COUNCIL ORDER NO. 2024-06

BEFORE THE ADMINISTRATIVE TRIBUNAL OF THE BUILDING SUB-COUNCIL

(the "Tribunal")

ON February 20, 2025

IN THE MATTER OF the *Safety Codes Act*, Revised Statutes of Alberta 2000, Chapter S-1 (the "*Act*");

AND IN THE MATTER OF the permit refusal issued on November 14, 2024;

UPON REVIEWING AND CONSIDERING the evidence named in **The Record**, including written submissions of the Appellant and Respondent; and **UPON HEARING** the testimony of the parties at the hearing;

IT IS HEREBY ORDERED THAT the refusal is UPHELD.

Appearances, Preliminary, Evidentiary, or Procedural Matters:

1. The hearing for this matter was conducted by virtual means.

2. At the commencement of the hearing, the Coordinator of Appeals confirmed the subject of the appeal as the permit refusal issued on November 14, 2024 (the "Permit Refusal") and confirmed the names of those in attendance:

a. Appearing for the Appellant, the Tribunal heard from:

i. Jordan Crone, legal counsel for the Appellant;

ii. [redacted] Brookes, legal counsel for the Appellant;

iii. [redacted], P.Eng., engineering manager with Ramboll Engineering;

iv. [redacted], P. Eng., Cameron Fire Protection Ltd.;

v. [redacted], Registered Architect with T.I. Studios Architecture Inc.;

b. Appearing for the Respondent, the Tribunal heard from:

i. Nicole Maynard, legal counsel for the City of Calgary;

ii. [redacted], Building Safety Codes Officer with the City of Calgary.

c. Facilitating the hearing on behalf of the Safety Codes Council:

i. Jordyn Dryden, legal counsel for the Safety Codes Council.

3. The Coordinator of Appeals then introduced the Chair of the Tribunal (the "Chair"), [redacted] and turned the hearing over to them.

4. The Chair called the hearing to order and introduced the other Tribunal members: [redacted], [redacted] and [redacted].

5. The Appellant and Respondent confirmed there were no objections to any members of the Tribunal, and that the Safety Codes Council in general and the Tribunal in particular had jurisdiction to hear and decide the appeal. The Tribunal also confirmed they had jurisdiction to hear and decide this appeal.

6. The Chair then explained the process of the hearing and advised of the list of the written material before the Tribunal, consisting of the documents listed below in **The Record** (see paragraph 7). The Appellant and Respondent confirmed that there were no objections to any of the material submitted to the Tribunal.

The Record:

7. The Tribunal considered, or had available for reference, the following documentation:

Item	*Description*	*Date*
1.	Notice of Appeal	December 16, 2024
2.	Permit Refusal	November 14, 2024
3.	Appellant Brief	February 3, 2025
4.	Respondent Brief	February 3, 2025

Issue:

8. This appeal concerns the refusal to issue a building permit to the Appellant on the basis that the construction is designed to meet the Group F, Division 2, medium hazard industrial occupancy ("F2") classification under the National Building Code – 2019 Edition ("NBC(AE)") and the City believes it to be a Group F, Division 1, high-hazard industrial occupancy ("F1") project.

Positions of the Parties:

Appellant

From the Appellant's submissions and testimony, the Appellant's position is summarized as follows:

9. It is the Appellant's position that City incorrectly classified the Property as F1 under the NBC(AE). Instead, the Appellants contend that a classification of F2 is the appropriate classification, and as such, a building permit should be issued.

Respondent

From the Respondent's submissions and testimony, the Respondent's position is summarized as follows:

10. It is the Respondent's position that the Building must be classified as F1 because the use and dispensing of hazardous chemicals creates significant fire risks. The Respondent's position is that the Appellant repeatedly misclassified the occupancy of the Building leading to a necessary permit refusal.

Summary of the Evidence Provided On Behalf of the Appellant:

Submissions on behalf of the Appellant:

11. The Appellant designed the Property to specifically meet the requirements of an F2 classified building under the NBC(AE).

