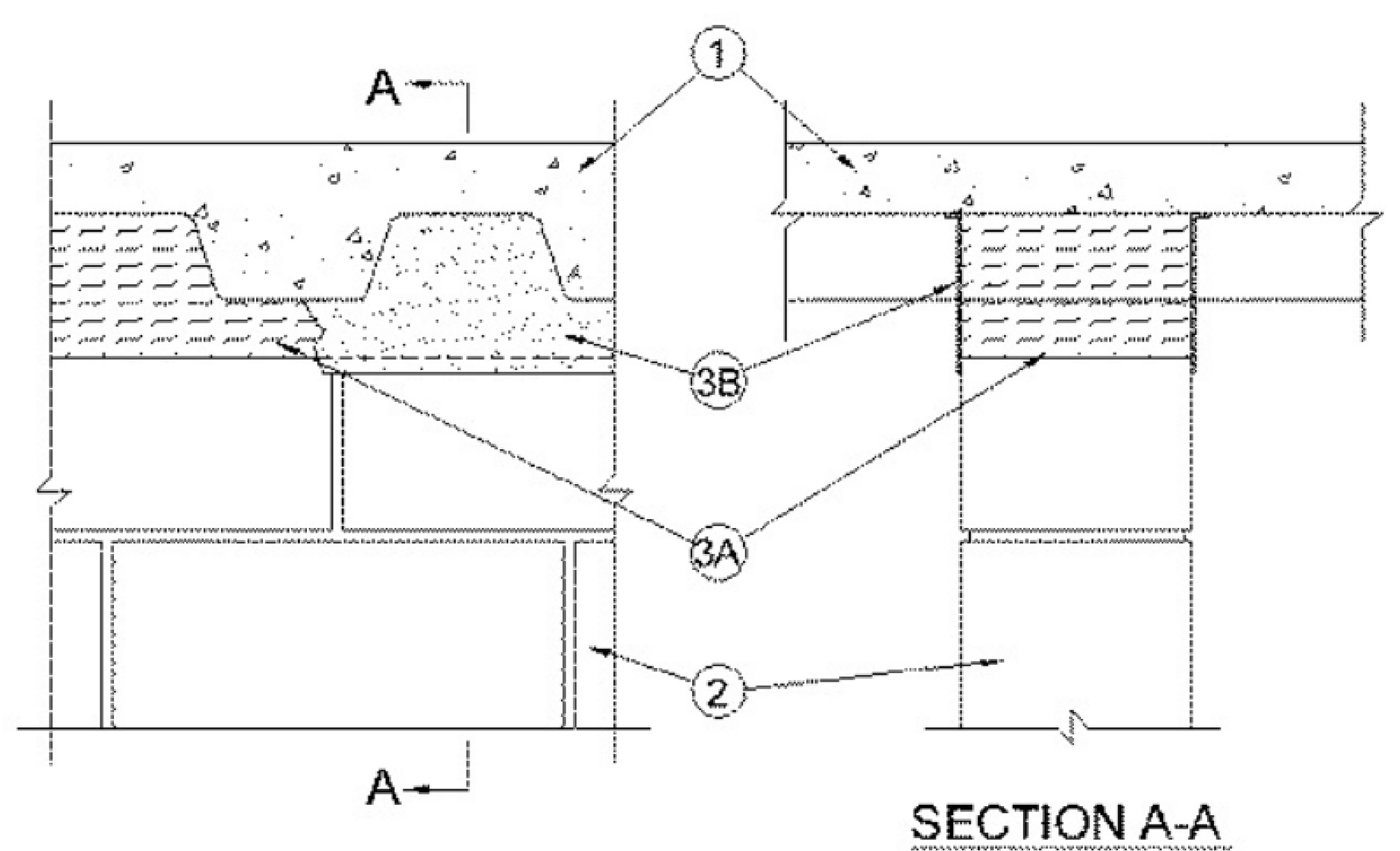
System No. HW-D-0323

June 07, 2010

Assembly Rating — 2 Hr

Nominal Joint Width — 1 In.

