

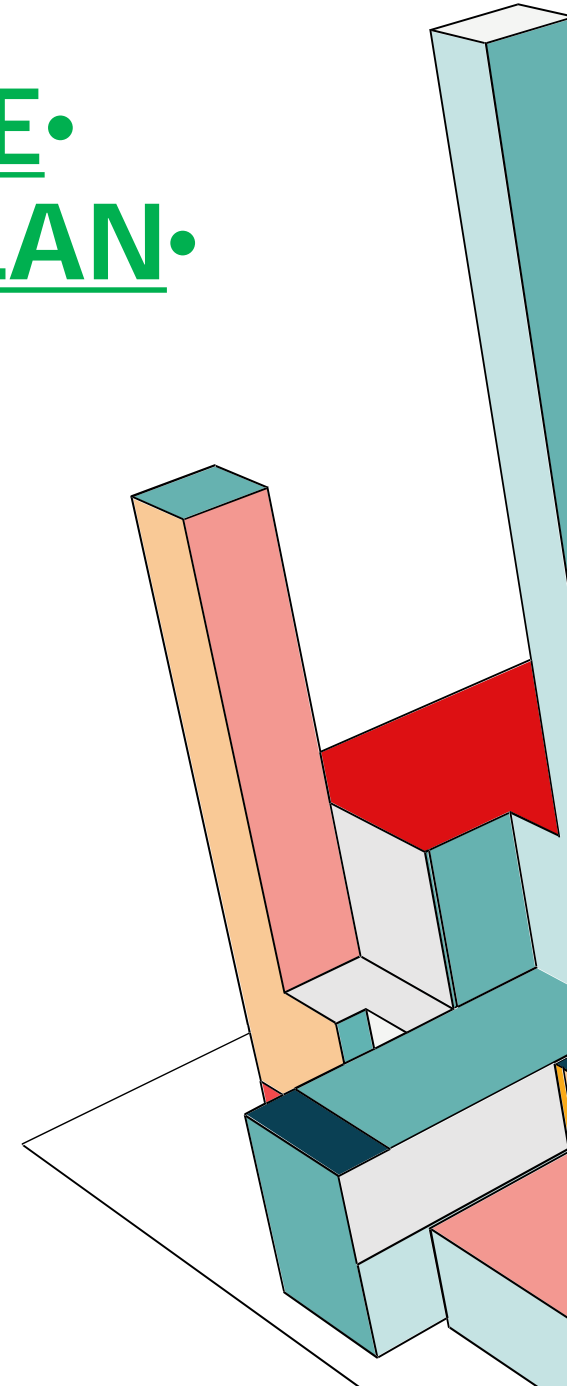
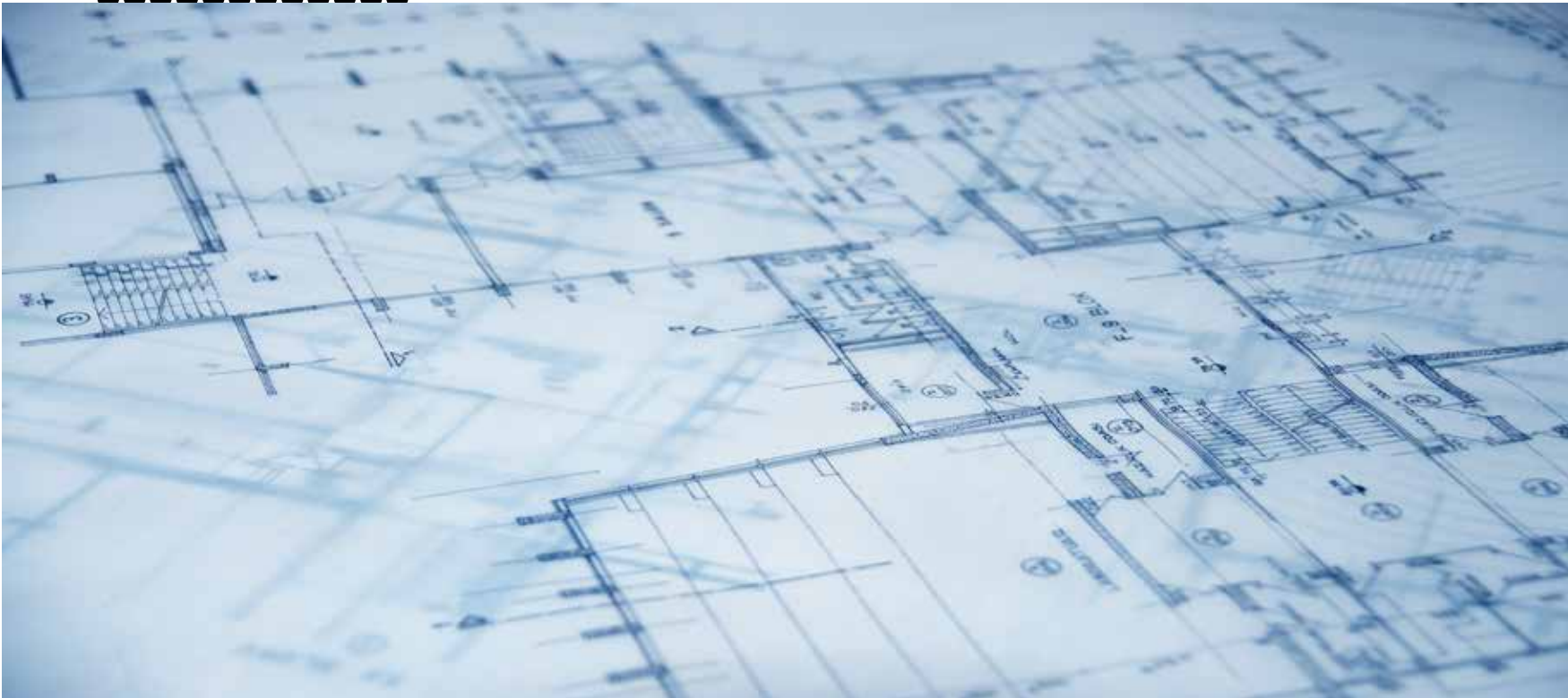
# INTERNATIONAL• RESIDENTIAL•CODE• PLAN•REVIEW•

