**INFORMATION BULLETIN / MECHANICAL.**
**REFERENCE NO.:** CMC 1104.6 Effective: 07-01-2024
**DOCUMENT NO.: P/MC 2026-007** Revised: N/A
Previously Issued as: N/A

# GUIDELINE: HVAC SYSTEMS USING A2L REFRIGERANTS

***This Guideline should not be used in lieu of the referenced Codes and Standards. This Guideline is provided as an aid and should not be construed as a complete list of requirements. For additional clarity or for all other requirements, please refer to the California Mechanical Code and ASHRAE Standards.***

This Information Bulletin provides additional information to engineers and designers of high-probability HVAC systems using A2L refrigerants. The information provided in this bulletin is in accordance with Chapter 11 of the California Mechanical Code, ASHRAE 15 (2022), ASHRAE 15.2 (2022), and ASHRAE 34 (2022). This bulletin includes the following content:

## 1. Background

Under the American Innovation and Manufacturing Act of 2020 (AIM Act), the U.S. Environmental Protection Agency (EPA) implemented a ruling to restrict the use of higher-GWP hydrofluorocarbons (HFCs) in certain commercial and residential HVAC refrigeration systems. The ruling restricts the manufacturing and importing of products and installation of systems that use HFCs with a GWP greater than 700. Please see the effective compliance dates for the primary affected systems pertinent to Mechanical Plan Check:

| Affected Systems | Manufacture & Import Compliance Date | Installation** Compliance Date |
|---|---|---|
| **Factory Charged Systems** | January 1, 2025* | January 1, 2028 |
| **Field Charged Systems** | January 1, 2025 | January 1, 2026 |
| **VRF Systems** | January 1, 2026 | January 1, 2027*** |

*May be sold or distributed until January 1, 2028
** Complete installation of new field-assembled systems
***VRF systems may be installed until January 1, 2028 if the building permit with approved A1 system was issued prior to October 5, 2023. Please see the following link for more info: https://www.federalregister.gov/documents/2024/12/12/2024-29243/phasedown-of-hydrofluorocarbons-restrictions-on-the-use-of-hfcs-under-the-aim-act-in-variable

The restriction includes the use of R-410A, an A1 safety group refrigerant, which has been the predominately used refrigerant in HVAC systems. Thus, previous codes and standards established requirements with design considerations specific to A1 refrigerants. However, the ban of R-410A has resulted in a shift to A2L safety group refrigerants for use in the affected HVAC systems. As previous codes and standards were not catered to A2L refrigerants, a recent influx of additional requirements and limitations have been developed to ensure the safe design and installation of A2L refrigeration systems. The new requirements are provided in the following codes and standards:

- 2025 California Mechanical Code
- ASHRAE 15 (2022)
- ASHRAE 15.2 (2022)
- ASHRAE 34 (2022)

*Please note, the EPA rules and regulations are Federal law, so extensions or variances are not under the authority of the City of Los Angeles.*

*For more information, please refer to the EPA website:*
https://www.epa.gov/climate-hfcs-reduction/frequent-questions-phasedown-hydrofluorocarbons#OEM-products

## 2. Codes and Standards

The 2025 California Mechanical Code (CMC) requires A2L refrigerant systems in human comfort applications to comply with the following applicable standards: (a) ASHRAE 15-2022 edition (b) ASHRAE 15.2-2022 edition and (c) ASHRAE 34-2022 edition.

Approved plans using A1 refrigerant systems shall be re-submitted and re-approved by Building and Safety, Mechanical Plan Check to accommodate another refrigerant type if the A1 refrigerant is not available at the time of construction. The change in refrigerant type may significantly change the design of the building and it will be the responsibility of the owner to ensure full compliance.

Please be aware, after the 2022 editions of ASHRAE Standard 15, Standard 15.2, and Standard 34 were published, each Standard gets regularly updated through a continuous maintenance program. ASHRAE published additions and modifications to these Standards in the form of an addenda and occasionally, errata which can be found on the official ASHRAE website. Mechanical Plan Check receives the same information as the general public regarding the content of the addenda and the time of publication. As the ASHRAE Standards Addenda may offer substantial revisions to the originally published versions of Standards 15, 15.2, and 34, Mechanical Plan Check will evaluate ASHRAE addenda as needed. Please see the current status of certain ASHRAE Standard 15, 15.2, and 34 Addenda in Appendix B of this document.

## 3. Where to Start

Depending on the type of HVAC system and the occupancy served, the HVAC system using A2L refrigerant shall comply with either ASHRAE 15 (2022) or ASHRAE 15.2 (2022). To select the appropriate ASHRAE standard, please follow the steps below:

**Determine type of refrigerant and corresponding safety group.**

Please refer to the manufacturer's product literature of the HVAC system to verify the refrigerant type. The corresponding safety group and material properties can be found in ASHRAE 34 (2022).

↓

**Determine if the A2L system is a high-probability system.**

A high-probability system is any refrigeration system in which the basic design or location of the components is such that a leakage of refrigerant from a failed connection, seal, or component will enter the occupied space. Some *typical* high-probability systems may include direct-expansion (DX) split systems, packaged DX rooftop units, water source heat pumps, variable refrigerant flow (VRF) systems, or PTAC units.

↓

**Determine whether ASHRAE 15 (2022) or ASHRAE 15.2 (2022) applies to the high-probability A2L system.**

ASHRAE 15.2 (2022) applies to A2L systems serving only a single dwelling unit (I.E. 'one-to-one' systems).

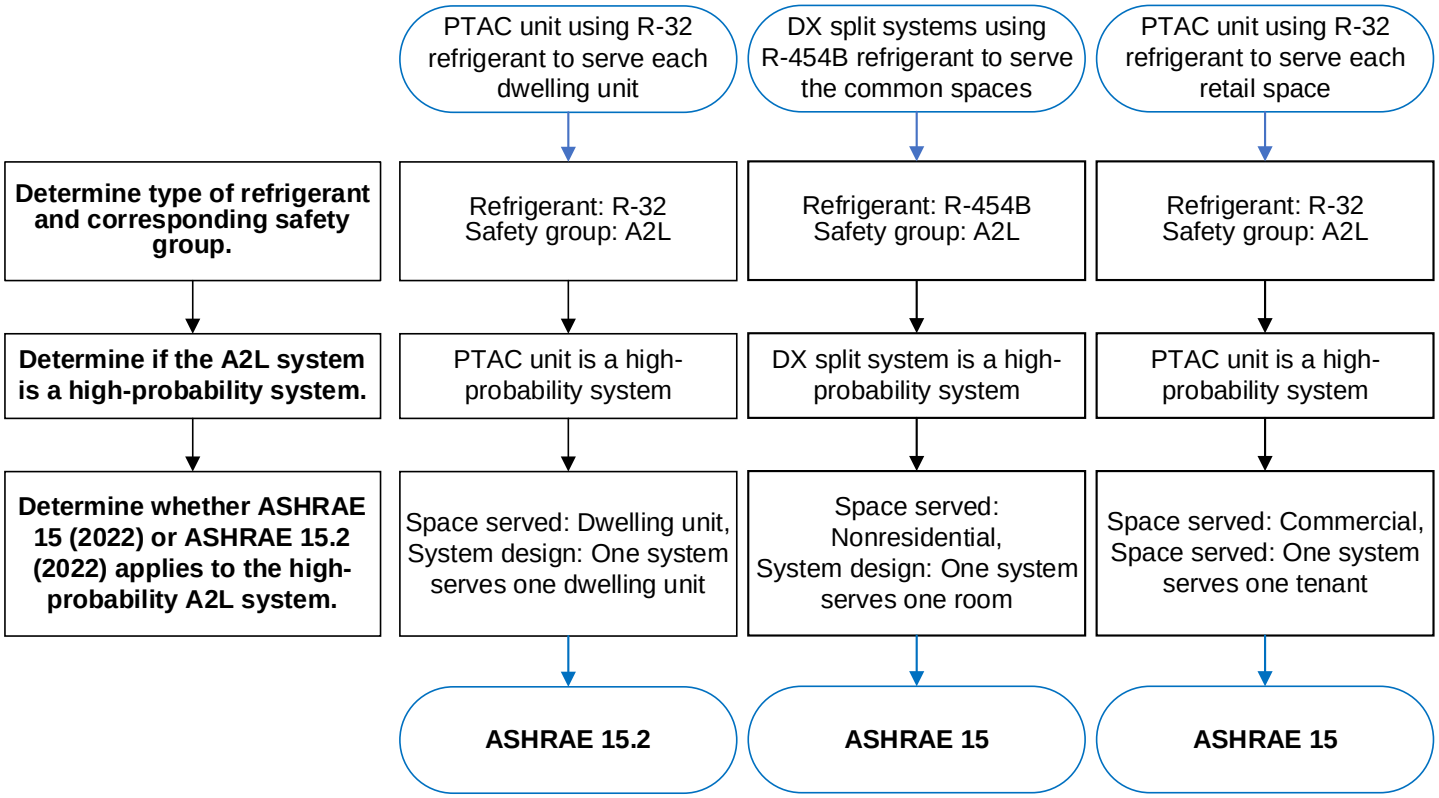
ASHRAE 15 (2022) applies to A2L systems serving commercial spaces, nonresidential/common spaces within multi-residential buildings, or more than one dwelling unit.