12. FuelCell Energy ("FuelCell"), the Appellant's client, leased the Property for their business of manufacturing solid oxide cells (the "Project"). The Project involves producing ceramic cells for solid oxide electrolyzer cells and solid oxide fuel cells to be used for hydrogen production or electricity generation.[1] The Project focuses solely on ceramic cell production, with assembly and testing occurring elsewhere.[2] The Project's process includes raw material storage and handling, slurry and paste preparation, [redacted], printing, sintering and quality control.[3]

13. As part of the Project, the Property was designed to include a storage room for solvents and binders, slurry and paste rooms, a [redacted] room, a [redacted] room, a sintering room, a [redacted] room, a mechanical room, electrical room and utility room.[4]

14. The original building permit application was applied for on February 27, 2024 by the original designer, Shearer Licensed Interior Design ("Shearer"). The City did not grant the application and provided a Plans Review Deficiencies document to Shearer on June 14, 2024 (the "June 14, 2024 Review").[5]

15. The June 14, 2024 Review noted the following deficiencies:

a) F2 is not supported by the evidence provided for the combustible contents and processes within the floor area. Division B, 3.2.2.8 states that if all the aggregate area of the major occupancies in a particular Group or Division does not exceed 10% of the floor area of the storey in which they are located they do not need to be considered as major occupancies unless those occupancies are classified as Group F, Division 1 or 2 occupancies;

b) A registered architect had not reviewed the building permit application, including the "correct classification of the occupancy and building";[6]

c) The historical records for the building indicated the Building was built with a 1-hour fire resistance rating in the floor and supporting structure, and upgrades were required to be

[1] Appellant Brief, page 118
[2] Appellant Brief, page 118
[3] Appellant Brief, page 119
[4] Appellant Brief, page 53
[5] Appellant Brief, page 19
[6] Appellant Brief, page 19

made to the overall building to support an F1 classification. Division B, 3.2.2.6 requires that a building containing more than one major occupancy will have the most restricted major occupancy requirements applied;[7]

d) Architectural drawings were required to provide the building classification under the Building Code and to provide a building code analysis including as to the items of: sprinkler status, standpipe status, fire alarm status, major occupancies within the Building, minor occupancies within the Building, Building stores above and below grade, Building area, construction types permitted, subject suite occupancy compared to major occupancies within the Building, and floor area of the Property and total area of similar occupancies within the Building;[8]

e) Description was not sufficient and a list should be a table with classes of chemicals, flashpoints, lower explosive limit, upper explosive limit, projected inventory and quantities stored, and processes taking place in the sintering room;

f) Professional involvement by an architect, including sealed and completed Professional Schedules and drawings were required;[9]

g) Hydrogen was being produced from the operation or consumed as fuel. Location and quantities of hydrogen stored and where it is used or produced in the process needed to be included;

h) The sintering rooms shown on plans are not described in the industrial process. The high temperatures and hazardous materials involved, as well as explosive dust clouds, require strict safety protocols to mitigate and falls under an F1 – Chemical manufacturing or processing plant, classification.[10]

16. The Appellant's state in their submissions that they made the upgrades required by the City in the June 14, 2024, Review to support the classification of the Building as an F1. The upgrades were provided to the City on October 22, 2024.[11] Documents in support of the upgrades were provided at that time (summarized below).

17. In the Appellant's re-submission, they included responses to the June 14, 2024, review. These responses include:

a) confirmation that the required documentation has been provided to the City with a new set of architectural drawings and a code summary to reflect the correct building classification under the NBC(AE) as F2;

b) a detailed hazard assessment and occupancy classification report summarizing the products and their classes, flashpoints, and maximum quantities, as well as the safety measures required for each room;

c) professional sealed professional schedules and drawings have been provided, all sealed

[7] Appellant Brief, page 20
[8] Appellant Brief, page 21
[9] Appellant Brief, page 22
[10] Appellant Brief, page 23
[11] Appellant Brief, page 25

by professionals registered in the Province of Alberta; and

d) clarification that no hydrogen is produced, consumed or stored in the facility.