Class II and III Movement Capabilities — 12.5% Compression Or Extension



1. **Floor Assembly —** The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Form Units* —** Max 2 in. deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional)—(Not Shown)—Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with the type and thickness of fire resistive material indicated in the individual D700 Series design.
GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 2 in. deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 2 in. deep galv steel fluted roof deck.

B. **Spray-Applied Fire Resistive Materials* —** (Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.
GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

2. **Wall Assembly —** Min 6 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***.
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in. The joint system is designed**

to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:

A. **Forming Material* —** Nom 0.5 pcf density glass fiber batt insulation cut to a length approx equal to the overall thickness of the wall. Multiple pieces stacked on top of each other and inserted into the flutes of the steel deck cut edge first to tightly pack the opening. The glass fiber batt insulation shall be flush with wall surfaces. Additional strips of nom 0.5 pcf glass fiber batt insulation are to be cut to a width equal to thickness of wall assembly, compressed and tightly packed, cut edge first, into the gap between the top of wall and bottom of the steel deck on both sides of the wall.
See **Batts and Blankets** (BKNV) category in the Building Materials Directory for names of manufacturers.

B. **Fill, Void or Cavity Material* —** Min 1/8 in. wet thickness of fill material sprayed or troweled on each side of the wall to completely cover glass fiber forming material and to overlap a min of 1/2 in. onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck, the fill material is to overlap the wall a min of 1/2 in. and the spray-applied fire resistive material a min of 2 in. on both sides of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC —
CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2010-06-07

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- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
JORDAN SMITH
C30495
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

UL REPORTS

SHEET NUMBER:

G-5.5

WD PROJ. #	DRAWN BY:	CHECKED	DATE
18413	Author	Checker	05/08/19

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Design No. U465
BXUV.U465
Fire-resistance Ratings - ANSI/UL 263

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U465

July 03, 2018

Nonbearing Wall Rating — 1 HR.

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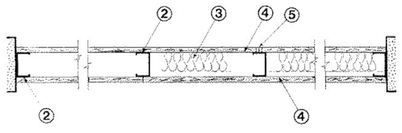

1. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 — Channel shaped, min 3-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System

UNITED METAL PRODUCTS INC — Type SUPREME Framing System

1B. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2C — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1C — For use with Item 2D and 4G only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1E. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1D — For use with Item 2E and 4I only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — TRUE-TRACK™

1F. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1E — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 25 MSG steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

KIRII (HONG KONG) LTD — Type KIRII

1G. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Items 1 through 1F — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide, attached to floor and ceiling with fasteners spaced 24 in. OC max.

STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members* — Floor and Ceiling Runners** — Not Shown — In lieu of Item 1 — For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — Viper20™ Track

1J. **Framing Members* — Floor and Ceiling Runners** — Not Shown — In lieu of Items 1 — For use with Item 2 L, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

STEEL INVESTMENT GROUP L L C — AlphaTRAK

1K. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2M, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep, fabricated from min 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

CRACO MFG INC — SmartTrack20™

1L. **Framing Members* — Floor and Ceiling Runners —** Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CRACO MFG INC — SmartStud20™

2. **Steel Studs —** Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members* — Steel Studs —** As an alternate to Item 2 — Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System

UNITED METAL PRODUCTS INC — Type SUPREME Framing System

2B. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1B, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

CRACO MFG INC — SmartStud20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2C. **Steel Studs —** (As an alternate to Item 2, For use with Item 4E) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2D. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2C — For use with Item 1D and 4G only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2E. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2D — For use with Item 1E and 4I only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

TELLING INDUSTRIES L L C — TRUE-STUD™

2F. **Framing Members* — Steel Studs —** As an alternate to Items 2 through 2E — For use with Item 1F, channel shaped studs, min 3-5/8 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

KIRII (HONG KONG) LTD — Type KIRII

2G. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 through 2F — For use with Item 1G. Proprietary channel shaped studs, minimum 3-5/8 in. wide, Studs to be cut 1/2 in. less than the assembly height.

STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1I, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

TELLING INDUSTRIES L L C — Viper20™

2I. **Framing Members* — Steel Studs —** In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

EB METAL INC — NITROSTUD

2J. **Framing Members* — Steel Studs —** In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

OLMAR SUPPLY INC — PRIMESTUD

2K. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1B (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2L. **Framing Members* — Steel Studs —** As an alternate to Items 2 — For use with Item 1J, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

STEEL INVESTMENT GROUP L L C — AlphaSTUD

2M. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1K, proprietary channel shaped steel studs, min 1-1/4 in. wide by min 3-5/8 in. deep, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/4 in. less in length than assembly height.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

2N. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1L, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

CRACO MFG INC — SmartStud20™

3. **Batts and Blankets* —** (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity.

See **Batts and Blankets** (BZJZ) category for names of Classified companies.

3A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735 & INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only

3B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) and Item 3A — Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

3C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

3D. **Batts and Blankets* —** For use with Item 8. Nom 3 in. thick, minimum 3.4 pcf mineral wool batts, friction fit between the studs and floor and ceiling runners.

See **Batts and Blankets** (BZJZ) category for names of manufacturers.

3E. **Batts and Blankets* —** For use with Item 4P and 4R. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4. **Gypsum Board* —** 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to Items 6 (resilient channels) or 6A, 6B, 6C or 6D (furring channels), gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

ACADIA DRYWALL SUPPLIES LTD — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AG-C, AGX-1, M-Glass, LightRoc

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CERTAINTEED GYPSUM INC — Types 1, EGRG, GlasRoc, Type X, Type X-1, Type C, Type X-2, 5/8" Easi-Lite Type X, Easi-Lite Type X-2

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSMR-C, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSL

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-C, PG-9, PG-11, PGS-WRS

PANEL REY S A — Types GREX, PRC, PRC2, PRX, RHX, MDX, ETX

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4A. **Gypsum Board* —** (As alternate to Item 4) — Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.

CERTAINTEED GYPSUM INC — Type X, Type X-1, Type C, Type X-2, Type EGRG/ GlasRoc, GlasRoc-2, Type SilentFX, Easi-Lite Type X-2

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD

GEORGIA-PACIFIC GYPSUM L L C — Types DAP, DAPC, DGG, DS

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4B. **Gypsum Board* —** (As an alternate to Items 4 or 4A) — Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.

CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

4C. **Gypsum Board* —** As an alternate to Items 4, 4A, and 4B — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered or backed by steel framing.

GEORGIA-PACIFIC GYPSUM L L C — Type DGG, GreenGlass Type X

4D. **Gypsum Board* —** As an alternate to Items 4, 4A, 4B, and 4C — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications. When used in widths other than 48 in., gypsum panels to be installed horizontally.

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSL, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSMR-C

4E. **Gypsum Board* —** (As an alternate to Items 4 through 4D) — Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 12 in. OC.

NATIONAL GYPSUM CO — SoundBreak XP Type X Gypsum Board

4F. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

RAY-BAR ENGINEERING CORP — Type RB-LBG

4G. **Gypsum Board* —** (As an alternate to Items 4 through 4F) — For use with Items 1D and 2D only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A, LGFC-C/A

NATIONAL GYPSUM CO — Types FSW

UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Type SCX

4H. **Gypsum Board* —** (As an alternate to Items 4 through 4G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES

4I. **Gypsum Board* —** (As an alternate to Items 4 through 4F) — For use with Items 1E and 2E only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Type SCX

4J. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A).

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4K. **Gypsum Board* —** (As an alternate to Item 4 and 4A, not for use with Items 1D, 1E, 2D and 2E) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4 and 4A.

CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

4L. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4M. **Gypsum Board* —** (For use with Item 8) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 8). Secured to outermost studs and floor and ceiling runners with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound.

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, Type C, Type X-2

CGC INC — Types C, IP-X2, IPC-AR

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C

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50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

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PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Types PRC, PRC2

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

4N. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

4O. **Gypsum Board*** — As an alternate to Items 4, 4A, 4B, and 4C — Two layers Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Horizontal joints on the same side need not be staggered. When applied horizontally, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC and staggered 4 in. OC between layers. When applied vertically, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field, staggered 4 in. OC between layers. Screws spaced a max 12 in. along the top and bottom edges of the wall.

NATIONAL GYPSUM CO — Type FSW

4P. **Gypsum Board*** — As an alternate to Item 4. For use with Item 3E, **Batts and Blankets*** — 5/8 in. thick, 4 ft wide, installed as described in Item 4.

UNITED STATES GYPSUM CO — Types ULIX

4Q. **Gypsum Board*** — 3/4 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track as described in Item 4 with screw length increased to min. 1- 1/8 in.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

4R. **Gypsum Board*** — As an alternate to Item 4D. For use with Item 3E, **Batts and Blankets*** — 5/8 in. thick, 4 ft wide, installed as described in Item 4.

NATIONAL GYPSUM CO — Type FSLX.

5. **Joint Tape and Compound** — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

6. **Resilient Channel** — (Optional — Not Shown) — 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F, 4J or 4L.

6A. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Not for use with Items 4F, 4J, or 4L.

b. **Framing Members*** — Used to attach furring channels (Item a) to studs (Item 2). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

6B. **Framing Members*** — (Not Shown) — (Optional on one or both sides) — As an alternate to Item 6, furring channel and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 4. Not for use with Items 4F, 4J, or 4L.

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ba) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

PLITEQ INC — Type Genie Clip

6C. **Steel Framing Members*** — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 4. Not for use with Items 4F, 4J, or 4L.

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6D. **Steel Framing Members*** — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Db. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4. Not for use with Items 4F, 4J, or 4L.

b. **Steel Framing Members*** — UUsed to attach furring channels (Item 6Da) to studs. Clips spaced 48 in. OC, and secured to studs with No.8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

STUDCO BUILDING SYSTEMS — Type SonusClip

7. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

8. **Mineral and Fiber Board*** — (Optional, Not Shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to studs and floor and ceiling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC along all intermediate framing. The required UL Classified gypsum board layer (Item 4M) is to be installed over the Mineral and Fiber Boards. Batts and Blankets, Item 3D, and Adhesive, Item 11, are required.

HOMASOTE CO — Homasote Type 440-32

9. **Lead Batten Strips** — (Not Shown, For Use With Item 4E) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 4E) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips** — (Not Shown, for use with Item 4J) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal

specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4J) and optional at remaining stud locations.

10. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4E) — Used in lieu of or in addition to the lead batten strips (Item 8) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4E) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs** — (Not Shown, for use with Item 4J) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

11. **Adhesive** — Not Shown — (For use with Item 8) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 8).

12. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — For use with Items 1 to 1I, Items 2 to 2J, Item 3, Items 4 to 4I, Item 5 and Item 6. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to Item 4I), install RefleXor membrane with the gold side facing outwards. Membrane installed with T50 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to Item 4I shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to Item 4I except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 3. On the other side of the wall, prior to the installation of the Gypsum Board, install Resilient Channels as per Item 6. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 to Item 4I with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2018-07-03