Please note, a mixed occupancy building may consist of A2L systems that require compliance with ASHRAE 15.2 (2022) and other A2L systems that require compliance with ASHRAE 15 (2022).

Please refer to the Scenario A and Scenario B below:

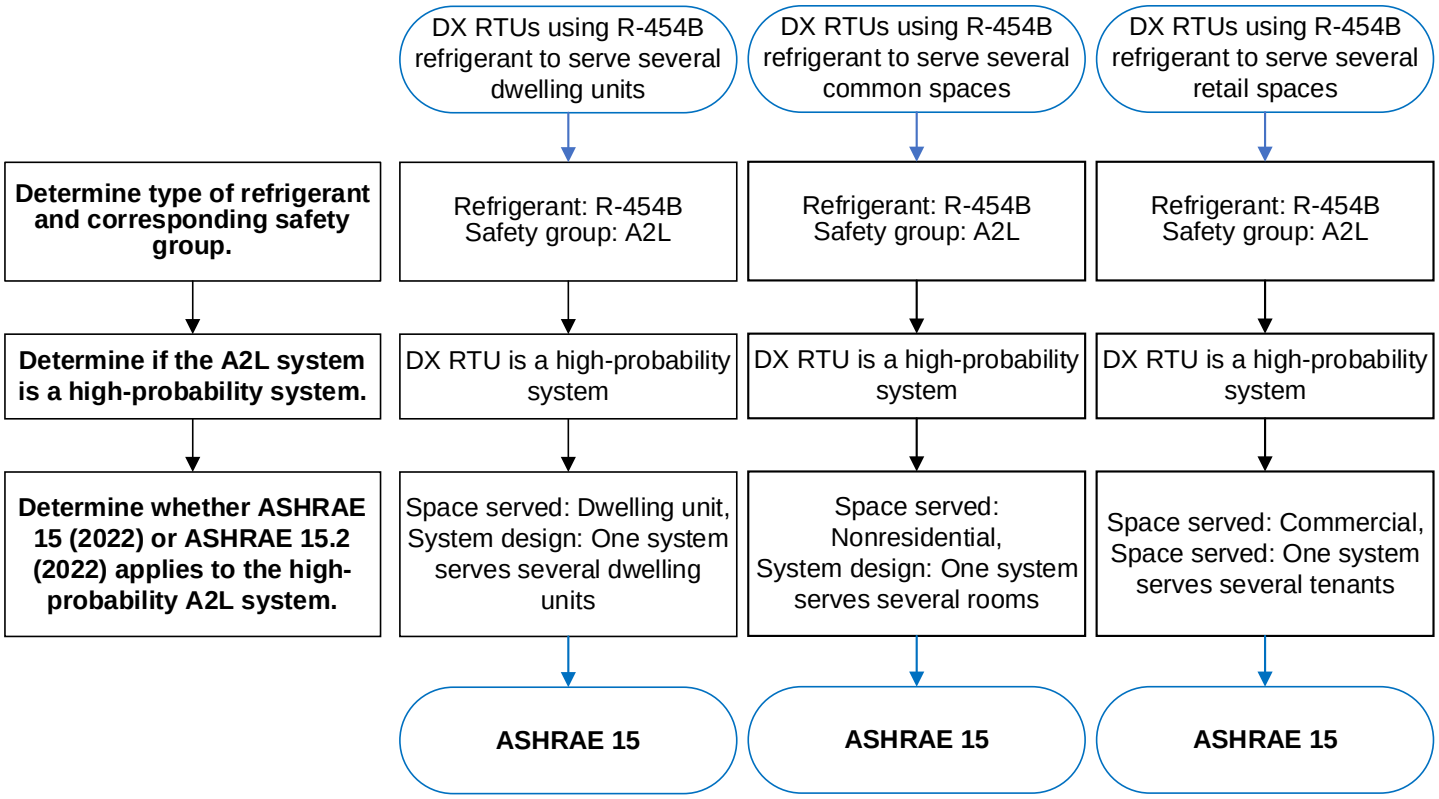
**Scenario A:** In a mixed occupancy building, A2L systems will be installed in both residential and commercial spaces. The work includes:

- PTAC units using R-32 refrigerant to serve the dwelling units
- DX split systems using R-454B refrigerant to serve the common spaces
- PTAC units using R-32 to serve each retail space

