

**25RFP007 CMAR BSL-3 Lab Construction Reissued
Addendum #1 Revision to Section III and Q&A
Issued: 02/06/2025 (Revised 02/11/2025)**

Revision to Section III - Timetable and Provisions:

Section III.A Timetable, is hereby deleted in its entirety and replaced with the following:

RFP Issuance	01/15/2025
Mandatory Site Visit	2:00 PM PST on 01/23/2025
Deadline to Submit Questions	2:00 PM PST on 01/30/2025
Deadline to Disseminate Questions and Answers	02/06/2025
Deadline to Submit Proposals / Public Opening	4:00 PM PST on 02/20/2025
Notification to Shortlisted Proposers	02/27/2025
Interview Submittal Due Date	2:00 PM PDT on 03/13/2025
Interviews Conducted	03/17/2025 - 03/20/2025
Notification of Recommended Award	by 03/27/2025
Contract Development	March - May 2025
Estimated Preconstruction Phase	May - August 2025

Section III.E Deadline to Submit Proposals and Late Proposals, is hereby deleted in its entirety and replaced with the following:

Proposals must be received by **4:00 PM PST on 02/20/2025**. Proposals received after **4:00 PM PST on 02/20/2025** will be rejected as late.

Section III.G Public Opening and Recording of Proposals, is hereby deleted in its entirety and replaced with the following:

1. Proposals will be publicly opened at 4:00 PM PST on 02/20/2025 at 280 S. Decatur Blvd., Las Vegas, NV 89107.
2. Proposers' names will be read aloud and recorded on the Receipt of Proposals. The Receipt of Proposals will be certified by signature of the Authorized Contact and a designated witness.
3. The Authorized Contact will email the certified Receipt of Proposals to Proposers by 5:00 PM PST on 02/20/2025. The certified Receipt of Proposals will be posted to SNHD's Public Notices website by 5:00 PM PST on 02/24/2025.

Questions and Answers

Question Number	Date Received	Question	Answer
Q1-1	01/22/2025 2:53 PM	Please let me know the best way I can get Siemens as an approved lab controls manufacturer (not as a substitute, not as an alternate, but as an approved mfg to bid the lab control system).	<i>Refer to Specifications SECTION 01 25 00 - SUBSTITUTION PROCEDURES.</i>
Q2-1	01/22/2025 10:36 AM	Some of the Wi-Fi Access Points have “ENV” Next to them, what is ENV, and please provide additional information and specs regarding it (See drawing TT2.2.1).	<i>Environmental Enclosure (ENV) additional enclosure over the wireless access device. Detail 12 on T6.1.</i>
Q2-2	01/22/2025 10:36 AM	What is the access control system brand used in phase 1. Please provide photos of readers, controllers, and enclosures.	<i>The access control system is Verkada.</i>
Q2-3	01/22/2025 10:36 AM	What is the CCTV cameras brand used in phase 1. Also, what is the VMS (Video Management Software) used?	<i>The CCTV brand is Verkada, The VMS us Verkada Cloud base software.</i>
Q2-4	01/22/2025 10:36 AM	What is the preferred brand for the data cabling (specs show brand for security cabling, but not data)?	<i>Copper cabling shall be one of the following: Superior Essex, Belden, CommScope or General Cable. Optical Fiber cabling shall be one of the following: Corning, Superior Essex, CommScope or General Cable</i>
Q2-5	01/22/2025 10:36 AM	Please provide complete door schedule showing type of hardware. Also, please provide the specifications.	<i>The Door Schedule is drawing A4.2.1 for both Phases. Column HW, Hardware, designates the hardware sets that are listed and defined on pages 18-45 of the Door Hardware specification 08 71 00.</i>
Q2-6	01/22/2025 10:36 AM	Would it be acceptable to add Ideal Products lockers? See attached brochure.	<i>Refer to Specifications SECTION 01 25 00 - SUBSTITUTION PROCEDURES.</i>
Q2-7	01/23/2025 11:44 AM	ACP 2.1.A and the like, diagrammatically show ceiling type A1 as 2x4 ACT and type A2 as 2x2 ACT. Finishes schedule sheet DG.1 calls for the only ceiling to get ACTV is RM 1004 Accessioning. The Spec section 09 51 13 calls for Type A2(ACT) to be 2x4 and Type A1(ACTV) 2x4. Please confirm that the only room getting the ACTV-(Washable vinyl face) is RM 1004 and the ACP sheet callouts for A1 and A2 are in reference to the ACT tile sizes of 2x2 and 2x4.	<i>Types A1 & A2 are the different sizes of the ceiling tiles: A1 24"X 48" and A2 24" X 24" . The ACTV is the ceiling tile system for all the Laboratory areas excluding the BSL-3 laboratories which receive Gyp. Board ceiling. Additionally, Accessioning Rm 1004 is also to receive the ACTV ceiling tile system.</i>