Presented by Mike Clifford, Combination Plans  
Examination. City of Las Vegas, Nevada  
Currently 1<sup>st</sup> Vice President of Southern Nevada  
Chapter of the International Code Council

Based on the 2018 International Residential Code.



# PRESENTATION•IS•BASED•ON•THE• MOST•COMMON•RESIDENTIAL•PLAN• REVIEW•CORRECTION•ITEMS



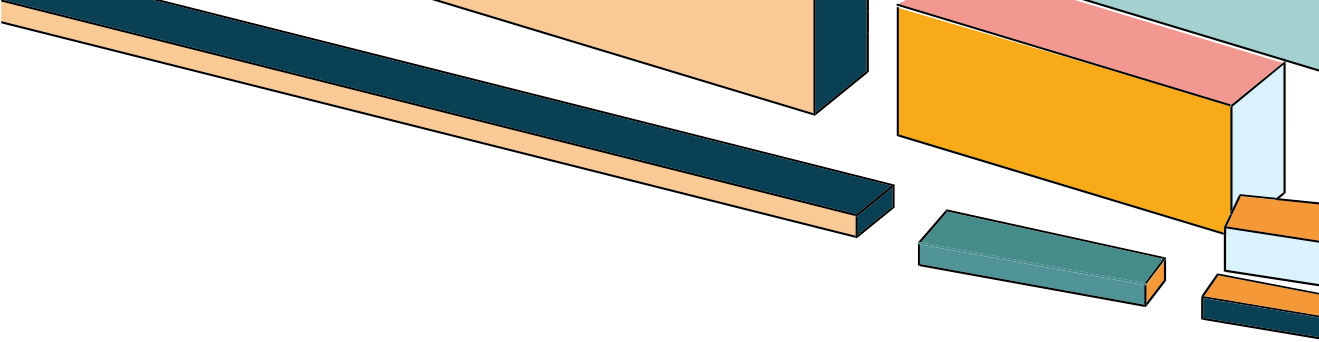
# CODE ANALYSIS

- Incorrect adopted codes, most adopted codes can be found on jurisdiction website.
- Reference to other jurisdictions and states.
- Incorrect Occupancy Classification.

ARCHITECTURAL I.R.C. REQUIREMENTS: 2018 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE.  
STRUCTURAL I.B.C. REQUIREMENTS: 2021 EDITION OF THE INTERNATIONAL BUILDING CODE.  
MECHANICAL U.M.C. REQUIREMENTS: 2018 EDITION OF THE UNIFORM MECHANICAL CODE.  
PLUMBING U.P.C. REQUIREMENTS: 2018 EDITION OF THE UNIFORM PLUMBING CODE.  
ELECTRICAL N.E.C. REQUIREMENTS: 2017 EDITION OF THE NATIONAL ELECTRICAL CODE.  
MODEL ENERGY CODE REQUIREMENTS: 2018 IECC (INTERNATIONAL ENERGY COMPLIANCE CERTIFICATE)  
BUILDING FIRE SPRINKLER SYSTEM: NO

OCCUPANCY CLASSIFICATION OF DETACHED GARAGE  
USE / OCCUPANCY: U  
CONSTRUCTION TYPE: V-B





# CODE•AMENDMENTS

Verify with Jurisdiction if they have any amendments to the adopted codes.