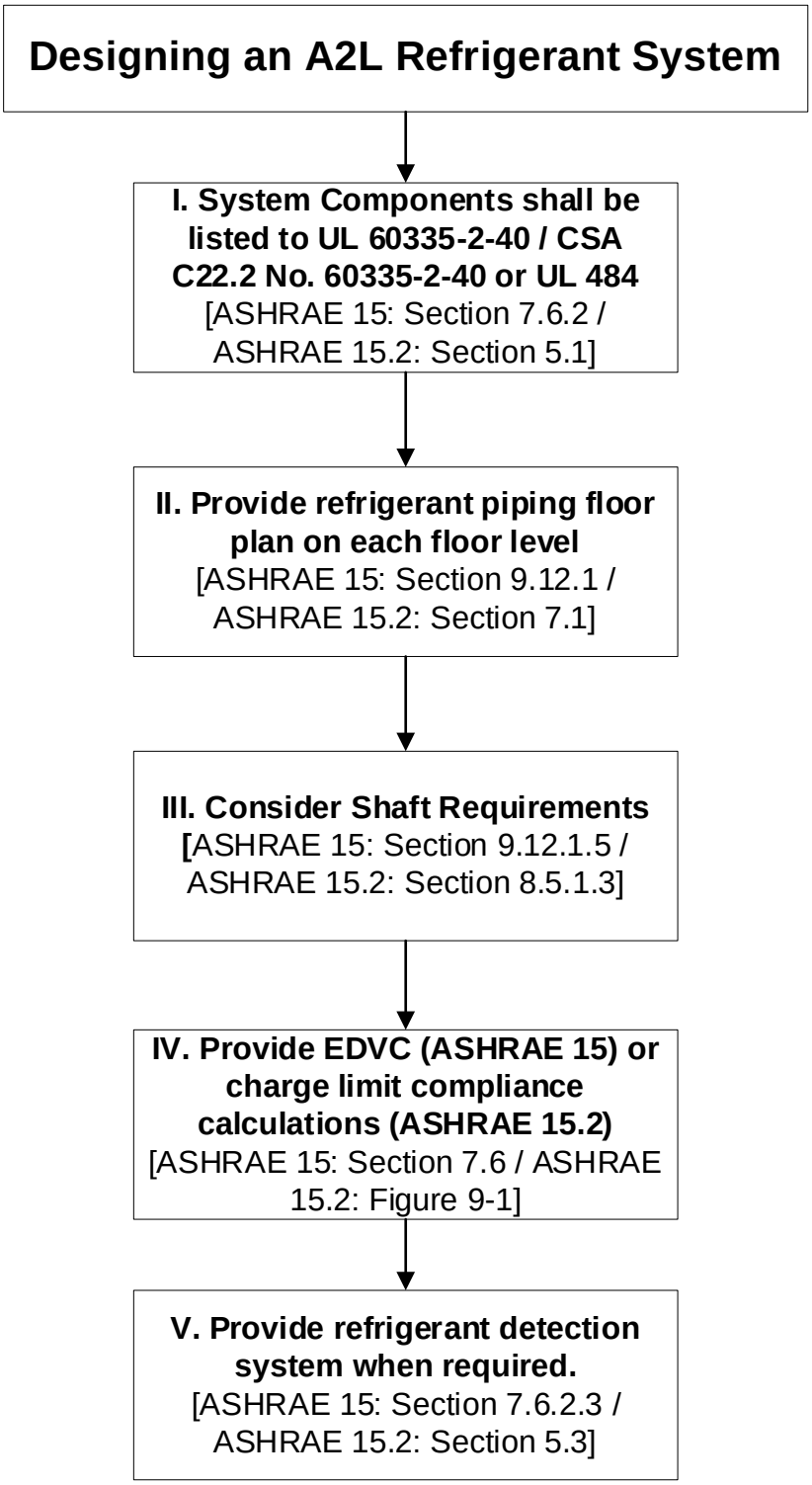


**Scenario B:** In a mixed occupancy building, A2L systems will be installed in both residential and commercial spaces. The work includes:

- DX RTUs using R-454B refrigerant to serve several dwelling units
- DX RTUs using R-454B refrigerant to serve several common spaces
- DX RTUs using R-454B refrigerant to serve several retail spaces



## 4. Design Requirements



## 5. FAQs

General

- **The original plans submitted to Mechanical Plan Check did not include HVAC systems using A2L refrigerant. Now, the revised plans do include HVAC system using A2L refrigerants. What are the next steps?**

  Please be aware, the change in refrigerant type may significantly change the design of the building.

  If the plans are still in plan check review:
  The plans will be subject to the requirements prescribed for A2L refrigerant systems and all applicable plan check fees. Please reach out to the assigned plan checker to determine how to proceed.

  If the plans have already been approved and stamped by Mechanical Plan Check:
  Revision to previously approved plans will require resubmission and approval. The revised set of plans will be subject to the requirements prescribed for A2L refrigerant systems and all additional plan check fees.

- **Can I pull an express permit for the installation of HVAC systems using A2L refrigerants?**

  If the installation meets the express permit qualifications, an express permit can be obtained. Please note, plan check review may still be triggered due to other components of the plan.

  For more information regarding express permits, please refer to the following link: https://www.ladbs.org/services/core-services/plan-check-permit/types-of-permit-processes/express-permits

- **Can I still install equipment using A1 refrigerant instead of A2L refrigerant?**

  Yes, however, if the A1 refrigerant specified on the plans is not available at the time of construction, the plans will have to be resubmitted and approved to accommodate another refrigerant type. The change in refrigerant type may significantly change the design of the building and it will be the responsibility of the owner to ensure full compliance.

  Please refer to the EPA website for the most updated compliance dates applicable to your system: https://www.epa.gov/climate-hfcs-reduction/frequent-questions-phasedown-hydrofluorocarbons#OEM-products

- **The Codes and Standards section indicated the ASHRAE standards are updated through a continuous maintenance program. Can you please provide more information on this program and how this program publishes new addenda?**

  The continuous maintenance program operates through ASHRAE. For more information, please refer to the ASHRAE Online Comment Database: https://osr.ashrae.org/default.aspx

Technical

- **Does ASHRAE 15.2 apply to high-rise multi-residential buildings?**

  Yes, ASHRAE 15.2 applies to both high-rise and low-rise multi-residential buildings. Please determine if the system design is within the scope of ASHRAE 15.2 or ASHRAE 15. Refer to **Section 3. Where to Start** of this document for more information.

- **Can I use RCL calculations *instead* of the EDVC equations in ASHRAE 15 Sec. 7.6 or mmax equations in ASHRAE 15.2 Sec. 9.5?**

  No. For high-probability HVAC systems using A2L refrigerant, the calculations should follow the applicable equation(s) in ASHRAE 15 Sec. 7.6 or ASHRAE 15.2 Sec. 9.5.

- **The A2L systems on the plans contain a system charge less than 6.6 lbs. Are these systems exempt from providing EDVC calculations per ASHRAE 15 Sec. 7.6?**

  No. For A2L systems covered under ASHRAE 15, EDVC calculations (per Sec. 7.6) are required regardless of the system charge.

  For A2L systems covered under ASHRAE 15.2, please refer to the charge limit compliance flow path in Sec. 9.

- **For A2L systems that fall under ASHRAE 15, can I use the shaft alternatives in ASHRAE 15 Sec. 9.12.1.5.1 in lieu of a shaft?**

  Yes, the shaft alternatives in ASHRAE 15 Sec. 9.12.1.5.1 can be used in lieu of a shaft. During plan check review, the shaft alternative method will be assessed to determine if the requirements are adequately satisfied.

- **For A2L systems that fall under ASHRAE 15.2, can I use the shaft alternatives in ASHRAE 15.2 Sec. 8.5.1.3 in lieu of a shaft?**

Yes, the shaft alternatives indicated in ASHRAE 15.2 Sec. 8.5.1.3 can be used in lieu of a shaft. During plan check review, the shaft alternative method will be assessed to determine if the requirements are adequately satisfied.

- **What standard does the integral A2L detection system need to be listed to?**

  The A2L refrigerant system with an integral leak detection system shall be listed to UL-60335-2-40.

- **What standard do stand-alone external A2L sensors/detectors need to be listed to?**

  For Mechanical Plan Check review, there is not a specific listing for external A2L sensors/detectors. However, the equipment will be verified for A2L refrigerant compatibility.

- **The EDVC and $m_{max}$ equations in ASHRAE 15 and ASHRAE 15.2, respectively, provide an additional parameter for mechanical ventilation. Does mechanical ventilation always need to be incorporated in the equations?**

  No, mechanical ventilation does not always need to be accounted for in the equations.

## 6. Flow Charts, Details, and Sample Calculations

### a. Determine System Charge – Sample Calculation:

**Step 1: Obtain manufacturer specification sheet and installation guide. Determine known refrigerant quantities.**

Assume the following:

$m_{factory}$ = 10.0 lb
$m_{field}$ = 5.0 lb
$m_{field,add}$ = 0.25lb per 1 ft of pipe exceeding 15ft
Length of refrigerant piping = 30ft

| | |
|---|---|
| **Factory Installed Refrigerant (Pre-installed)[1]** | 10.0 lb |
| **Field Installed Refrigerant Amount[2]** | 5.0lb |
| **Additional Charging exceeding manufacturer specified length[3]** | 3.75lb |

[1] Provided by manufacturer before equipment is shipped to site.
[2] Pre-filled quantity in refrigerant piping.
[3] Additional refrigerant required when piping installation exceeds a specified length. Determined by manufacturing installation instructions.