Question Number	Date Received	Question	Answer
Q2-8	01/23/2025 11:44 AM	Would you clarify what state the phase 2 areas are to be left in during phase 1 construction? Are you expecting the walls to be finished that are shown on phase 1 with drywall and paint or will those walls only have drywall/paint on the phase 1 side of the wall and open framing on the phase 2 side?	<i>Yes finished walls including drywall and paint are required on Phase 1 side of walls that border Phase 2 interior areas. Phase 2 side of these walls are to be the metal studs unless they are a rated wall and then the wall will need to be fully finished (including drywall and paint).</i>
Q2-9	01/27/2025 2:31 PM	Note: Phase 1 will be the building shell and spaces as shown and phase 2 will be the remaining portions of the building interior including BSL-2 lab and gas storage areas.	<i>Yes, as per the Phasing plans.</i>
Q2-9a	01/27/2025 2:31 PM	Will phase 2 be constructed during the 14 month duration or will phase 2 be completely independent?	<i>Phase 2 is independent of Phase 1.</i>
Q2-9b	01/27/2025 2:31 PM	Does the 14 month construction schedule include phase 1 and phase 2?	<i>Just Phase 1.</i>
Q2-9c	01/27/2025 2:31 PM	Will 25RFP007 be for phase 1 and phase 2 combined?	<i>It combines Phases 1 and 2 as reflected in the Plans.</i>
Q2-10	01/31/2025 10:04 AM	RM-RFI-1 - Sheet HP2.1.1A shows the installation of one Chiller (CH-1) and two Boilers (B-1 & B-2) in the Mechanical Yard. Detail sheets H6.1 and H6.2 do not include a Chiller Connection Detail or a Boiler Connection Detail. Can you please provide a Chiller Connection detail and Boiler Connection detail showing all piping accessories that are to be included for the installation of this equipment?	<i>Chiller shall be set on restrained spring vibration isolation. Therefore, flexible connections to the chiller will be required. Please refer to manufacturer installation requirements. Attached Figure 1 Q2-10 is from the basis of design chiller manufacturer and is provided for reference and specifications. See Attached Figure 1 Q2-10.</i> <i>Connect hot-water piping to supply- and return-boiler tappings with flexible connection, shutoff valve and union or flange at each connection. In addition, provide pressure gauge, test well, temperature gauge, 2-position isolation valves for each boiler. Refer to manufacturer recommended pipe installation as shown in the attached Figure 2 Q2-10 for reference.</i>
Q2-11	01/31/2025 10:04 AM	RM-RFI-2 - On equipment schedule sheets H4.1.1 and H4.1.2 several pieces of equipment reference (See HPE Schedule). What is the HPE Schedule and can you please provide?	<i>Refer to Sheet E4.2.3 in the electrical drawings.</i>
Q2-12	02/03/2025 7:38 AM	Please provide a Fire Protection Report if available.	<i>Report is included in this RFI response.</i>
Q2-13	02/03/2025 7:38 AM	Please provide Division 28 Fire Alarm Specifications if available.	<i>See Fire Alarm drawings FA0.00, FA2.20 and FA2.21 for the concept design and the device locations.</i>

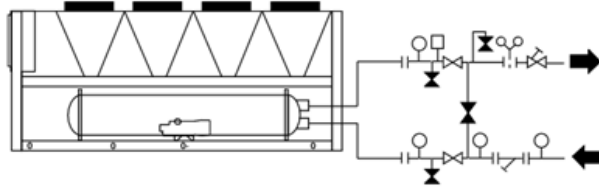
Question Number	Date Received	Question	Answer
Q2-14	02/03/2025 7:38 AM	Please provide Division 28 specifications for CCTV if available.	<i>Please see questions Q2-2 and Q2-3.</i>
Q2-15	02/03/2025 7:38 AM	Please provide Division 28 specifications for Access Control if available.	<i>Please see questions Q2-2 and Q2-3.</i>
Q2-16	02/03/2025 7:38 AM	Please provide any owner required sub-contractor list for coordination.	<i>None.</i>
Q2-17	02/03/2025 7:38 AM	Please provide a Responsibility Matrix if available.	<i>GC to determine and provide this matrix.</i>
Q2-18	02/03/2025 7:38 AM	Please clarify if proposal is to be broken out into the two phases shown on drawings.	<i>Yes.</i>
Q2-19	02/03/2025 7:38 AM	Please identify current fire alarm system manufacturer and provider in existing building.	<i>The fire alarm design is currently based on the buildings having separate systems. No compatibility requirement is specified between the new and the existing building.</i>
Q2-20	02/03/2025 9:18 AM	SUBJECT: Detail 6. SHEET: E6.1. Drawing and specs do not indicate where this detail is to be installed and if the rigid conduit is to be run back to the electrical source panel. We haven't found a code requirement for this detail. We understand this is a CMAR job, we want to be responsive and competitive.	<i>The detail is applicable for the BSL-3 areas and laboratories located between Column lines A-B and 1-4.</i>
Q3-1	01/29/2025 6:45 AM	Sheet SG.1; Metal Deck Note 3 states "Metal deck attachment to the supporting steel framing shall be as noted on the drawings". We cannot find a deck fastening schedule on the drawings. Please provide.	<i>As per response on 12/6 Bid Questions: "Metal deck for the concrete slabs on metal deck (at second floor and roof) shall be attached to the structural steel framing as noted in specification section 053100 Section 3.4. The attachment requirements for the entrance canopy will be added to the drawings." Detail 20/S5.3 was added to the drawings on the Issued for Plan Check Set dated 12/12/24 to address metal deck attachment requirements at the canopy.</i>
Q3-2	01/29/2025 6:45 AM	Ref. Detail 12/S5.4 Typical Detail – Beam Brace; This detail is not called-out on the plans. Where does it occur?	<i>Braces shall be located at each end of every steel special moment frame beam (see diagram on SG.3 for special moment frame locations). Typically braces are to be located within a maximum of 12" beyond the end of the reduced beam section farthest from the face of the column. See detail 11/S5.4 for a graphic representation of the brace location. At the connector where moment frame beams are size W8x40, braces are to be located within a maximum of 4" beyond the end of the reduced beam section farthest from the face of the column.</i>

Question Number	Date Received	Question	Answer
Q3-3	01/29/2025 6:45 AM	Ref. S2.2 & S2.3; How does the ¼” checkered plate attached to the steel supports at the stair tower? If welded, please provide details.	<i>As per response on 12/6 Bid Questions: "Checkered plate at the stair landings shall be attached to the steel framing supports using 3/16" fillet welds that are 1 1/2" long and spaced at 12" on center. Stair treads shall be prefabricated and bolted to the stringers per stair manufacturer requirements." Floor type "SP1" was updated in the Issued for Plan Check Set dated 12/12/24 to address the steel plate attachment requirements.</i>
Q3-4	01/29/2025 7:19 AM	Ref. S2.3 Roof Framing Plan; Is steel framing required at the “future” roof top units? If so, what framing detail is to be used?	<i>GC to assume (2) W14x22 under each future exhaust fan and humidifier (as located on the structural drawings). Framing below the future AHU shall be W14x22 to match framing concept for Phase 1 AHU shown on the structural drawings. This framing (described above) shall be listed as a bid alternate for all Phase 2 Future Mech items on roof. SNHD to confirm installing the roof framing and the conc equipment pads on the roof for less disruption to Phase 1 occupied areas within the building.</i>

Q2-10 Figure 1

PIPEWORK ARRANGEMENT

The following is a suggested piping arrangement for single unit installations.