18. On November 14, the City issued the Notice of Refusal[12] and the updated Plans Review Deficiencies (the "Plan Deficiencies Report").[13]

19. The Plan Deficiencies Report states that the City's review did not proceed beyond building classification as the F2 classification "is not supported by the evidence provided for the combustible contents and processes within the floor area" and that F1 classification is required. The Plan Deficiencies Report then states the "[l]etter from Cameron Fire Protection is dismissed" (the "Cameron Report" as defined below).[14] The Plan Deficiency Report states that the Appellants did not demonstrate that the quantities of highly combustible, flammable, or explosive materials stored at the proposed facility are insufficient to create a special fire hazard as defined for F1 occupancies and states that if any part of an occupancy is considered F1, the entire occupancy must be classified as F1 regardless of the area or containment methods. Finally, it states that while the combustion potential has been addressed the risks associated with flammable materials has been overlooked.[15]

20. The Appellants submit that, following the submission of the upgrades provided to the City on October 22, 2024, the Appellants requested meetings with the City on multiple occasions, including an email sent on October 29, 2024, informing the City of the building permit application's resubmission and offering to meet to discuss any concerns the City may have (the "October 29 Email"). A follow up email was sent on November 5, 2024, offering to schedule a meeting to discuss the documents.[16] The Appellants submit that, despite their repeated efforts to have discussions with the City, the City did not engage in further discussions and issued the Notice of Refusal and the Plans Review Deficiencies on November 14, 2024.[17]

21. The Appellants submit that they again requested to have discussions with the City after the Plan Deficiencies Report and the Notice of Refusal were issued and the City refused to have meetings with the Appellants.[18] These requests were not responded to by the City.[19]

22. The Appellants submit they requested to have discussions with the City after the application for this appeal was filed in an effort to find a solution that works for the Appellant and the City. The Chief Gas Inspector of Alberta with the Department of Municipal Affairs offered to mediate this meeting between the parties to assist with coming to a solution and to avoid requiring this appeal.[20] Included in this meeting request was a further design memo, dated January 28, 2025, explaining the design features incorporated into their project (the "Design Memo"). The Design

[12] Appellant Brief, page 150
[13] Appellant Brief, pages 145-149
[14] Appellant Brief, page 145
[15] Appellant Brief, page 147
[16] Appellant Brief, page 134
[17] Appellant Brief, page 4
[18] Appellant Brief, page 161
[19] Appellant Brief, page 5.
[20] Appellant Brief, page 166

Memo is summarized later in this decision.

23. The Appellant's also submit that the Notice of Refusal references incorrect, outdated information from the June 14, 2024 Review, which had been updated in the October 22, 2024 submission.[21]

Cameron Report

24. The Hazard Assessment and Occupancy Classification Report prepared by Cameron Fire Protection (the "Cameron Report") provides a fire engineering assessment and hazard analysis for the Property to justify the appropriate occupancy classification. This was provided to the City by the Appellant on October 22, 2024.

25. The Cameron Report assessed the hazards within the facility based on information provided by FuelCell regarding raw materials, chemicals, usage areas, storage quantities, and day use quantities.

26. The Cameron Report states that the property is the repurposing of an existing facility. The Property is a tenant space which is the end unit of a larger building.[22] The Property is designed to have the following rooms:

a) Solvent and hazardous waste storage room;

b) Binders and Solids storage room;

c) Slurry room;

d) Paste Room;

e) [redacted] room;

f) [redacted] room;

g) [redacted] room; and

h) Sintering room.[23]

27. The Cameron Report provides a breakdown of the materials present in each room, their classifications, flashpoints, and maximum quantities. These materials include Class 3 flammable and combustible liquids, Class 4 flammable solids, Class 6 toxic and infectious substances, and Class 8 corrosives.[24] The dangerous goods are separated from other dangerous goods to be in accordance with Table 3.3.7.6 of the 2019 National Fire Code – Alberta Edition (the "2019 NFC(AE)"). The Cameron Report states that, based on their review of the proposed separation of the dangerous goods, "the arrangement is in a manner that would not constitute an undue risk in the event of a fire and is in compliance with the 2019 NFC(AE)".[25]

[21] Appellant Brief, page 160.
[22] Appellant Brief, page 52
[23] Appellant Brief, page 53
[24] Appellant Brief, page 58
[25] Appellant Brief, page 58

28. The Cameron Report identifies that, under the classification of flammable and combustible liquids under part 4 of the 2019 NFC(AE), Class IIIB liquids with a flashpoint above 93.3 degrees Celsius are not normally regulated because "they are deemed to represent no greater fire hazard than other combustibles, such as wood or paper products."[26]