**Step 2: Calculate System charge ($m_s$):**

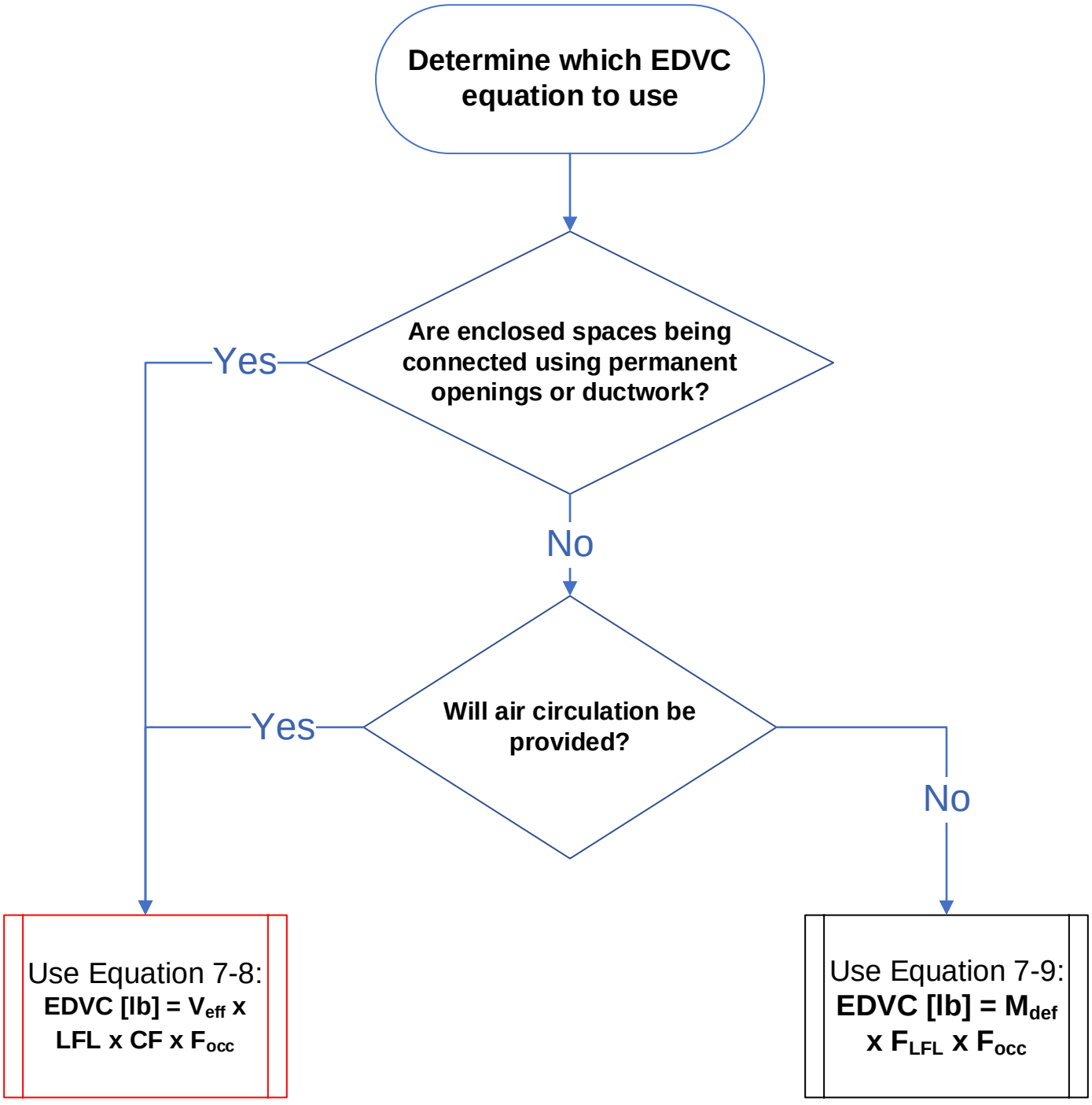
$m_s = m_{factory} + m_{field} + m_{additional}$ = 10.0 + 5.0 + 3.75 = <u>18.75lb of refrigerant</u>

**Solution:**

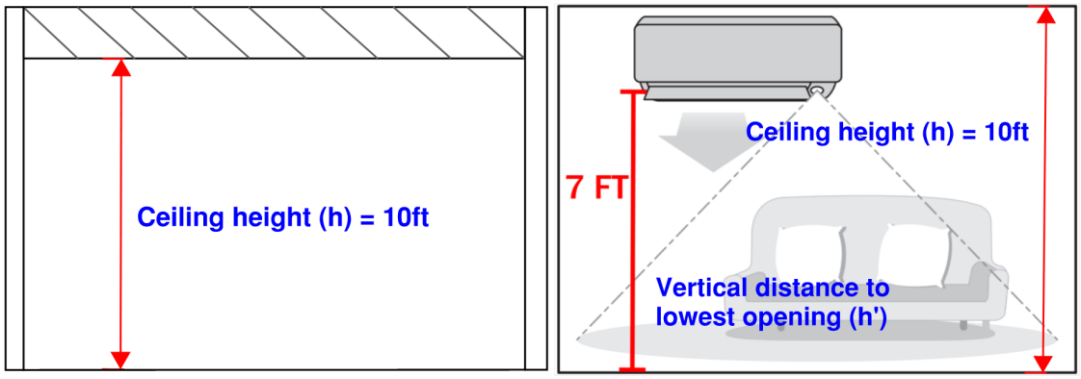
$m_s$ = 18.75 lbs of refrigerant

**b. ASHRAE 15**

**i. ASHRAE 15 - Select the appropriate EDVC equation Flow Chart:**



### ii. ASHRAE 15 - Dispersal height ($V_{eff\ vs.}$ $M_{def}$):




**ASHRAE 15 Equation 7-8:**

$$EDVC = V_{eff} \times LFL \times CF \times F_{occ}$$

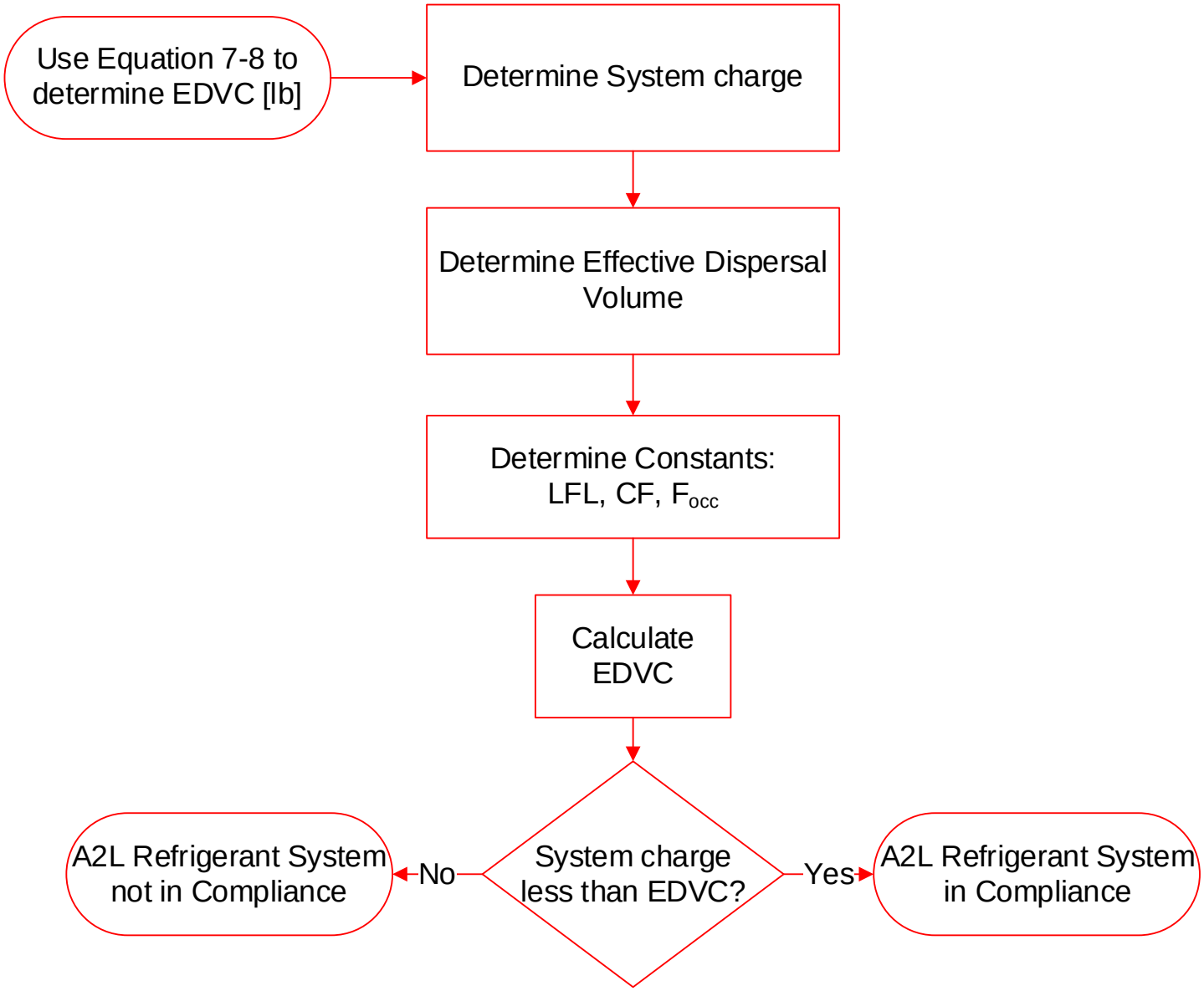
$V_{eff}$: Dispersal height is determined using the full ceiling height (h).