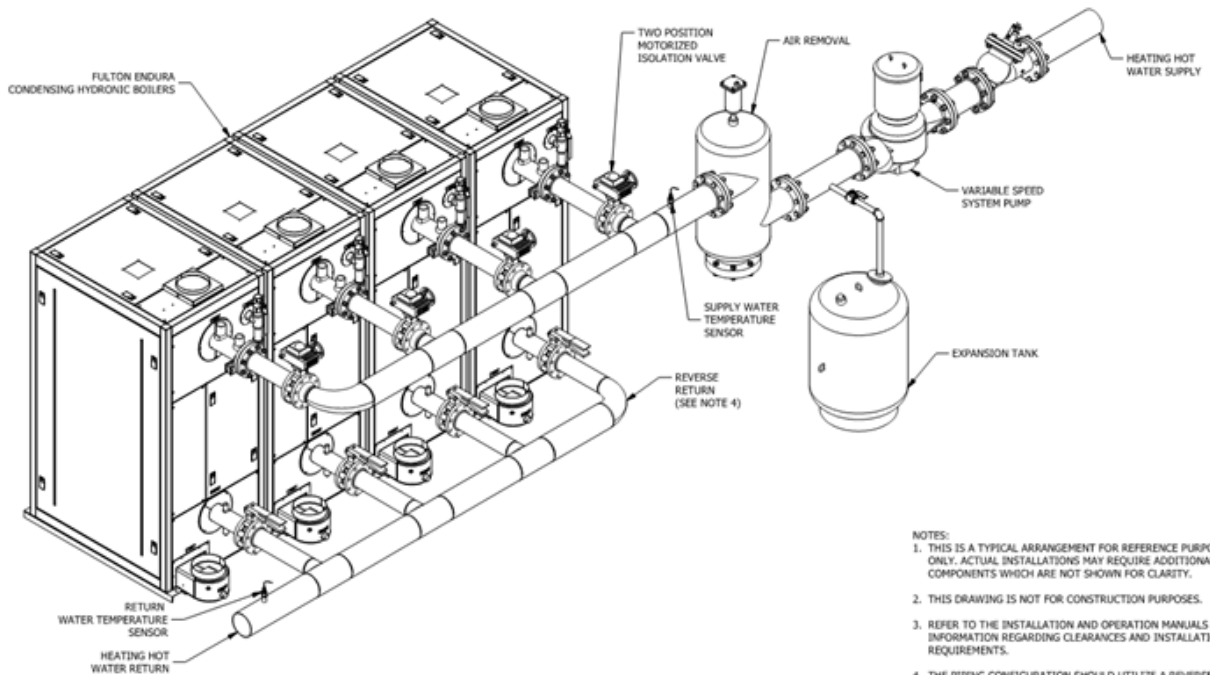


- ⊗ - Isolating Valve - Normally Open
- ⊗ - Isolating Valve - Normally Closed
- ⊗ - Flow Regulating Valve
- ⊗ - Flow Measurement Device
- ⊗ - Strainer
- ⊗ - Pressure Tapping
- ⊗ - Flow Switch
- ⊗ - Flanged Connection
- - Pipework

LD15151

PIPEWORK ARRANGEMENT

Q2-10 Figure 2



- NOTES:
1. THIS IS A TYPICAL ARRANGEMENT FOR REFERENCE PURPOSES ONLY. ACTUAL INSTALLATIONS MAY REQUIRE ADDITIONAL COMPONENTS WHICH ARE NOT SHOWN FOR CLARITY.
 2. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES.
 3. REFER TO THE INSTALLATION AND OPERATION MANUALS FOR INFORMATION REGARDING CLEARANCES AND INSTALLATION REQUIREMENTS.
 4. THE PIPING CONFIGURATION SHOULD UTILIZE A REVERSE RETURN HEADER TO PROPERLY BALANCE FLOW ACROSS THE BOILERS. WHERE REVERSE RETURN CANNOT BE USED, IT IS RECOMMENDED TO INSTALL A BALANCING VALVE PER BOILER.



**SOUTHERN NEVADA HEALTH DISTRICT
BSL-3 Lab
Fire Protection Report**

code consulting | fire protection engineering
construction management | fire protection system and testing

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TC #23.0362

10 October 2024

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INTRODUCTION

The construction of a two-story Southern Nevada Health District (SNHD) Biosafety Level 3 (BSL-3) Lab is proposed at the corner of S. Martin Luther King Boulevard and Wellness Way in Las Vegas, NV. The building will be of Type IIB construction with an approximately 6,400 ft² footprint and 29' in height.

The project will be phased: Phase 1 consists of the core and shell and partial buildout, while Phase 2 will include the remaining interior buildout. This report addresses both phases.

The purpose of this report is to document the work associated with this project. All work will be performed in accordance with the 2021 International Building Code with City of Las Vegas amendments (LVBC) and the 2021 International Fire Code with City of Las Vegas amendments (LVFC).

KEY ISSUES

BUILDINGS ON SAME LOT

The new BSL-3 lab building will be constructed on the same lot as an existing SNHD lab building. Where two (2) or more buildings exist on the same lot, the buildings must be regulated as separate buildings or are considered portions of a single building where the building height, number of stories, and the aggregate building area are within the limitation of CCBC Sections 504 and 506.

The new building will be a separate building per LVBC Section 503.1.2. The existing building is of Type VB construction, while the new building will be of Type IIB construction; therefore, the exterior walls are not required to be fire resistance rated when located 10' from the imaginary line per LVBC Section 705. A minimum of 20' is maintained between buildings, except at the pedestrian walkway connection.

PHASED CONSTRUCTION

The construction will be phased: Phase 1 consists of the core and shell and partial interior buildout, while Phase 2 will consist of the remaining interior buildout. The shell spaces will be provided with complete fire protection systems and do not impact access to exits from the floor.