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UL Product iQ™

XHBN.HW-D-0582 - JOINT SYSTEMS

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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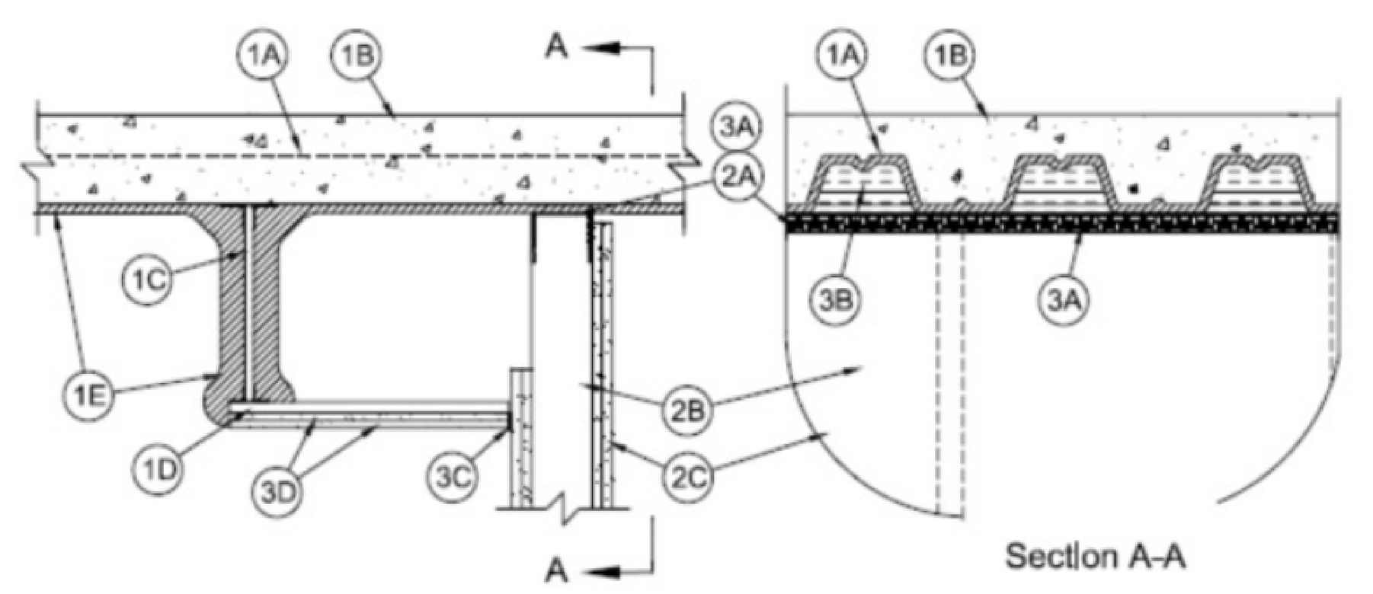
See General Information for Joint Systems Certified for Canada

System No. HW-D-0582

January 30, 2018

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Item 2)	F Ratings — 1 and 2 Hr (See Item 2)
Nominal Joint Width — 3/4 In. (See Item 2 and 3)	FT Ratings — 1 and 2 Hr (See Item 2)
Class II or III Movement Capabilities — 80% Compression and or 30% Extension	FH Ratings — 1 and 2 Hr (See Item 2)
L Rating at Ambient — Less than 1 CFM/Lin Ft	FTH Ratings — 1 and 2 Hr (See Item 2)
L Rating at 400°F — Less than 1 CFM/Lin Ft	Nominal Joint Width — 3/4 or 1 In. (see Item 2 and 3)
	Class II or III Movement Capabilities — 80 percent compression and or 30 percent
	L Rating at Ambient — Less than 1 CFM/Lin Ft
	L Rating at 400°F — Less than 1 CFM/Lin Ft



1. **Floor Assembly** — The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Floor Units*** — Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete** — Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support** — Steel beam, as specified in the individual D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and 1 to 7 in. (25 to 178 mm) from wall assembly.