**ASHRAE 15 Equation 7-9:**

$$EDVC = M_{def} \times F_{LFL} \times F_{occ}$$

$M_{def}$: Dispersal height is determined by the vertical distance from the finished floor to the lowest point of any opening (h').

### iii. ASHRAE 15 – Equation 7-8 Flow Chart:



### iv. ASHRAE 15 – Equation 7-8 Sample Calculation:

**Assumptions:**

A2L refrigerant being installed = R-454B
$m_{factory}$ = 3.0 lb
$m_{field}$ = 1.0 lb
$m_{additional}$ = 0.75 lb
$Area_{room}$ = 110 $ft^2$
$h_{ceiling\ height}$ = 8 ft

**Step 1: Calculate System charge ($m_s$) and Effective Dispersal Volume ($V_{eff}$):**

$m_s = m_{factory} + m_{field} + m_{additional} = 3.0 + 1.0 + 0.75 = 4.75$lb of refrigerant
$V_{eff} = Area_{room} \times h_{ceiling\ height} = 110 ft^2 \times 8\ ft = 880\ ft^3$

**Step 2: Known constants per ASHRAE 15, Sec. 7.6.1.1 and ASHRAE 34 standard:**

CF = 0.5 (concentration factor)
$F_{occ}$ = 1.0 (occupancy adjustment factor)
$LFL_{A2L,R\text{-}454B}$ = 18.5 lb / 1000 $ft^3$ (ASHRAE 34, Table 4-1)

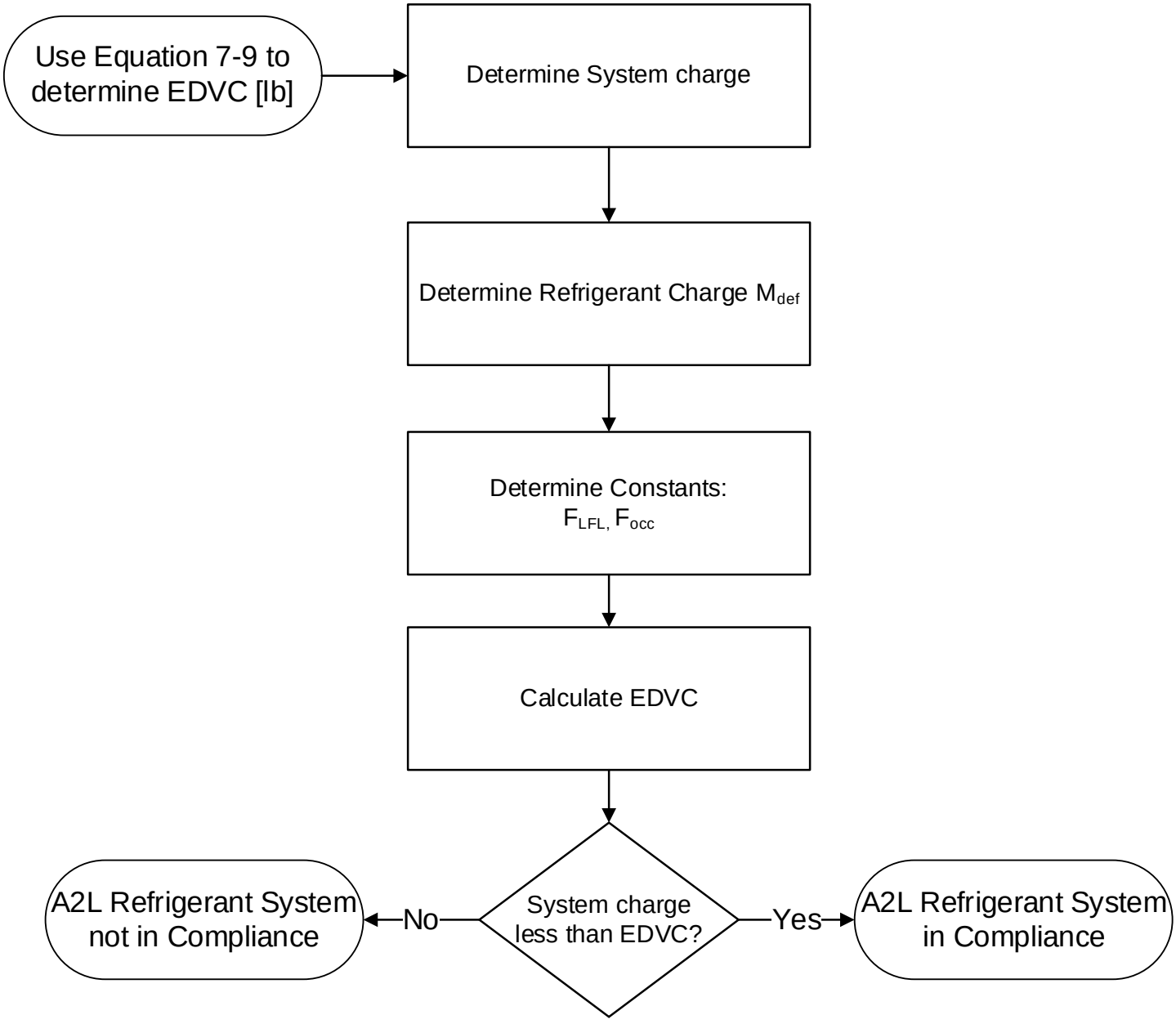
**Step 3: Calculate EDVC using equation 7-8:**

$EDVC\ [lb] = V_{eff} \times LFL \times CF \times F_{occ} = 880\ ft^3 \times (18.5 / 1000)\ lb/\ ft^3 \times 0.5 \times 1.0 = 8.14$ lb

**Compliance Check: $m_s \leq$ EDVC?**

Yes! 4.75 lbs $\leq$ 8.14 lbs ✓
A2L refrigerant system in compliance.