The extent of the shell spaces is shown below:

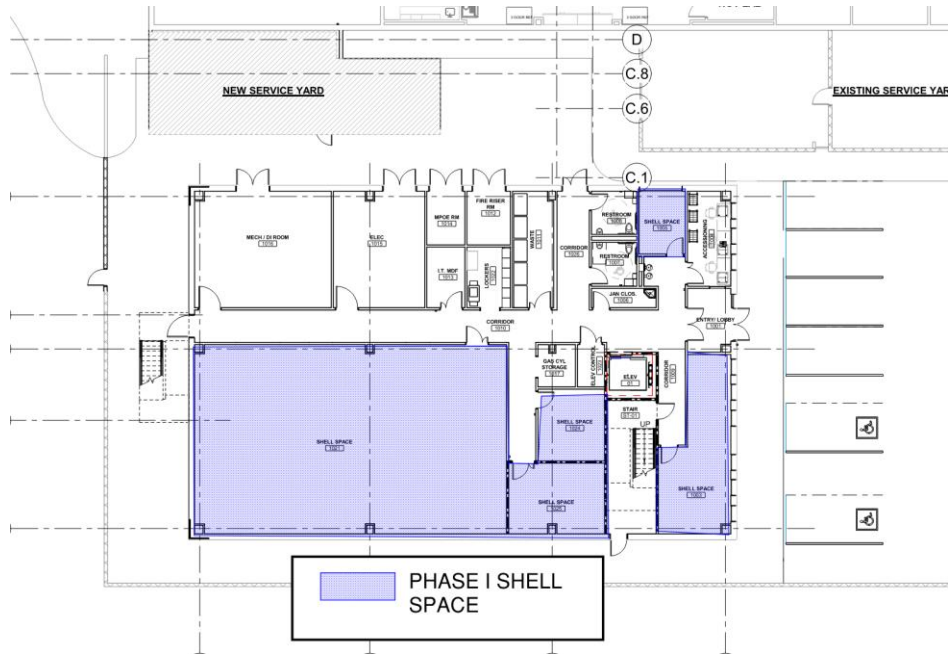


Figure 1: Phase 1 Level 1

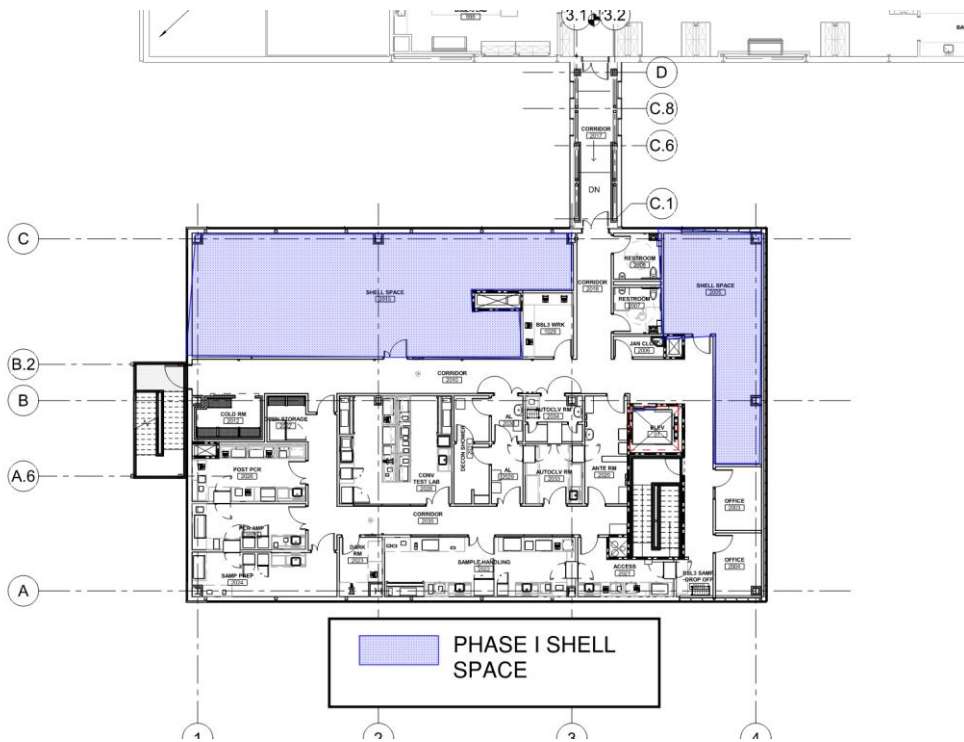


Figure 2: Phase 1 Level 2

APPLICABLE CODES

This outline documents the general fire protection design features based upon the requirements set forth by City of Las Vegas Building Safety (LVBS) and Las Vegas Fire & Rescue (LVFR). The intent of this document is to provide preliminary information for fire protection coordination between design disciplines. Actual details of compliance are left to the forthcoming construction documents and the contractors.

The following is a list of life safety codes and standards applicable to this project:

- 2021 LVBC
- 2021 LVFC
- 2018 Uniform Mechanical Code (SNMC) with Southern Nevada amendments
- 2018 Uniform Plumbing Code (SNPC) with Southern Nevada amendments
- 2017 National Electrical Code (NEC) with Southern Nevada amendments
- ICC/ANSI A117.1 (2009 edition)
- NFPA 10 – *Standard for Portable Fire Extinguishers* (2021 edition)
- NFPA 13 – *Standard for Installation of Sprinkler Systems* (2019 edition)
- NFPA 24 – *Standard for the installation of Private Fire Service Mains and Their Appurtenances* (2019 edition)
- NFPA 72 – *National Fire Alarm and Signaling Code* (2019 edition).

FIRE DEPARTMENT ACCESS

Site and building fire department access will be provided in accordance with LVFC Section 503 as such, the building exterior walls must not exceed the base code minimum of 150' required by LVFC Section 503.1.1. Fire apparatus road access will be provided via public streets along three (3) sides of the building.