Changes could be significant, or code sections could be entirely deleted.

## B&S - Codes

The codes can be found at: <https://www.iccsafe.org> and <https://codes.iccsafe.org/content/icca117-12009/chapter-1-application>

The city of Las Vegas has adopted the following codes 2024 IBC, IRC, IEBC, ISPSC, UPC, UMC, IECC, IFC, IWUIC, and the 2023 Code remains in effect.

The effective date of these codes will be January 2026.

## 2024 CODE ADOPTION

- [2024 IBC](#)
- [2024 IEBC](#)
- [2024 ISPSC](#)
- [2024 UMC](#)
- [2024 IRC](#)
- [2024 IECC](#)
- [2024 IWUIC](#)
- [2024 UPC](#)
- [2023 NEC](#)

## 2022 CODE ADOPTION

2022 Dangerous Building Code	➔	2021 IBC Amendments
2021 IBC Code Analysis for Plans Submittal	➔	IWUIC Amendments

## Updated 10/20/2021

2018 IBC Amendments 6796	➔
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## Updated 2/3/2021

2018 IBC Amendments	➔	2018 IEBC Amendments
2018 ISPSC Amendments	➔	2018 UPC Amendments
2018 UMC Amendments	➔	2019 Administrative Codes

## 2018



# DETAILED•SCOPE•OF•WORK

Important information for plan review and inspections.

## PROJECT DESCRIPTION:

SCOPE OF WORK: INTERIOR TENANT IMPROVEMENTS TO CREATE NEW CARDIO SERVICE PROVIDERS OFFICE. NEW WORK INCLUDES MTL STUD PARTITIONS, GYPBD, SUSPENDED CEILING GRID W/ LAY-IN ACOUSTICAL TILES, (2) NEW RESTROOMS, (1) BREAKROOM SINK. NEW ELECTRICAL, MECHANICAL, PLUMBING.

THE EXISTING 2 STORY STRUCTURE IS COMPRISED OF THE FOLLOWING: CONCRETE FOUNDATION, TILT-CONCRETE EXTERIOR WALLS, ALUMINUM STOREFRONT WINDOWS AND DOORS, INTERIOR STEEL COLUMNS. INTERIOR METAL STUD PARTITIONS, WOOD DOORS. BUILDING IS FULLY SPRINKLERED. COMMON USE RESTROOMS ARE PROVIDED BY THE BUILDING, AND ARE NOT A PART OF THIS PERMIT.

# BUILDING PLANNING

## PLOT PLAN,

PROVIDE DIMENSIONS TO VERIFY EXTERIOR WALL FIRE SEPARATION PER TABLE R302.1(1), R302.1(2). PROJECTIONS AND OPENING LIMITATION BASED ON DISTANCE AND SPRINKLERS.

INFORMATION IS ALSO VERY HELPFUL FOR OTHER REVIEWS IN THE PROCESS.

TABLE R302.1(1) EXTERIOR WALLS



EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the <i>International Building Code</i> with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood <sup>a, b</sup>	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

- a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.





TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS WITH FIRE SPRINKLERS



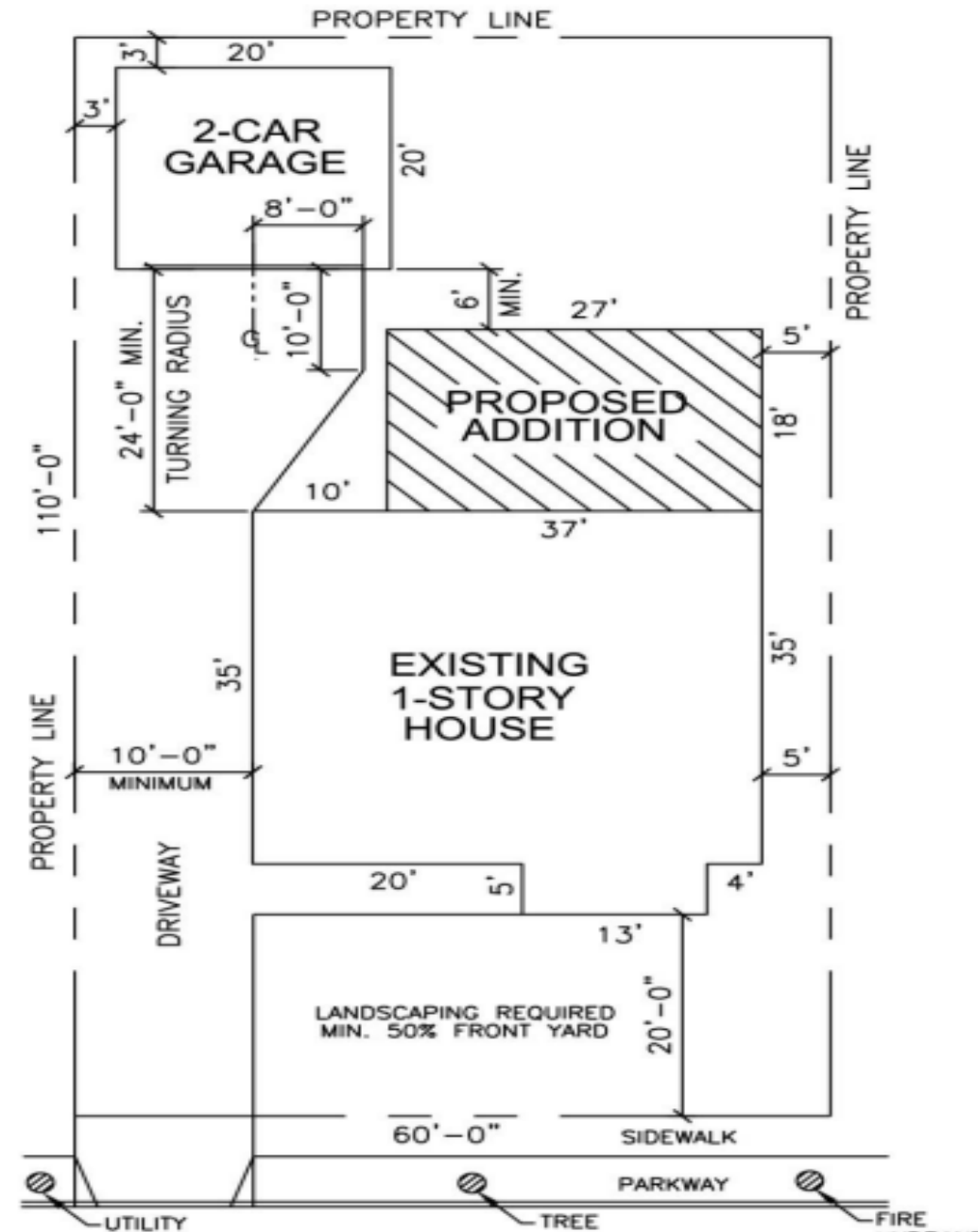
EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the <i>International Building Code</i> with exposure from the outside	0 feet
	Not fire-resistance rated	0 hours	3 feet <sup>a</sup>
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood <sup>b, c</sup>	2 feet <sup>a</sup>
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	3 feet <sup>a</sup>
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet <sup>a</sup>

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

- a. For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the [fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet](#), and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.
- b. [The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.](#)
- c. [The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.](#)

1. OWNER(S) NAME
2. PROPERTY ADDRESS
3. DATE
4. PROJECT DESCRIPTION
5. TYPE OF CONSTRUCTION
6. EXISTING AREA OF S.F. (DWELLING AND ACCESSORY)
7. PROPOSED AREA S.F. (DWELLING AND ACCESSORY)
8. TOTAL SQUARE FOOTAGE
9. LOT SIZE
10. LOT COVERAGE
11. LOT DIMENSIONS
12. LOCATE ALL BUILDINGS AND STRUCTURES
13. LOCATE YARDS AND SPACE BETWEEN BUILDINGS
14. LOCATE WALLS, FENCES, AND LANDSCAPING
15. LOT COVERAGE
16. SETBACKS (FRONT, REAR, SIDES)
17. LEGAL DESCRIPTION (APN, LOT, TRACT)
18. SUCH OTHER DATA AS MAY BE REQUIRED BY THE PLANNING DIVISION





# FIRE-RATED-ASSEMBLIES

Provide complete listed assemblies based on hour rating needed.

Submit the latest version as possible.

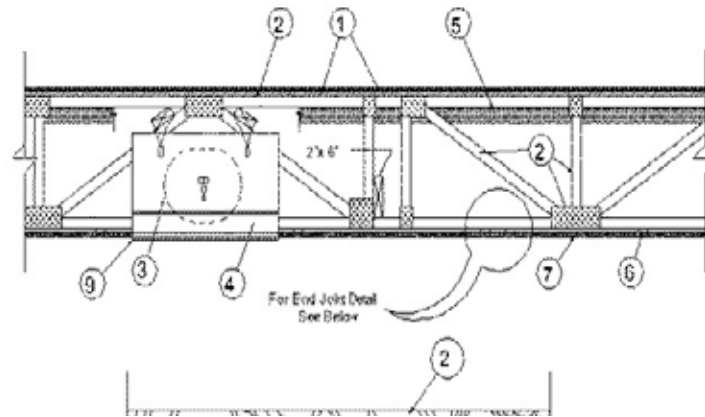
Design no. L521

Unrestrained Assembly Rating – 1 Hr

Finish Rating – 25 Min (See Items 5 and 5A), 20 Min (See Items 6H and 7A)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used – See Guide [BXUV](#) or [BXUV7](#)