29. The Cameron Report then breaks down maximum quantity of the flammable and combustible liquids present within each room to demonstrate its compliance with the 2019 NFC(AE). In total, the maximum quantity of flammable liquids in the Property is calculated to be 7220 litres. The maximum quantity allowed under the 2019 NFC(AE) is 20,000 L.[27] The maximum quantity of IIIB combustible liquids in the Property is calculated to be 1860 litres.[28] The maximum quantity allowed is not regulated under the 2019 NFC(AE), as these are those liquids with a flashpoint above 93.3 degrees Celsius.[29]

30. The Cameron Report provides an occupancy evaluation for each room within the Property. The Cameron Report assessed the combustible content in each room using an objective threshold of 50kg/m2 or 1,200 MJ/m2 of combustible content per room.[30] Using this threshold, each room was identified as being low hazard industrial except for the solvent and hazardous waste storage room, which was identified as being medium hazard, as it has combustible content of 143.17 kg/m2 or 4,597.4 MJ/m2.[31] The Cameron Report also determined that, while the combustible content assessment of the Slurry Room was identified as being low hazard industrial, due to the dispensing operations within the room the hazard level was increased to F2, medium hazard.[32]

31. The Cameron Report provides rationale and discussion for the classification of high hazard industrial occupancy (F1) and medium hazard industrial occupancy (F2) as defined in the NBC(AE) and the 2019 NFC(AE). The Cameron Report notes that "there is no quantified threshold to distinguish between high hazard and medium hazard occupancy" but that the distinction is made in the presence of sufficient quantities of highly flammable or explosive materials that constitute a special fire hazard due to the inherent characteristics of the flammable material.[33] The Cameron Report states that there are no maximum quantities that constitute sufficient quantities to classify a building as F1, but rather provides guidance in Appendix A of the NBC(AE), such guidance to include a bulk plant of flammable liquids, and specifies that this is not the intent of the Property.[34]

32. The Cameron Report further states there is a lack of an objective definition for sufficient quantities of dangerous materials in the NBC(AE) and suggests that guidance on determining sufficient quantities is to look at how the 2019 NFC(AE) requires rooms to be protected. For example, if a building is not required to be sprinklered the flammable liquids would be

[26] Appellant Brief, page 58
[27] Appellant Brief, page 59
[28] Appellant Brief, page 59
[29] Appellant Brief, page 58
[30] Appellant Brief, page 62
[31] Appellant Brief, page 62
[32] Appellant Brief, page 70
[33] Appellant Brief, page 64
[34] Appellant Brief, page 64

permitted to be stored within the room without requiring any special fire protection measures other than fire rated compartments, whereas if a building is required to be sprinklered and the quantities of the flammable liquids stored within the compartment are less than the threshold for protected storage, the room or compartment would need to be protected in accordance with National Fire Protection Association ("NFPA") 13. Therefore, the Cameron Report states that "where the [2019 NFC(AE)] permits the storage of flammable liquids within a compartment as "unprotected storage" space, it is appropriate to classify that space as not having "sufficient" quantities of highly flammable materials."[35]

33. Applying this principle to the Property, the Cameron Report sets out the total quantity of the Class IB Flammable liquids within each room and the storage permitted under the 2019 NFC(AE). Specifically, the total amount of Class IB Flammable Liquids in the Property is 7220 litres. Under the 2019 NFC(AE), for a quantity of less than 10,000 litres, unprotected storage is permitted.[36] Therefore, the Cameron Report states that it is appropriate for the spaces to be considered as not meeting the classification of "sufficient quantities" under the 2019 NFC(AE) as requiring special protection under NFPA 30.[37]

34. The Cameron Report also states that the Property is not considered a "bulk plant for flammable liquids" under the Major Occupancy Classification under section 4.2 of the NBC(AE), as a bulk plant is assumed to involve large quantities of flammable or combustible liquids "in excess of the quantities intended to be addressed in Section 4.2."[38] Additionally, as the combustible content assessment conducted classifies the space as "unprotected storage" which indicates the quantities proposed do not constitute a special hazard.[39]