Due to fence enclosures, all exterior walls of the building are within 250' of the fire apparatus road access point and the building is fully sprinklered. Fire department access is shown in red in Figure 3 below:

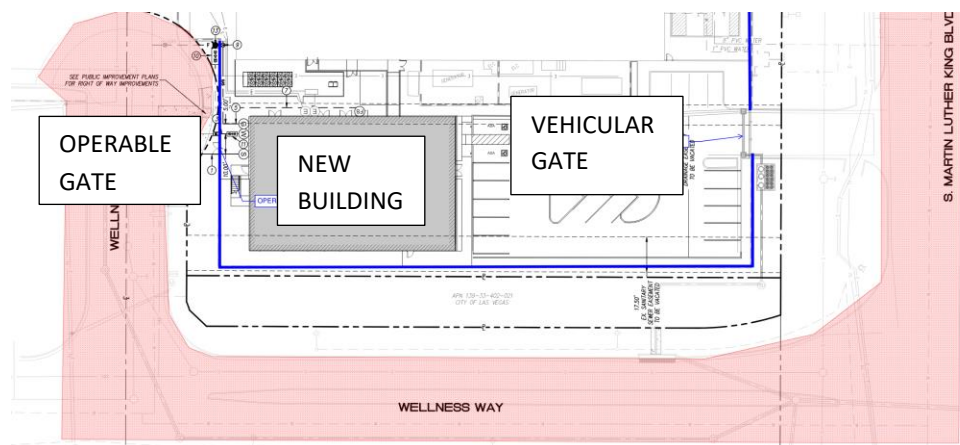


Figure 3: Fire Department Access

Fire apparatus access roads are a minimum of 24' wide and a minimum vertical clearance of 13'6" in accordance with LCFC Section 503.2.1.

FACILITY BACKGROUND

A BSL-3 Lab facility is utilized to conduct research into or work on microbes and biological agents. The microbes evaluated can cause serious disease through inhalation – examples include West Nile virus and yellow fever. The objective of these labs is to evaluate containment of these pathogens. A Level 3 lab requires careful control of the materials handled.

Buildings and structures containing materials that are health hazards are often classified as Group H-4 and include corrosives, highly toxic, and toxic materials. The definition of health hazard, corrosive, toxic and highly toxic are all in relation to chemical classification.

Any chemicals associated with the BSL-3 Lab functions will not exceed the Maximum Allowable Quantity (MAQ) per control area; as such, no spaces will be designed as a Group H occupancy. However, the microbes and biological agents are not chemicals and thus not explicitly regulated. See the HAZMAT Section of this report for additional protection features proposed for the unique installation.

PASSIVE FIRE-RESISTANCE ASPECTS

The facility will be of Type IIB construction in accordance with the LVBC.

Building structural elements will be fire-resistance rated in accordance with LVBC Table 601 as follows:

Building Element	Fire-Resistance Rating [hr]
Primary structural frame	0
Bearing walls	
Nonbearing walls	
Floor construction and secondary members	
Roof construction and secondary members	

Note: The structural bay supporting shaft enclosures (e.g., stair, mechanical, elevator hoistway, etc.) will have a fire-resistance rating equal to that of the enclosure unless the shaft enclosure is independently supported.

ALLOWABLE HEIGHT AND AREA

The building will consist of Group B and S occupancies. The building will not exceed the area, height or story limitations of the LVBC for the most restrictive occupancy. Group S-1 sprinklered buildings of Type IIB construction are permitted to have the following:

- A maximum area of 52,500 ft² in accordance with LVBC Table 506.2
- A maximum height of 75' above grade plane per LVBC Table 504.3
- A maximum of four (4) stories per LVBC Table 504.4.

The building is approximately 6,400 ft² per floor and 29' in height.

OTHER SEPARATIONS

Exterior walls will not require a fire-resistance rating in accordance with LVBC Table 705.5 as fire separation distances to the closest interior lot line, centerline of a street, alley or public way is greater than 10'. Openings within exterior walls will not require protection in accordance with LVBC Table 705.8.

The circulation connection between the existing and new lab buildings will comply with LVBC Section 3104 for pedestrian walkways. Because both buildings are fully sprinklered, glass with sprinkler will be provided at the connection between both buildings and the walkway. A fire-resistance rated separation will not be provided.

The nonseparated use provisions of LVBC Section 508.3 will be utilized.

Interior nonbearing walls will be nonrated and noncombustible, except as described below. Combustible materials permitted within the space include millwork such as doors and door frames, furniture, trim, and other items specifically listed in LVBC Section 603.1.

The chemical storage room on Level 1 will be a separate control area and will be separated vertically and horizontally by 2-hour fire resistance rated construction, exceeding the requirements of LVBC Section 414.2.4. The remainder of the building will be a single control area and fire separations will not be provided between spaces. Hazardous materials will be documented in a Hazardous Material Inventory Statement (HMIS) under separate cover.

A fire riser room will be provided for the project. The fire riser room will be separated from other building areas by 1-hour fire-resistance rated fire partitions with 45-minute fire-protection rated opening protectives in accordance with LVBC Section 901.4.8. The riser room will be provided with an exterior access door per LVBC Section 901.4.8.2 and will have a minimum area of 16 ft² with a minimum dimension of 4' for the first riser as required by LVBC Section 901.4.8.4.

Shaft enclosures, including elevator hoistway enclosures and interior exit stairways, will be minimum 1-hour fire-resistance rated and constructed in accordance with LVBC Sections 713 and 1023.2.

Knox boxes will be provided at the fire riser room and main entrance and installed in accordance with LVFC Section 506.

PENETRATIONS & JOINTS

Penetrations of fire-resistance rated building elements will be protected in accordance with LVBC Section 714. Duct penetrations of fire-resistance rated assemblies will be in accordance with LVBC Section 717.

Dampers will be provided with access and identification in accordance with LVBC Section 717.4. Fire dampers will be located where ducts or air transfer openings penetrate required rated construction not otherwise requiring combination fire/smoke dampers (CFSDs).