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



**1. Flooring System** — The flooring system shall consist of one of the following:

#### System No. 1

**Subflooring** — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Vapor Barrier** — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Floor** — Min 1 by 4 in. T & G lumber installed perpendicular to trusses, or min 15/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

#### System No. 2

**Subflooring** — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Vapor Barrier** — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Flooring\* — Floor Topping Mixture** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

**UNITED STATES GYPSUM CO** — Types LRK, HSLRK, CSD

**LATICRETE SUPERCAP L L C** — Types LRK, HSLRK

**USG MEXICO S A D E C V** — Types LRK, HSLRK, CSD

**Floor Mat Materials\*** — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

**UNITED STATES GYPSUM CO** — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding minimum thickness of floor topping over floor mat.

**GRASSWORX L L C** — SC Types

#### System No. 3 (For Use with Item 7A Only)

**Finish Floor** — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and 2-1/2 in. long nails, spaced 12 in. OC along each truss and 8 in. OC at the perimeter.

#### System No. 4

**Structural Cement-Fiber Units\*** — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to wood trusses with end joints staggered a min of 2 ft and centered over the trusses. Panels secured to wood trusses with 1-5/8 in. long, No. 8, self- countersinking wood screw spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the end edges of the panel.

**UNITED STATES GYPSUM CO** — Types STRUCTO-CRETE, USGSP

**Finish Flooring — Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

**UNITED STATES GYPSUM CO** — Types LRK, HSLRK, CSD

**LATICRETE SUPERCAP L L C** — Types LRK, HSLRK

**USG MEXICO S A D E C V** — Types LRK, HSLRK, CSD

**Floor Mat Materials\*** — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

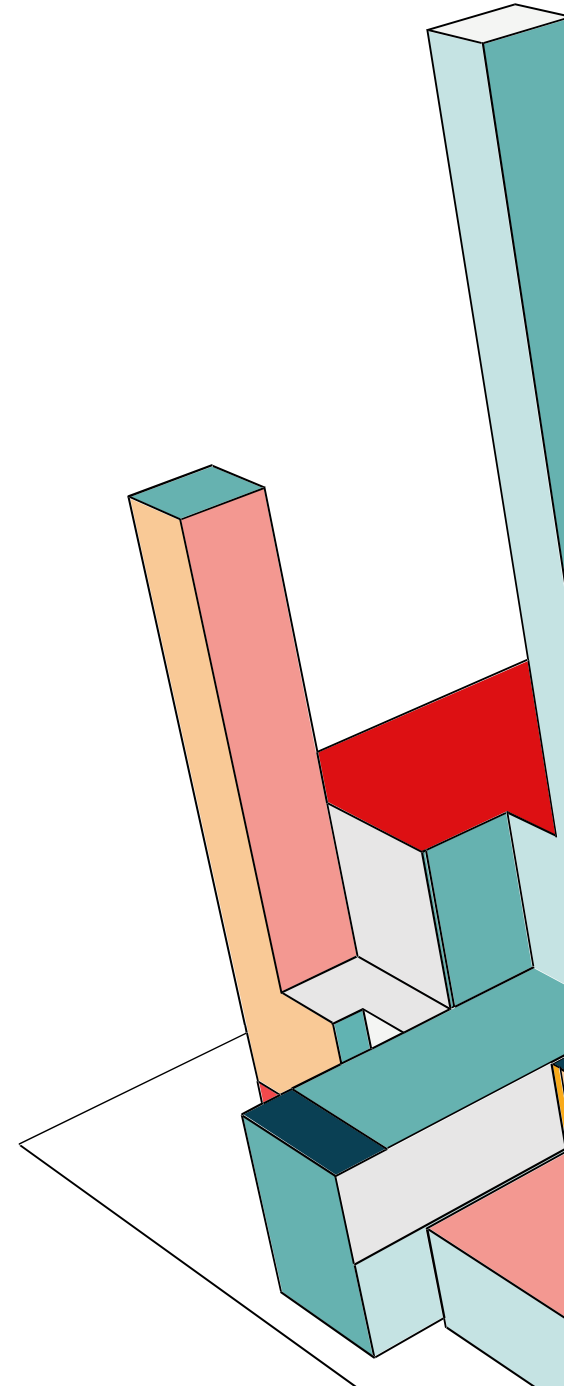
**UNITED STATES GYPSUM CO** — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

#### System No. 5

**Structural Cement-Fiber Units\*** — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to wood trusses with end joints staggered a min of 2 ft and centered over the trusses. Panels secured to wood trusses

# COORDINATION OF PLANS

- Coordinate Architectural plans with Mechanical, Plumbing, and Electrical.
- Missing information or details on one or more plans.
- One of the most common plan review comments.. Multiple designers on one set of plans.
- Reduction in request for information.