35. The Cameron Report also reviews the dispensing activities, which occur solely in the Slurry Room. The Cameron Report provides an overview of the measures implemented in the design of the Slurry Room to minimize fires and explosions from occurring and mitigating the effects of a fire or explosion should it occur.[40] These designs include the following:

a) 2-hour fire resistance rating separation between the Slurry Room, Binders and Solids Storage Room and the Solvent and Hazardous Waste Storage rooms and the remainder of the building;[41]

b) The Slurry Room and the Solvent and Hazardous Waste Storage Room have upgraded the sprinkler system to be in accordance with NFPA 30, which is above the minimum requirement of the 2019 NFC(AE) as the storage quantity does not exceed 10,000 litres;[42]

c) The Binders and Solid Room use the NFPA 13 fire sprinkler system, which includes roof

[35] Appellant Brief, page 64
[36] Appellant Brief, page 65
[37] Appellant Brief, page 65
[38] Appellant Brief, page 66
[39] Appellant Brief, page 66
[40] Appellant Brief, page 66
[41] Appellant Brief, page 66
[42] Appellant Brief, page 66

and in-rack fire sprinklers;[43]

d) An explosion prevention system will be installed to reduce the possibility of an explosion occurring by limiting the vapour concentration of Class IB liquids to "below a fraction of its lower explosive limit" by using flammable vapour detection, emergency exhaust ventilation, and "relies on the combustible concentration reduction methods in chapter 8 of NFPA 69;[44]

e) Backup emergency exhaust ventilation fan(s) and an emergency power supply for the emergency exhaust ventilation fans, detectors and safety interlocks ensure reliable operation of the explosion prevention system, in accordance with NFPA 69;[45]

f) Audible and visual alarms inside and outside the Slurry Room will be triggered in the event that flammable vapours are detected.[46]

36. The Cameron Report concludes with the identification that the suites within the Building are low hazard (F3) and F2 occupancies, and that based on these classifications the Building would not need a change of use as the building was constructed based on the F2 major occupancy.[47]

Floor Assembly Fire Resistance Assessment

37. Cameron Fire Protection Ltd also provided an assessment of the fire resistance of the floors of the Property (the "Floor Fire Resistance Report"). The assessment was executed to "determine the appropriate fire resistance rating" based on the requirements of the NBC(AE). Specifically, sentence 3.1.7.1(1) of the NBC(AE) requires that the assembly of materials for a fire resistance rating to be determined using the "Standard Method of Fire Endurance Tests of Building Construction and Materials".[48]

38. The Floor Fire Resistance Report states that the existing floor structure, composed of concrete on a fluted steel deck sprayed with spray-applied fire resistive material has a 2-hour fire resistance rating.[49] This rating was based on a comparison to Underwriters Laboratories ("UL") design configurations.[50] The existing stair walls,[51] the termination of the second floor,[52] and the existing columns,[53] were also found to have a 2-hour fire resistance rating.

39. The Floor Fire Resistance Report also states that, while the beams have more than the required measured thickness of spray-applied fire resistive material to achieve a 2-hour fire resistance rating, additional spray was required on the joists, as the current thickness is below what is

[43] Appellant Brief, page 66
[44] Appellant Brief, page 66
[45] Appellant Brief, page 66
[46] Appellant Brief, page 69
[47] Appellant Brief, page 71
[48] Appellant Brief, page 75
[49] Appellant Brief, page 77
[50] Appellant Brief, page 76
[51] Appellant Brief, pages 82-84
[52] Appellant Brief, page 85
[53] Appellant Brief, pages 79-82

required for compliance.[54]

40. The Floor Fire Resistance Report concludes that most of the assessed floor assembly components already had or could achieve a 2-hour fire resistance rating, with the exception of the joists, which required further review and upgrades.

FuelCell Energy Process Narrative Report

41. The Appellant provided the FuelCell Energy Process Narrative Report (the "Process Report") in support of their application as well. This report outlines the processes used in the production of the fuel cells, the highlights of which are reproduced here.