Duct systems constructed of approved materials in accordance with the SNMC that penetrate non-fire-resistance rated floor assemblies and connecting not more than two (2) stories will be protected in accordance with LVBC Section 717.6.3, Item 2. The annular space around the penetrating duct will be protected with an approved noncombustible material that resists the free passage of flame and products of combustion.

Penetrations into and openings through the interior exit stairway will be limited per LVBC Section 1023.5 as follows:

- Exit doors
- Fire protection systems
- Security systems
- Electrical raceways for fire department communication systems
- Electrical raceways serving the exit enclosure terminating at a steel box not exceeding 16 in².

WALL LABELING

In accordance with LVBC Section 703.7, any wall required to have protected openings or penetrations will be permanently identified and located in accessible concealed floor, floor-ceiling, or attic spaces, be within 15' of the end of each wall and at intervals not exceeding 30' measured horizontally along the wall or partition with identification including lettering not less than 3" in height with a minimum $\frac{3}{8}$ " stroke in a contrasting color, and incorporating the suggested wording:

FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS

or other wording as approved by LVBS.

INTERIOR FINISHES

Wall and ceiling finishes, including FRP, will comply with the requirements of LVBC Chapter 8. The following tables summarize the interior finish requirements in accordance with LVBC Sections 803 and 804. Traditional floor finish materials such as wood, vinyl, linoleum, or terrazzo and resilient floor covering materials that are not comprised of fibers are exempt from these requirements per LVBC Section 804.1.

Element	Test Method	Criteria
Wall and ceiling finishes	ASTM E84 or UL 723	Class A: FSI 0-25 and SDI 0-450
		Class B: FSI 26-75 and SDI 0-450
		Class C: FSI 76-200 and SDI 0-450
Floor finish	NFPA 253	Class I: 0.45 W/cm ² or greater
		Class II: 0.22 W/cm ² up to 0.45 W/cm ²
	DOC FF-1	Pass

Notes:

FSI = flame spread index

SDI = smoke-developed index

Interior finish requirements by occupancy will be as follows:

Use Group	Walls and Ceilings		Floors
	Exit Enclosures and Passageways	Corridors, Rooms and Enclosed Spaces	Exit Enclosures, Corridors, Rooms and Enclosed Spaces
B	B	C	DOC FF-1
S	C		

Wall interior finishes will be installed directly against noncombustible construction or to furring strips not exceeding 1¾" applied directly against the associated surface. The intervening spaces between furring strips will comply with one of the following in accordance with LVBC Section 803.15.1.1:

- Be filled with material that is inorganic or noncombustible
- Be filled with material that meets the requirements of a Class A material in accordance with LVBC Section 803.1.1 or 803.1.2
- Be fireblocked at a maximum of 8' in any direction in accordance with LVBC Section 718.

Setout construction in accordance with LVBC Section 803.15.2 may also be utilized.

Millwork such as counters may be constructed with combustible material as permitted by Exception 6 to LVBC Section 603.1.

If provided, textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings will be in accordance with SNBC Section 803.5, 803.6, 803.7, and 803.8, respectively.

EXITING SYSTEMS

The project will utilize the following occupant load factors per LVBC Table 1004.5:

Use	Occupancy	OLF [people/ft ²]
Breakrooms, meeting rooms, and conference rooms less than 750 ft ²	B	1/15 (net)
Offices/laboratories	B	1/150 (gross)
Equipment rooms/storage areas	S-1	1/300 (gross)

EGRESS WIDTH

Exit stairways will be calculated multiplying the occupant load served by a stairway by a means of egress capacity factor of 0.3" per occupant in accordance with LVBC Section 1005.3.1. Means of egress components other than stairways will be calculated multiplying the occupant load served by such component by a means of egress capacity factor of 0.2" per occupant in accordance with LVBC Section 1005.3.2.

REQUIRED EXITS & EXIT SEPARATION

The minimum number of exits or access to exits will follow LVBC Table 1006.3.2. A minimum of two (2) means of egress will be provided from areas with an occupant load between 50 and 500 in accordance with LVBC Section 1006.2.1. Spaces with a calculated occupant load of 49 or less may be provided with a single means of egress as permitted by LVBC Table 1006.2.1.

Spaces that require access to more than a single means of egress will have two (2) exits separated by more than 1/3 the maximum diagonal dimension of the space as permitted by Exception 2 to LVBC Section 1007.1.1.

Egress from a space will not pass through intervening rooms except where intervening rooms are accessory, not a high-hazard occupancy, and provide a discernable path of travel to an exit per LVBC Section 1016.2.

DOORS

Egress doors will be operable from the egress side without the use of a key or special knowledge or effort and will swing in the direction of exit travel when serving an occupant load of 50 or more per LVBC Section 1010.1.2.1.

STAIRWAYS

The minimum width of interior exit stairways will be 44" as required by LVBC Section 1011.2 except when serving an occupant load of less than 50, in which case the minimum width of 36" is permitted per Exception 1 to LVBC Section 1011.2.

The building will include two (2) exit stairways, one (1) interior exit stairway and one (1) exit access stairway. Interior exit stairways will be constructed in accordance with LVBC Section 1023 and will discharge directly to the exterior. All stairway design and construction will be in accordance with LVBC Section 1011.

EXIT ACCESS & TRAVEL DISTANCE

Exit access travel distance to an exterior exit door, exit passageway, or enclosed interior exit stairway will not exceed the following:

Occupancy Group(s)	Max. Allowable Travel Distance [ft]
S-1	250
B	300

Common path of travel will not exceed 100' per LVBC Section 1006.2.1.

Where more than a single exit or exit access doorway is required, the exit access will be arranged such that there are no dead ends in corridors greater than 50' in length or when the length of the dead-end corridor is less than 2½ times the least width of the corridor per LVBC Section 1020.4.

SIGNAGE & ILLUMINATION

Illuminated exit signs will be provided at exit doors and where otherwise necessary to clearly indicate the direction of exit travel when two (2) or more exits are required per LVBC Section 1013.1.