# EMERGENCY•ESCAPE•AND• ...WINDOW•OPENINGS

Per R310 Provide size and type to plans.

Minimum opening size of 5.7 square feet  
or 5 square feet if on the grade floor or below grade.



# ATTIC•VENTILATION

1. Provide attic ventilation calculations per IRC 806.2
2. Provide size of vents and the location on plans based on 1/150 or the exception of 1/300.
3. If using baffles, show detail with 1" air space.
- 4, Declare if attic is going to be vented or non-vented.



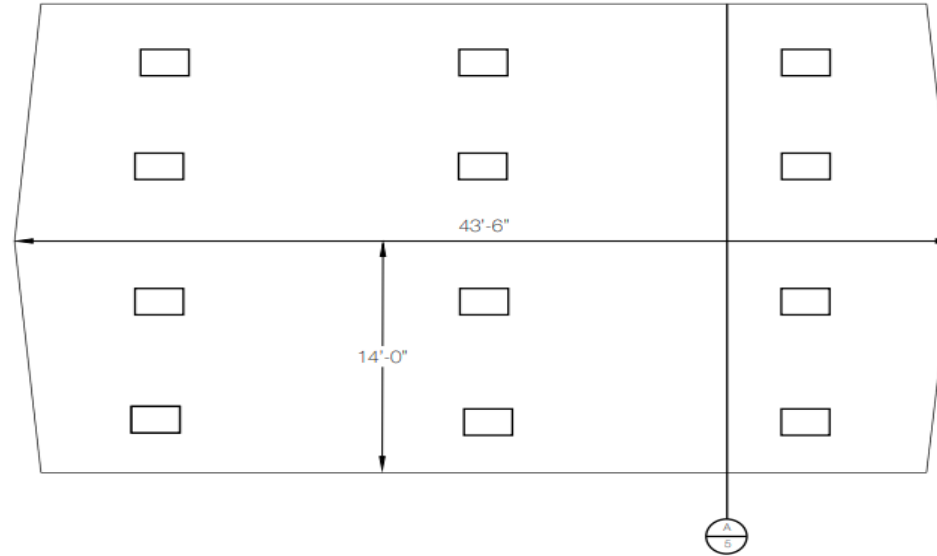
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NOTE TO TRUSS MFG.

1. TRUSS MFG. SHALL SUBMIT SHOP DRAWINGS AND STRUCTURAL CALCULATIONS TO CONFIRM LAYOUT AND DIMENSIONS.
2. TRUSS MFG. MUST CROSS-REFERENCE STRUCTURAL SECTIONS TO VERIFY ALL TOP AND BOTTOM CHORD BEARING POINTS.
3. UNLESS OTHERWISE NOTED, PROVIDE AN 18" OVERHAND AT EAVE LOCATIONS AND A 9" OVERHANG AT GABLE END LOCATIONS (U.N.O.).
4. UNLESS SPECIFIED OTHERWISE, ALL ROOF TRUSSES SHALL HAVE TOP CHORDS OF AT LEAST 2X6 LUMBER (U.N.O.).
5. CONDUCT FIELD VERIFICATION PRIOR TO STARTING CONSTRUCTION.
6. TRUSS MFG. SHALL COORDINATE WITH CONTRACTOR TO CONFIRM LOCATIONS OF MECHANICAL EQUIPMENT AND ATTIC STORAGE AREAS/SIZES BEFORE CONSTRUCTION BEGINS.
7. ENSURE AN UNOBSTRUCTED PASSAGEWAY TO THE ATTIC FURNACE WITH CONTINUOUS SOLID FLOORING AT LEAST 24" WIDE AND NO LONGER THAN 20', PER UMC SECTION 931.2 (CONFIRM MECHANICAL EQUIPMENT LOCATIONS). PROVIDE A LEVEL WORKING PLATFORM AT LEAST 30" WIDE IN FRONT OF THE SERVICE SIDE OF THE ATTIC APPLIANCE, PER UMC SECTION 904.11.4.

**VENTILATION REQUIREMENTS:** ENCLOSED ATTICS AND RAFTER SPACES, WHERE CEILINGS ARE ATTACHED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, MUST INCLUDE CROSS-VENTILATION FOR EACH SEPARATE SPACE USING VENT OPENINGS PROTECTED FROM RAIN OR SNOW, PER IRC SECTION R806. THE TOTAL NET FREE VENTILATION AREA SHALL BE AT LEAST 1/150 OF THE VENTILATED SPACE'S AREA. THIS CAN BE REDUCED TO 1/300 IF 50% TO 80% OF THE REQUIRED VENTILATION IS PROVIDED BY VENTS LOCATED IN THE UPPER PORTION OF THE SPACE, AT LEAST 3 FEET ABOVE EAVE OR CORNICE VENTS, WITH THE REMAINING VENTILATION PROVIDED BY EAVE OR CORNICE VENTS, PER IRC SECTION R806.2.