D. **Steel Attachment Clips** — Z-shaped clips formed from 1 in. (25 mm) wide strips of min 20 ga galv steel. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom flange of the steel beam with 1-1/2 in. (38 mm) long upper and lower legs. Legs of clips fastened to bottom of beam (prior to application of spray-applied fire-resistive materials) with steel fasteners or welds. Clips spaced max 16 in. (406 mm) OC and extend to within 1/4 to 3/4 in. (6 to 19 mm) from the surface of the wall.

E. **Spray-Applied Fire Resistive Material*** — After installation of the steel attachment clips, structural steel support and the steel floor units to be sprayed with the min thickness of material specified in the individual D700 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. In addition, the flutes of the steel floor units immediately above the wall are to be filled with material to the full thickness of the wall (see Item 3B for alternate). The remainder of the steel floor units shall be sprayed as specified in the individual D700 design.
ISOLATEK INTERNATIONAL — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1A. **Roof Assembly — (Not Shown)** — As an alternate to the floor assembly, a fire-rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The roof assembly shall include the following construction features:

A. **Steel Roof Deck** — Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation** — Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the roof deck.

C. **Spray-Applied Fire Resistive Material*** — After installation of the steel attachment clips, structural steel support and the steel deck to be sprayed with the min thickness of material specified in the individual P700 or P900 Series Design. The flutes of the steel deck are to be filled with material across the entire top flange of the steel beam. In addition, the flutes of the steel deck immediately above the wall are to be filled with material to the full thickness of the wall (see Item 3B for alternate). The remainder of the steel floor units shall be sprayed when specified in the individual P700 design.
ISOLATEK INTERNATIONAL — Type 300

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2. **Wall Assembly** — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners** — Floor runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Floor runner to be provided with min 1-1/4 in. (32 mm) flanges. Legs are to be min 1/4 in. (6 mm) longer than the maximum joint width. The non-slotted (3-1/4 in. or 83 mm deep) ceiling runners are provided with a fill, void or cavity material and are described in Item 3A. Ceiling runner installed perpendicular to direction of the fluted steel deck and secured through the spray-applied fire resistive material to steel deck valleys with steel masonry fasteners spaced max 24 in. (610 mm) OC or direct to steel fluted floor units where spray is not required.

A.1. **Light Gauge Framing* — Slotted Ceiling Track** — (Not Shown) - As an alternate to the Item 2A, a ceiling track consisting of galv steel channel with slotted flanges may be used when Item 3A fill material is utilized. Slotted ceiling track sized to accommodate steel studs (Item 2B). Legs are to be min 1/4 in. (6 mm) longer than the maximum joint width. Attached to steel deck with steel fasteners or welds spaced max 24 in. (610 mm) OC.
BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST, CST 325

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

B. **Studs** — Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1-1/4 to 1-1/2 in. (32 to 38 mm) less in length than assembly height with bottom nesting in and secured to floor runner. Steel studs nested in non-slotted ceiling runner without attachment.

B1. **Framing Members - Steel Studs*** — In lieu of Item 2B - Proprietary channel shaped studs, 3-5/8 in. (92 mm) wide spaced a max of 24 in. (610 mm) OC. Studs to be cut 1-1/4 to 1-1/2 in. (32 to 38 mm) less than the assembly height with bottom nesting in and secured to floor runner. For direct attachment of gypsum board only. Steel studs installed in non-slotted ceiling runner without attachment.
CALIFORNIA EXPANDED METAL PRODUCTS CO — ViperStud™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — ViperStud™

C. **Gypsum Board*** — Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Gypsum board to extend min 3 in. (76 mm) above the bottom of Z clips on side of wall adjacent to beam. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory except that a max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom of the spray-applied fire resistive material on steel floor or roof assembly on the full height wall side. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 to 3-1/2 in. (25 to 89 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner.
The hourly rating of the joint system is equal to the lesser of the hourly ratings of the floor/roof-ceiling assembly and the wall assembly.