Emergency illumination of at least 1-footcandle will be provided at the floor level of all means of egress paths, including the exit discharge per LVBC Section 1008.2. If provided, self-luminous and

photoluminescent exit signs will be listed and labeled in accordance with UL 924 – *Standard for Emergency Lighting and Power Equipment* and be illuminated at all times in accordance with LVBC Section 1013.5.

An average initial emergency illumination level of at least 1-footcandle will be provided at floor level of all means of egress paths, including the exit discharge, and roof egress paths per LVBC Section 1008.2.

ELEVATOR COMMUNICATION & ACCESSIBILITY

A two-way communication system will be provided at the public elevator landing on Level 2 in accordance with LVBC Section 1009.8. The two-way communication system will provide communication between each required location and a central control point approved by LVBS.

Two-way communication systems are not required at landings serving only service elevators that are not designated as part of the accessible means of egress or serve as part of the require accessible route into a facility as permitted by Exception 3 to LVBC Section 1009.8.

The two-way communication system will include both audible and visible signals as required by LVBC Section 1009.8.1. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system, and written identification of the location will be posted adjacent to the two-way communication system in accordance with LVBC Section 1009.8.2.

An accessible means of egress elevator is not required and will not be provided in accordance with LVBC Sections 1009.2.1. The building will be less than four (4) stories and will be provided with two (2) stairways in accordance with LVBC Section 1009.3.

EMERGENCY SIGNAGE

A sign stating "in case of fire, ELEVATORS ARE OUT OF SERVICE. Use exit stairs." will be posted adjacent to each elevator call station on all floors per LVBC Section 3002.3. This sign will also provide a pictorial representation and indicate that the elevator will not operate and that exit stairs should be used.

Fire protection equipment rooms will be identified in an approved manner per LVBC Section 914.2. Rooms containing controls for air-conditioning systems, sprinklers risers and valves, or other fire detection, suppression, or control elements will be identified for LVFR use. Approved signs required to identify fire protection equipment and equipment location will be constructed of durable materials, permanently installed, and readily visible.

FIRE SUPPRESSION SYSTEMS

AUTOMATIC SPRINKLER PROTECTION

An automatic sprinkler system is required as the building area exceeds 5,000 ft² per LVFC Section 903.2. Automatic sprinkler systems will be designed to comply with the requirements set forth by NFPA 13.

Wet-pipe, hydraulically calculated automatic sprinkler systems will be provided throughout the building.

Sprinkler protection will be provided in accordance NFPA 13 as follows:

Use	Hazard Classification	Density/Remote Area
Offices, corridors	Light Hazard	0.1 gpm/ft ² over most hydraulically remote 1,500 ft ²
Equipment rooms, Laboratory work areas	Ordinary Hazard, Group 1	0.15 gpm/ft ² over most hydraulically remote 1,500 ft ²
Storage (non-high-piled)	Ordinary Hazard, Group 2	0.2 gpm/ft ² over most hydraulically remote 1,500 ft ²
Chemical Storage*	Extra Hazard, Group 2	0.4 gpm/ft ² over most hydraulically remote 2,500 ft ²

*The chemical storage room will be enclosed in 2-hour fire-resistance rated construction (vertically and horizontally) and the design area will be limited the room itself.

Quick-response type sprinklers will be used within the Light Hazard areas, laboratory work areas and where otherwise required by NFPA 13.

Automatic sprinkler protection will be omitted from exterior canopies, roofs, decks, and similar projections are constructed entirely of noncombustible materials and where the exterior projections do not support occupancy above as permitted by NFPA 13 9.2.3.2.

Mechanical and electrical rooms will be fully sprinklered and served by the sprinkler zone in which they reside.

Electrical supervision will be provided at all sprinkler control valves and sprinkler waterflow switches as required by NFPA 13 Section 16.9.3.3. Monitoring will be provided for all alarm and trouble signals at a central station, proprietary, or remote station signaling service in accordance with NFPA 13 Section 16.9.3.3.1.

Physical obstructions over 4' in width such as ducts and architectural elements will be provided with sprinkler protection underneath. Sprinklers will not be required within inaccessible, noncombustible concealed spaces as permitted by NFPA 13.

Preliminary design drawings depicting the sprinkler system have been prepared by TERPconsulting and are provided in the drawing set. Detailed design drawings depicting the sprinkler system will be submitted by the fire sprinkler contractor to LVFR for review and approval.

STANDPIPE SYSTEMS

As the highest occupiable floor level above the lowest level of fire department vehicle access is less than 30' and the building footprint is less than 10,000 ft², standpipe systems are not required and will not be provided.

WATER SUPPLIES

Onsite supply piping will comply with NFPA 24. A fire pump is not required as sprinkler systems will be sized to accommodate the lower pressure gradient available onsite.

To reduce the underground pressure loss, design must comply with the following and as indicated in the Civil plans.

- Underground must be 8" minimum
- RPDA must be 8" with a 9-psi maximum loss at 1000 GPM (Watts 957 RPDA with no substitution).

A single 2½" fire department connection (FDC) will be provided for sprinkler demand up to 500 gpm per LVFC Section 912.1.1. The FDC will be installed in a location approved by LVFR and a metal sign labeling the FDC with raised letters at least 1" in size will be provided in accordance with LVFC Section 912.5 indicating the minimum required pressure and flow.

A fire hydrant will be located within 100' of the FDC in accordance with LVFC Section C102.7.

A weatherproof audible and visible notification appliance will be located above the FDC or facing the FDC (for freestanding FDCs) in accordance with LVFC Section 903.4.2.

FIRE EXTINGUISHERS

Fire extinguishers will be provided and placed in accordance with LVFC Section 906 and NFPA 10.

FIRE ALARM AND DETECTION SYSTEM

A fire alarm system is not required but will be provided in accordance with NFPA 72. The fire alarm system will activate notification appliances and notify the fire department.

Initiating devices will include sprinkler waterflow switch, smoke detection and a single manual fire alarm box. Multiple manual fire alarm boxes will not be required as the building will be sprinklered.

Notification appliances throughout the building will activate upon associated initiating devices. The building will consist of a single audible and visual fire alarm zone (i.e., general alarm).