## ROOF PLAN

ATTIC VENT CALCULATIONS

REQUIRED: (ALL INCLUSIVE):  $1,218 \text{ SQ.FT.} / 150 = 8.12 \text{ SQ. FT OR } 1,169.28 \text{ SQ. IN.}$

PROVIDED:

O'HAGIN CONCRETE TILE ROOF VENTS @ 98.75 SQ. IN. EACH

6 LOW/INTAKE VENTS = 592.5 SQ. IN.

6 HIGH/EXHAUST VENTS = 592.5 SQ. IN.

TOTAL PROVIDED: 1,185 SQ. IN.

**NOTE: ATTIC VENTILATION TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS MAY USE ALTERNATIVE VENTING SYSTEM, PROVIDED MINIMUM REQUIREMENTS ARE MET**



# Communication

Provide correspondence letter on revisions and re-submittals. Clearly stating what has been corrected or revised. Identify with clouded area. Very common not be included or vague information.

Email or phone for clarification or questions.

Let's be partners in the plan review process!  
Help Me, Help You!



# FINAL•TAKEAWAYS

- Code Analysis: Correct adopted codes and occupancy.
- Code Amendments: Verify, could be significant.
- Detailed Scope of work: Exact work being performed per discipline.
- Plot Plan: Provide with dimensions to verify fire separation.
- Coordination of plans: A,M,P, E plans
- Emergency Escape and rescue windows: Provide size and type.
- Attic Ventilation: Provide calculations and roof layout.
- Fire-Rated Assemblies: Provide entire most current listing.
- Communication: Provide correspondence letter, e-mails, phone calls.



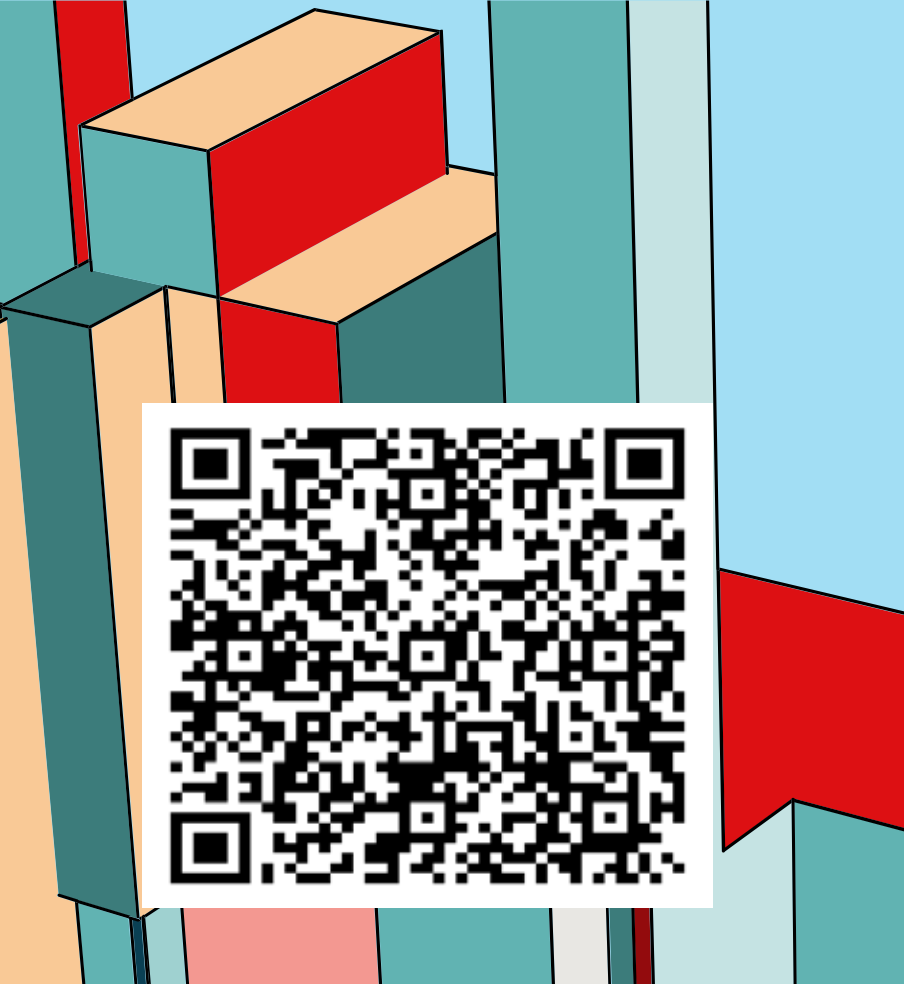
Entering its 29<sup>th</sup> year, EduCode began in the mid-1990's as an idea when the Southern Nevada Chapter of the International Conference of Building Officials (ICBO) officers and members met to discuss the training needs for the Chapter in Southern Nevada.