### v. ASHRAE 15 – Equation 7-9 Flow Chart:



### vi. ASHRAE 15 – Equation 7-9 Sample Calculation:

**Assumptions:**

A2L refrigerant being used = R-454B
$m_{factory}$ = 3.0 lb
$m_{field}$ = 1.0 lb
$m_{additional}$ = 0.75 lb
$Area_{room}$ = 100 $ft^2$
$H_{lowest\ opening}$ = 6.6 ft

**Step 1: Known Constants per Sec. 7.6.1.2 and Table 7-3:**

$F_{LFL}$ = 0.97
$F_{occ}$ = 1.0 (occupancy adjustment factor)

**Step 2: Determine Refrigerant Charge Limit $M_{def}$ using Table 7-1:**

$M_{def}$ = 6.3 [lb]

**Step 3: Calculate System charge ($m_s$) and Effective Dispersal Volume ($V_{eff}$):**

$m_s = m_{factory} + m_{field} + m_{additional}$ = 3.0 + 1.0 + 0.75 = 4.75lb of refrigerant
$V_{eff} = Area_{room} \times h_{ceiling\ height}$ = 100$ft^2$ x 6.6 ft = 660 $ft^3$

**Step 4: Calculate EDVC using equation 7-8:**

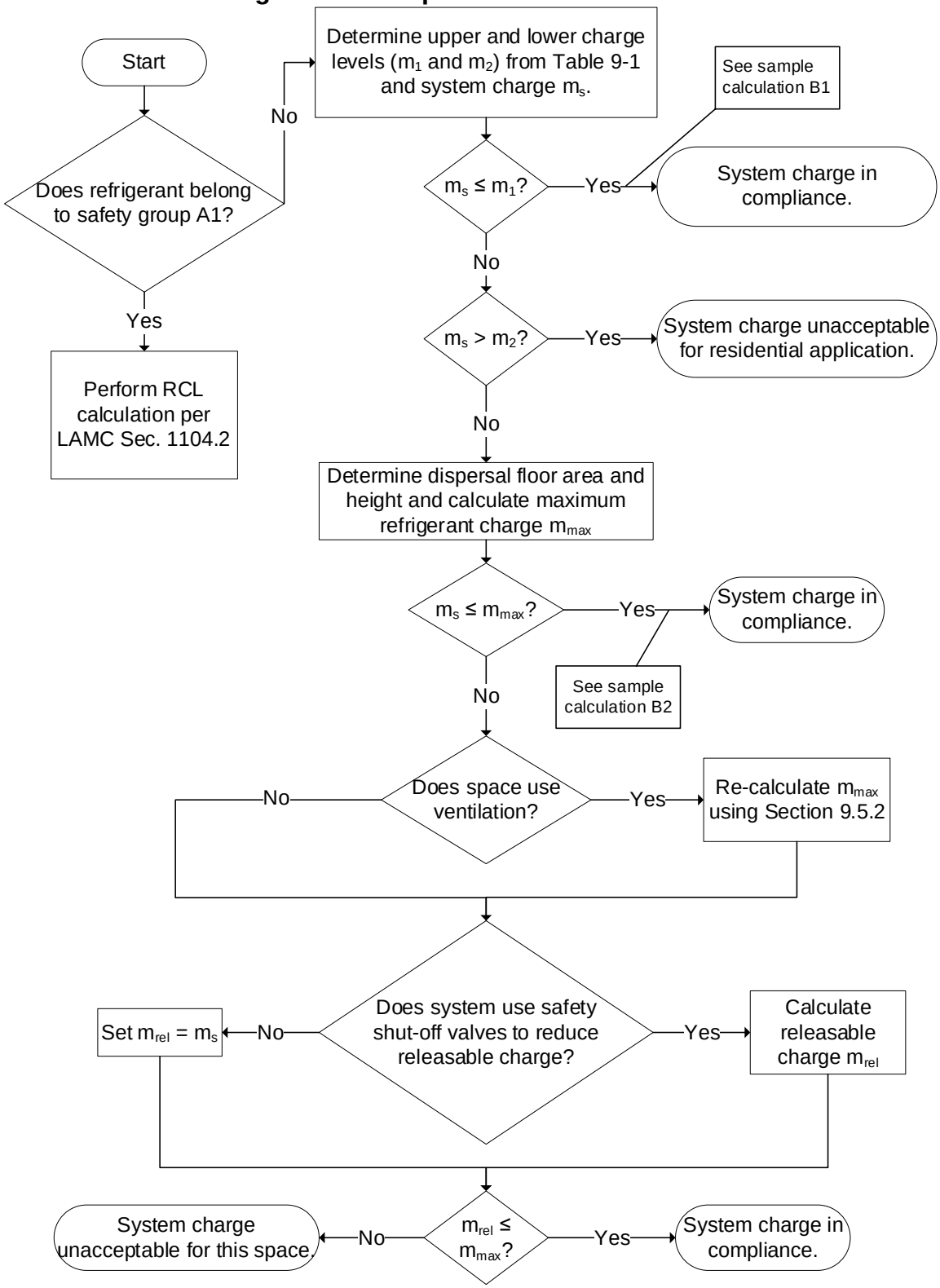
EDVC [lb] = $M_{def} \times F_{LFL} \times F_{occ}$ = 6.3 lb x 0.97 x 1.0 = 6.11 lb

**Compliance Check: $m_s \leq$ EDVC?**

Yes! 4.75 lb $\leq$ 6.11 lbs ✓
A2L refrigerant system in compliance.

## c. ASHRAE 15.2

### i. ASHRAE 15.2 - Figure 9-1 Compliance Path:



### ii. ASHRAE 15.2 - System charge ≤ $m_1$ - Sample calculation (B1):

**Assumptions:**

A2L refrigerant being installed = R-454B
$m_{factory}$ = 2.0 lb
$m_{field}$ = 1.0 lb
$m_{field,add}$ = 0.75 lb

**Step 1: Calculate System charge ($m_s$):**

$m_s = m_{factory} + m_{field} + m_{additional} = 2.0 + 1.0 + 0.75 = 3.75$ lb of refrigerant

**Step 2: Determine $m_1$ Charge Level for Mitigation using Table 9-1:**

$m_1 = 4.1$ $lb_m$

**Compliance Check: $m_s \leq m_1$ ?**

Yes! 3.75 lbs ≤ 4.1 lbs ✓
A2L refrigerant system in compliance.

### iii. ASHRAE 15.2 – System charge > $m_1$ - Sample calculation (B2):

**Assumptions:**

A2L refrigerant being installed = R-32
$m_{factory}$ = 3.0 lb
$m_{field}$ = 1.0 lb
$m_{field,add}$ = 0.75 lb

**Step 1: Calculate System charge ($m_s$):**

$m_s = m_{factory} + m_{field} + m_{additional} = 3.0 + 1.0 + 0.75 = 4.75$ lb of refrigerant

**Step 2: Determine $m_1$ Charge Level for Mitigation using Table 9-1:**

$m_1 = 4.1$ $lb_m$

**Compliance Check: $m_s \leq m_1$ ?**

No, 4.75 lb is greater than 4.1 lb of A2L refrigerant. Continue to step 3.

**Step 3: Determine $m_2$ Charge Level for Mitigation using Table 9-1:**

$m_2 = 35.1$ $lb_m$

**Compliance Check: $m_s < m_2$?**

Yes, 4.75 lb is less than 35.1 lb of A2L refrigerant. Continue to step 4.

**Step 4: Determine $m_{max}$:**

**Additional Assumptions:**

$Area_{room}$ = 100 $ft^2$
Dispersal Height = 7.2 ft
Air Circulation provided

**Known Constants:**

C = 1.00 [ASHRAE 15.2, Table 9-2]
AF = 2 [air circulation provided]

**Step 4a: Determine refrigerant allowed in dispersal volume [M]**

Per Table 9-3, for a floor area of 100$ft^2$ and height of 7.2 ft, M = 3.4$lb_m$

**Step 4b: Calculate $m_{max}$:**

$m_{max}$ = C x M x AF = 1.00 x 3.4$lb_m$ x 2 = 6.8 $lb_m$

**Compliance Check: $m_s < m_{max}$?**

Yes! 4.75 lbs < 6.8 lbs ✓
A2L refrigerant system in compliance.