Fire alarm audible notification appliance (horn) coverage will provide the required minimum 80dB and/or 15dB over ambient sound level, whichever is greater, throughout the building per LVFC Section 907.5.2.1.1. Storage rooms less than 100 ft² are not required to be provided with audible notification devices as permitted by Exception 1 to LVFC Section 907.5.2.1.1.

Visible notification appliance (strobe) coverage will be provided throughout all common areas in accordance with LVFC Section 907.5.2.3.1. Equipment rooms and storage rooms less than 400 ft² as well as janitor closets, exit enclosures, and individual work areas and offices will not be provided with visual notification coverage as permitted by the Exceptions to LVFC Section 907.5.2.3.1.

All system events will be indicated at the fire alarm control panel (FACP). All fire alarm initiating devices and circuits will be monitored and indicate a “trouble” condition as required.

The following signals will be transmitted to the FACP:

- Waterflow alarm
- Duct smoke detector supervisory
- Valve tamper supervisory
- Manual fire alarm box
- System trouble
- Firefighter radio amplification systems supervisory signals, where required.

System smoke detectors will be provided at the following locations:

- Elevator landings for elevator recall
- In all rooms that contain a fire alarm control unit if neither continuously occupied or sprinklered
- Notification appliance circuit power extender panels if not located in a constantly attended location per NFPA 72, if provided.

Duct smoke detectors will be provided at the following locations:

- In the main return and exhaust air plenum of each air-conditioning system having a capacity greater 2,000 cfm as required by SNMC Section 608.1.

Duct smoke detector activation will automatically shut down the associated unit and initiate a supervisory signal at the FACP as required by LVFC Section 907.3.1.

The fire alarm system control panel will be provided within the fire riser room with annunciator in the entry vestibule. Fire alarm and detection system design and installation will be in accordance with NFPA 72. Detailed design drawings depicting fire alarm system modifications are required to be submitted to HBFS for review and approval.

The installation of all wiring, cable and equipment will be in accordance with NFPA 70 – *National Electrical Code* (2017 edition), and specifically with Articles 760 and 770, as applicable. All wiring will be installed in a metallic raceway, such as electrical metallic tubing (EMT), or metal-clad (MC) cable.

EMERGENCY RADIO COVERAGE

Emergency response radio coverage will be provided in accordance with LVFC Section 510, if necessary. Per LVBC Section 510.4.1, the building will be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95% of all areas on each floor of the building and 99% of areas designated as critical areas by the fire code official per LVFC Section 510.4.1.1, and the inbound signal level shall be a -95 dBm throughout the coverage area.

The design team will coordinate testing to determine the likelihood of any system requirements based on existing signals at the site and the height, area and materials planned for the building.

SMOKE MANAGEMENT

As the building is not classified as a high-rise structure, smoke control and removal systems are not required and will not be provided.

FIRE COMMAND CENTER

An FCC is not required and will not be provided as the building is a low-rise structure.

EMERGENCY AND STANDBY POWER

Secondary power will be provided from a site generator located exterior of the building and will comply with LVFC Section 1203; some systems such as the fire alarm system will provide secondary power via batteries. Appropriate signage will be provided for the generator. Storage, use, and handling of diesel fuel will be in accordance with LVFC Sections 603 and 5704.5, as applicable.

The secondary power systems will supply the following:

1. Exit signs and means of egress illumination
2. Fire alarm systems
3. Automatic fire detection systems
4. Sprinkler alarm and supervisory systems.
5. Emergency response radio systems, if required.

SPECIAL INSPECTIONS AND TESTING

Inspections and testing will be required for the fire sprinkler and alarm systems located within the project area. Testing will be consistent with the requirements of NFPA 13, 72, and LVFR, as applicable. Three (3) copies of a document describing testing procedures of the active fire protection systems will be electronically submitted to LVFR at least 60 days prior to final testing.

Neither Mechanical Quality Assurance Agency (MQAA) smoke control system testing in accordance with SNBC Sections 1705.18 and 403.4.7.3 nor firestop inspections in accordance with SNBC Section 1705.17 will be required as the building is not high-rise or classified as Risk Category III or IV.

HAZARDOUS MATERIALS

No appreciable quantities of hazardous materials (HAZMAT) are anticipated to be included as part of this project. The generator diesel fuel will be located outside of the building. The chemical storage room on Level 1 will be part of Phase 2 and will be a separate control area.

As part of Phase 1, the room will be separated vertically and horizontally by 2-hour fire resistance rated construction, exceeding the requirements of Section 414.2.4. The remainder of the building will be a single control area and fire separations will not be provided between spaces.

HAZMAT will be documented in a HMIS under separate cover.

As documented herein, the BSL-3 lab will include microbes and biological agents that are explicitly regulated. The water from the decontamination shower and lab safety shower will drain into a dedicated 500-gallon waste tank.

The waste within the holding tank will be removed/discarded in an appropriate manner. The holding tank will not be utilized in normal day-to-day workflow.

FUTURE MODIFICATIONS

Any future modifications and expansions will be documented in amendments/addenda to this FPR. The document will be prepared by a design professional licensed in the State of NV working within the area of their expertise. As appropriate, a licensed design professional will be included in the design of all renovations/expansions.

PERIODIC OPERATION AND MAINTENANCE

The active fire protection systems and devices will be regularly tested in accordance with applicable codes and standards by qualified individuals acceptable to LVBS and LVFR.

Records of maintenance and testing will be retained onsite and present to LVBS and LVFR upon request.

CONCLUSION

The devices, systems and approaches outlined in this report are intended to provide a level of life safety and property protection which are in compliance with the applicable codes. This level of protection is based on the interaction of both active and passive fire protection features. Active systems include fire suppression and detection systems, as well as emergency and standby power, and fire alarm notification systems. Passive features include compartmentation with fire resistive separations, exit systems and flame spread limitations.

Nothing in this document is intended to imply non-code compliance.

This report provides general fire protection guidelines developed for the SNHD BSL-3 Laboratory project. Working drawings and specifications will be coordinated to comply with the fire protection features outlined in this document.

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