3. **Joint System — Max separation between bottom of spray-applied fire resistive material on steel floor or roof unit and top of wall (at time of installation of joint system) is 3/4 in. (19 mm). The joint system is designed to accommodate a max 80 percent compression and or 30 percent extension from its installed width.**

A. **Fill, Void or Cavity Material*** — Min. 25 ga composite steel angle with one 5/8 in. (16 mm) leg and one 2-1/2 in (64 mm) leg with a 5/8 in. (16 mm) strip of intumescent strip affixed along the inside 2-1/2 in (64 mm) leg. Steel angle is friction fit between the top web of the ceiling runner and the fluted steel deck on the full height gypsum board side only.
CALIFORNIA EXPANDED METAL PRODUCTS CO — DDA (Deflection Drift Angle)

B. **Packing Material** — Min 4 pcf (64 kg/m^3) mineral wool batt insulation cut to the shape of the fluted deck, approx 33 percent larger than the height of the flutes and compressed into the fluted area of the steel floor or roof deck above the ceiling channel. The forming material shall be installed to extend over the full thickness of the wall. As an option, the spray-applied fire resistive material described in Item 1 can be used in place of the packing material.
INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

JOHNS MANVILLE — Safing

ROCK WOOL MANUFACTURING CO — Delta Safing Board

ROCKWOOL MALAYSIA SDN BHD — SAFE

ROCKWOOL — SAFE

THERMAFIBER INC — SAF

B1. **Forming Material*-Plugs** — (Not Shown) As an alternate to the forming material (Item 3B), mineral wool plugs preformed to the shape of the fluted floor units or roof deck, may be used within the flutes. Plugs shall be friction fitted to completely fill the flutes.
ROCK WOOL MANUFACTURING CO — Delta Deck Plugs

C. **Fill, Void or Cavity Material*** — A nom 20 gauge steel angle provided with a nom 1 in. (25 mm) wide intumescent strip on one leg. Angle to be secured to the steel attachment clips (Item 1D) with min No. 8 steel sheet metal screws such that the intumescent strip is flat against the outer surface of the wall.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Firestik FS1

D. **Gypsum Board*** — Gypsum board sheets installed on underside of steel attachment clips (Item 1D) to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness for 1 and 2 hr fire rated assemblies, respectively. Gypsum boards installed to completely cover the gap between steel beam and wall and secured to each steel attachment clips with a minimum of two steel drywall screws approximately 1 to 2 in. (25 to 51 mm) from each end of the clip.

D1. **Gypsum Board*** — Not shown as an alternate to D. Gypsum board Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nom weight of 3.4 lb/yd^2 (1.8 kg/m^2) shall be installed over and attached to the steel attachment clip bars or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (Item 1E).

E. **Fill, Void or Cavity Material*** — (Not Shown) when item 3A is utilized a min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on one side of the joint system, completely covering item 3B mineral wool forming material of the joint system and overlapping a min of 1/2 in. (13 mm) onto the steel deck and item 3A DDA on one side of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB. Firestop Joint Spray

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

UNITED STATES GYPSUM CO — Type AS

F. **Fill, Void or Cavity Material** — (Not Shown) - A continuous length of Denver Foam®, open cell polyurethane foam with a nominal diameter of 1/8 in. (3.2 mm) greater than the max width of the joint. The foam shall have a nominal density of 1.7 pcf. The foam is to be placed in the joint above the top edge of the drywall between the concrete slab. Any splices are to be tightly butted. A layer of tape and joint compound can then be applied over the open cell foam.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2018-01-30

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CONSTRUCTION DOCUMENTS	12/07/2018
50% CD	11/09/2018
95% CD	12/10/2018
DSA SUBMITTAL	12/21/2018
DSA BACKCHECK	05/08/19

REVISIONS:

DSA SUBMITTAL

REGISTRATION/SIGNATURE:

LICENSED ARCHITECT
DAVID JORDAN SMITH
C20495
EXP. 01/21
Renewal Date
STATE OF CALIFORNIA

SHEET TITLE:

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SHEET NUMBER:

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