### iv. ASHRAE 15.2 - Determine $m_{rel}$ with safety shut-off valves (SSOVs) – Sample Calculation:

**ASHRAE 15.2 Sec. 9.6.3 Releasable Charge for Systems Using Safety Shut-off Valves with A2L Refrigerants.:** The releasable charge ($m_{rel}$) shall be the refrigerant contained in the interconnecting tubing and indoor section located downstream of the safety shut-off valves and shall be the largest value determined by Sections 9.6.3.1, 9.6.3.2, and 9.6.3.3.

**Assumptions:**

A2L refrigerant being used = R-454B
Tube OD = 5/8”
Tube Length = 24’
Tube Internal Volume = 0.5 $ft^3$

**Step 1: Determine $m_{rel}$ in heating mode**

Find $m_{rel}$ equation in Table 9-5 for R-454B:
$m_{rel} = (1.02 \times ML_H) + (1.08 \times MG_H) + (1.03 \times MU_H)$

Find $ML_H$ in Table 9-6 for Tube OD = 5/8” and Tube Length= 24’
$ML_H$ = 2.27 lbs

Find $MG_H$ in Table 9-7 for Tube OD = 5/8” and Tube Length= 24’
$MG_H$ = 0.15 lbs

Find $MU_H$ in Table 9-8 for Tube Internal Volume = 0.5 $ft^3$
$MU_H$ = 13.11 lbs

Plug in $ML_H$, $MG_H$, and $MU_H$ to $m_{rel}$ equation:
$m_{rel} = (1.02 \times 2.27) + (1.08 \times 0.15) + (1.03 \times 13.11) =$ <u>15.98 lbs</u>

**Step 2: Determine $m_{rel}$ in cooling mode**

Find $m_{rel}$ equation in Table 9-9 for R-454B:
$m_{rel} = (1.02 \times ML_C) + (1.07 \times MG_C) + (0.90 \times MU_C)$

Find $ML_C$ in Table 9-10 for Tube OD = 5/8” and Tube Length= 24’
$ML_C$ = 2.27 lbs

Find $MG_C$ in Table 9-11 for Tube OD = 5/8” and Tube Length= 24’
$MG_C$ = 0.08 lbs

Find $MU_C$ in Table 9-12 for Tube Internal Volume = 0.5 $ft^3$
$MU_C$ = 7.85 lbs

Plug in $ML_C$, $MG_C$, and $MU_C$ to $m_{rel}$ equation:
$m_{rel}$ = (1.02 × 2.27) + (1.07 × 0.08) + (0.90 × 7.85) = 9.47 lbs

**Step 3: Determine $m_{rel}$ in off/standby mode**

Find $m_{rel}$ equation in Table 9-13 for R-454B:
$m_{rel}$ = (1.03 × $ML_S$) + (1.03 × $MG_S$) + (1.03 × $MU_S$)

Find $ML_S$ in Table 9-14 for Tube OD = 5/8" and Tube Length= 24'
$ML_S$ = 0.60 lbs

Find $MG_S$ in Table 9-15 for Tube OD = 5/8" and Tube Length= 24'
$MG_S$ = 0.60 lbs

Find $MU_S$ in Table 9-16 for Tube Internal Volume = 0.5 $ft^3$
$MU_S$ = 7.91 lbs

Plug in $ML_S$, $MG_S$, and $MU_S$ to $m_{rel}$ equation:
$m_{rel}$ = (1.03 × 0.60) + (1.03 × 0.60) + (1.03 × 7.91) = 9.38 lbs

**Step 4: Compare $m_{rel}$ from each mode and select the largest value**

Heating mode has the largest $m_{rel}$ value.

Thus,
**$m_{rel}$ = 15.98 lbs**

**Compliance Check:**

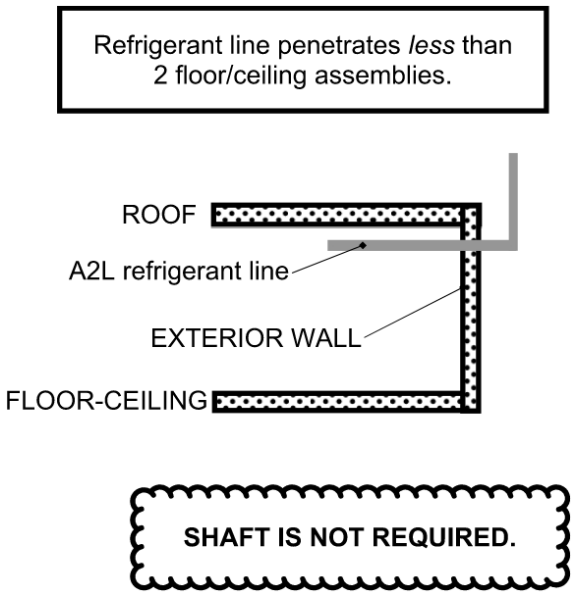
In the calculations, replace the system charge $m_s$ with the $m_{rel}$.
If $m_{rel} < m_{max}$, system complies.