Currently, Educode is the premier educational conference offering more than 100 different courses. The attendance has grown to 1500 virtual and 1200 in person and continues to increase every year.

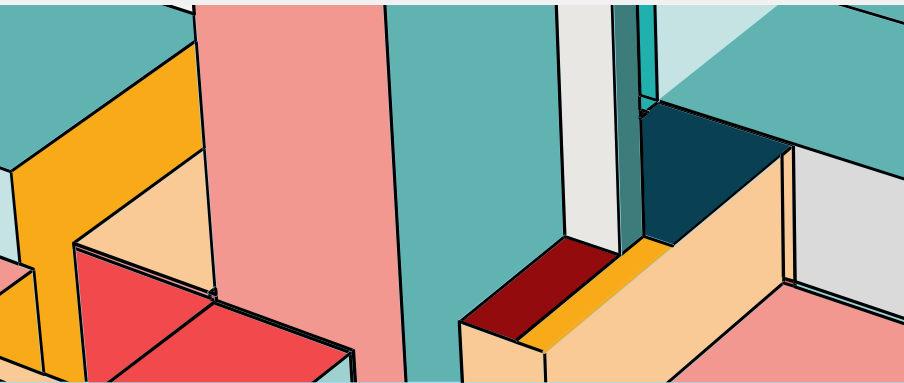
Educode offers training and networking opportunities for building and fire inspectors, plan examiners, permit technicians, code enforcement officers, managers and supervisors, architects, engineers, building officials, students and all code professionals.

Earn CEU's for ICC, IAPMO, and AIA





Classes, Registration, Accommodations.



Days until Educode 2026:

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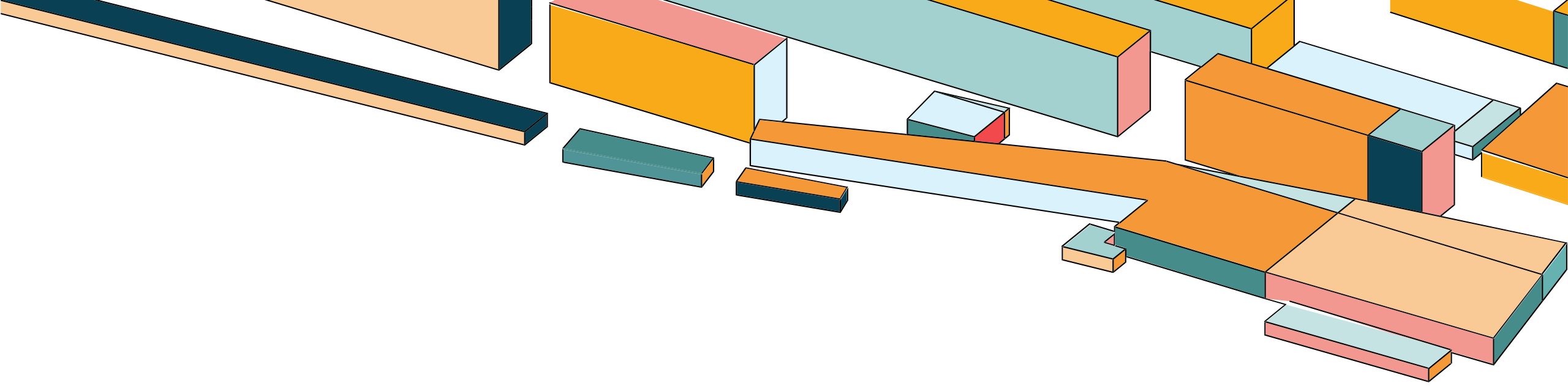
A MESSAGE FROM EDUCODE DIRECTOR ALAN ELLIS

EduCODE is 29 years old and better than ever! We offer both virtual and in-person classes to help meet the demands and necessities of you, your colleagues and all code professionals. EduCODE continues to be designed around your comments, suggestions and needs to maintain our commitment to be the finest educational training for code professionals anywhere. This year we are offering over 100 different courses to ensure we meet the changing needs of all who attend.



**The 2026 EduCode Conference and Expo is scheduled for February 23 to February 27 at the Orleans Hotel and Casino Conference Center in Las Vegas, NV.**

Presented by the Southern Nevada Chapter of the International Code Council, EduCODE 2026 provides all courses at one location, or online if you prefer, and all are Preferred Provider approved. Now, due to the rising



QUESTIONS?

# THANK•YOU•

**Mike Clifford**

**City of Las Vegas, Nevada**

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