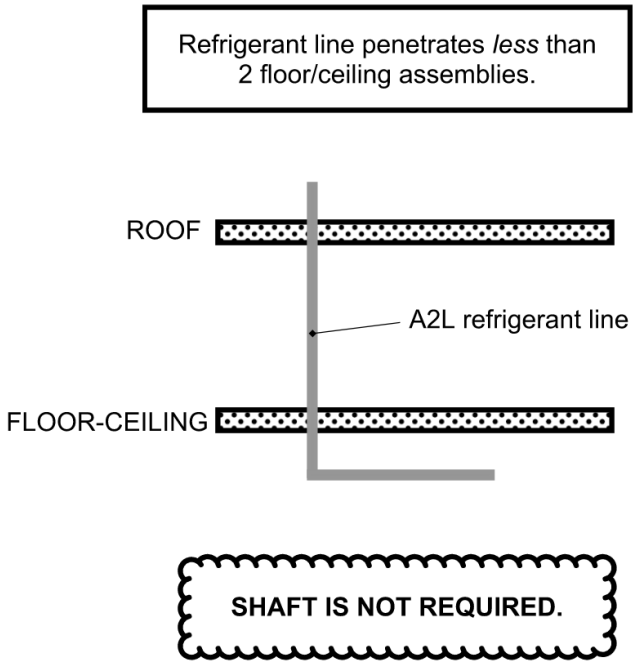
**d. Shaft Requirements:**

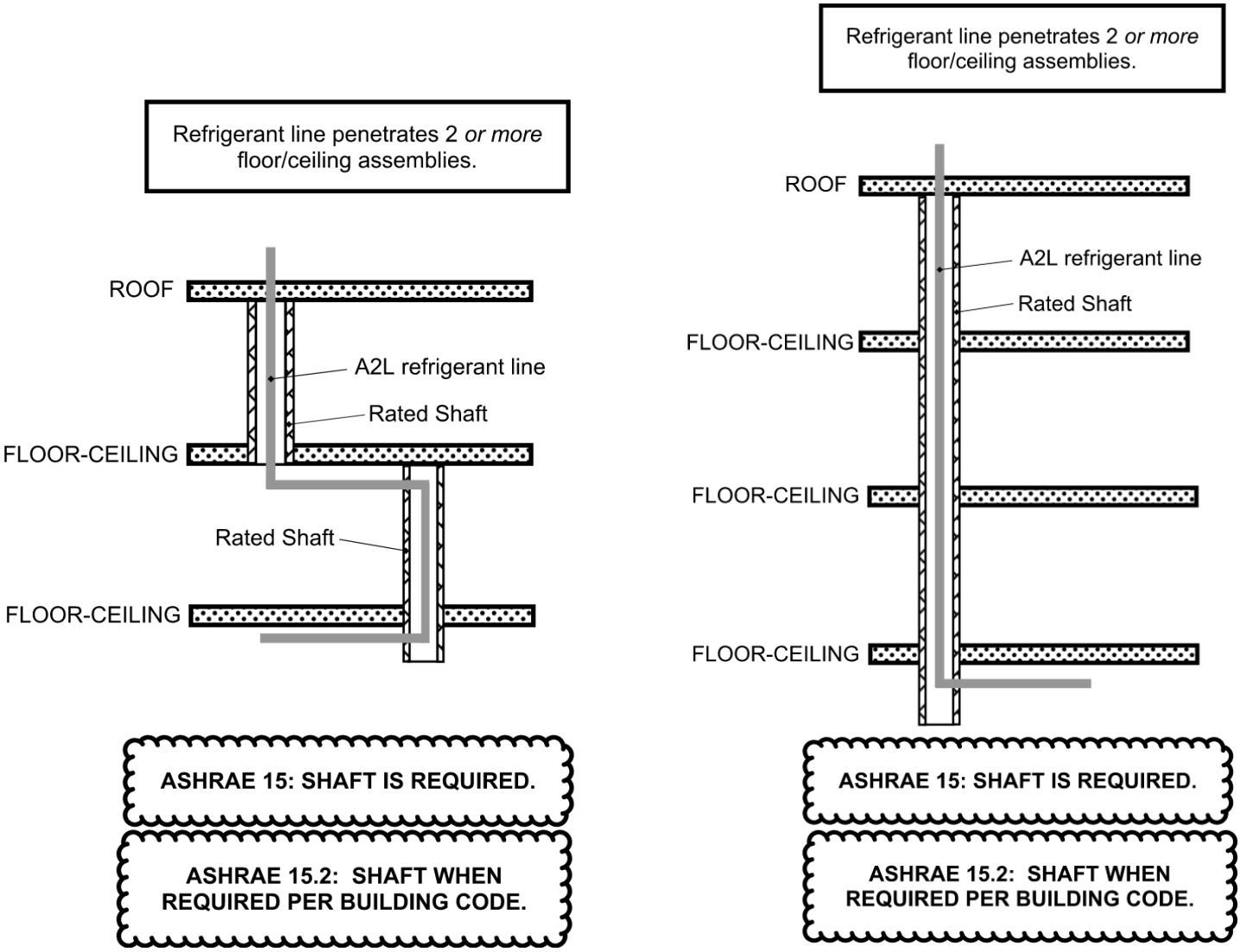
**ASHRAE 15 Sec. 9.12.1.5 Refrigerant Pipe Shafts.:** Refrigerant piping that penetrates two or more floor/ceiling assemblies shall be enclosed in a fire-resistance-rated shaft enclosure. The fire-resistance-rated shaft enclosure shall comply with the requirements of the building code.

**ASHRAE 15.2 Sec. 8.5.1.3 Refrigerant Pipe Shafts.:** Refrigerant piping that penetrates two or more floor assemblies shall be enclosed in a fire resistance rated shaft enclosure where such enclosure is required by the building code.

Please see diagrams below for examples of when a shaft may or may not be required:






Please note, these are simplified diagrams intended for reference only. The refrigerant lines, rated shaft enclosures, and rated (floor, ceiling, wall) assemblies shall be protected in accordance with all applicable code sections of the Los Angeles Building Code, the California Mechanical Code, ASHRAE 15, and ASHRAE 15.2.

**Appendix A:** List of internal and external resources related to the design of high-probability HVAC systems using A2L refrigerants.

## LADBS Resources:

- EplanLA portal:
  https://eplanla.lacity.org/

- HVAC application:
  https://dbs.lacity.gov/sites/default/files/efs/forms/pc17/application-for-pressure-vessel-elevator-permit-or-plan-check-pc-mech-app-06_2014.pdf

- Express permit:
  https://dbs.lacity.gov/sites/default/files/efs/forms/pc17/ib-p-gi-2020-003-express-permits_rev-5-28-2024.pdf

## External Resources:

- ASHRAE Addenda:
  https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-addenda

- ASHRAE Online Comment Database:
  https://osr.ashrae.org/default.aspx

- EPA Website:
  https://www.epa.gov/climate-hfcs-reduction/frequent-questions-phasedown-hydrofluorocarbons#OEM-products

- Federal Register:
  https://www.federalregister.gov/documents/2024/12/12/2024-29243/phasedown-of-hydrofluorocarbons-restrictions-on-the-use-of-hfcs-under-the-aim-act-in-variable

**Appendix B:** The current status of published ASHRAE 15, 15.2, and 34 Addenda as determined by Mechanical Plan Check.

## ASHRAE 34 (2022)

- Addendum A (last updated: 06/17/25)
  - Summary: Updated RCL and LFL values for A2L refrigerants.
  - Status: We will accept the updated LFL values. If plans were already submitted using the old LFL values, this is also acceptable.

## ASHRAE 15 (2022)

- Addendum E (last updated: 06/17/25)
  - Summary: Replaced 'human comfort' term. Clarified application for Sec. 7.6 pertains to high-probability air conditioners, heat pumps, and dehumidifiers.
  - Status: This will be enforced as all high-probability A2L HVAC systems shall comply with Sec. 7.6.

- Addendum F (last updated: 06/17/25)
  - Summary: Clarified precedence of specific requirements over general requirements.
  - Status: This will be enforced as high-probability A2L HVAC systems shall comply with Sec. 7.6. Sec. 7.6 overrides the general prescriptions in Sec. 7.3.1, 7.5.1.2, and 7.5.2.1.

- Addendum H (last updated: 06/17/25)
  - Summary: Updated Table 7-3 $F_{LFL}$ values
  - Status: We will accept the updated $F_{LFL}$ values. If plans were already submitted using the old $F_{LFL}$ values, this is also acceptable.

- Addendum L (last updated: 06/17/25)
  - Summary: In Sec. 7.3, clarified high-probability A2L HVAC systems shall comply with Sec. 7.6
  - Status: This will be enforced as high-probability A2L HVAC systems shall comply with Sec. 7.6. Sec. 7.6 overrides the general prescriptions in Sec. 7.3.1, 7.5.1.2, and 7.5.2.1.

## ASHRAE 15 (2024)

- Addendum A (last updated: 06/17/25)
  - Summary: Added new shaft alternative to Sec. 9.12.1.5.1. A shaft is not required for continuous refrigerant pipe or tube, including joints and connections, that have been tested in accordance with Sec. 9.13
  - Status: The addendum is part of the 2024 ASHRAE 15 edition which has not been adopted by the LAMC. We will NOT accept this shaft alternative from the ASHRAE 15 2024 code cycle. Continue to use ASHRAE 15 2022 code for compliance requirements.

## ASHRAE 15.2 (2022)

- Addendum A (last updated: 06/17/2025)
  - Summary: Updated $m_{max}$ equations, Table 9-3 M values, Table 9-4 MV values
  - Status: We will accept the updated $m_{max}$ equation, M, and MV values. If plans were already submitted using the old $m_{max}$ equation, M, and MV values, this is also acceptable. No mixing between the two versions – the equation and values must be consistent.

- Addendum C (last updated: 06/17/2025)
  - Summary: Updated Table 9-2 C values
  - Status: We will accept the updated C values. If plans were already submitted using the old C values, this is also acceptable. No mixing between the two versions – the equation and values must be consistent.

- Addendum F/Errata (last updated: 06/17/2025)
  - Summary: Updated Table 9-1 $m_1$ and $m_2$ values
  - Status: We will accept the updated $m_1$ and $m_2$ values. If plans were already submitted using the old $m_1$ and $m_2$ values, this is also acceptable. No mixing between the two versions – the equation and values must be consistent.