42. The Property is proposed to be a facility to produce ceramic cells to support FuelCell's solid oxide business. The production capacity is equivalent to 30 megawatts per year of solid oxide cells. The cells will be used externally to assemble solid oxide electrolyzer cells and solid oxide fuel cells. No final assembly will occur at the property. The Process Report emphasizes that no hydrogen is used or stored on the Property.[55]

43. The Process Report states that materials will be delivered to the Property in sealed containers and will be stored in two dedicated storage rooms: the Solvent and Hazardous Waste Storage Room and the Binders and Solids Storage Room. No opening of containers is allowed in either storage room.[56]

44. The materials are only permitted to be opened in the Slurry Room or the Paste Room, which are specifically designed for the use of the materials identified.[57]

45. Within the Slurry Room, solvents are dispensed from drums or totes into weighing containers for a maximum of 20 litres, within a fume hood using approved pumps. Solids are weighed using a separate fume hood. The fume hoods are designed to capture vapors and particulate. Once weighed, the materials are poured into a closed mixing system and then transported [redacted] to the [redacted] Room.[58]

46. The Slurry Room has specific fire protection, process ventilation, and an explosion prevention system designed as per NFPA 69 standards. It is separated from the remainder of the Property by 2-hour fire resistance rating fire separation and is designed with secondary containment within the room for containment of liquid spills and fire protection water. [59]

47. The Paste Room also weighs materials inside fume hoods. Specifically, no flammable liquids are poured, weighed or dispensed within this room beyond small quantities used for cleaning. The weighed materials are also poured into a closed mixing system and then transferred in [redacted] to the [redacted] Room and [redacted] Room. This room is also separated from the remainder of the Property by 2-hour fire resistance rating fire

[54] Appellant Brief, pages 78-79
[55] Appellant Brief, page 118
[56] Appellant Brief, page 119
[57] Appellant Brief, page 119
[58] Appellant Brief, page 120
[59] Appellant Brief, page 121

separation with secondary containment.[60]

48. The [redacted] Room uses the slurry created in the Slurry Room [redacted] to produce [redacted], [redacted], by evaporating the solvent using heating elements. The [redacted] is enclosed to prevent the release of vapours. The [redacted] has safety guards and shielding, emergency ventilation, and a backup generator. Any solvent exhaust is routed to the outdoor RTO for thermal destruction. This operation is designed as per the NFPA 86 standard.[61]

49. The [redacted] Room uses the [redacted] created in the [redacted] Room and applies [redacted] paste to the [redacted] The equipment in this room has safety guards and shielding, and the drying operation is designed as per NFPA 86 and specifically the internal electric heating elements and refractory lining of the dryers within the print line keeps exterior temperatures below 55 degrees Celsius.[62]

50. The Sintering Room is where the cells undergo a closed heating process [redacted] are then moved to the [redacted] Room. The [redacted] are electric with refractory lining to keep the exterior temperatures below 55 degrees Celsius. [redacted]

51. Within the Sintering Room there is a spray booth where the cells are sprayed with an automated spray process inside a closed and interlocked booth. The spray mixture is less than 4 litres total volume.[64]

52. The Process Report states that the temperature in the process rooms is anticipated to be between 20 and 25 degrees Celsius, and the temperature within the Sintering Room will be between 20 and 30 degrees Celsius. The storage and mechanical and electrical rooms may have temperatures outside these ranges. Equipment is engineered with operator safety as a priority, with guards, shields and insulation, personnel will be trained, standard operating procedures will be followed, and appropriate personal protective equipment will be used.[65]

Building Code Classification Assessment Report

53. YEO Code Consulting Ltd ("YEO") provided a report regarding the classification of the Building (the "Code Classification Report"). The Code Classification Report states that available building design information, visual observations from a site visit and the Cameron Report and the Floor

[60] Appellant Brief, page 121
[61] Appellant Brief, page 122
[62] Appellant Brief, page 122
[63] Appellant Brief, page 123
[64] Appellant Brief, page 124
[65] Appellant Brief, page 126

Fire Resistance Report were used to inform their assessment.[66]

54. The Code Classification Report notes that the second storey floor assemblies are required to have a 2-hour fire resistance rating as a F2 classification and that the floor joists would need upgrades to meet this requirement.[67] With the exception of this upgrade, the columns and supporting elements of the floors and the exit stairs all have the required 2-hour fire resistance rating.[68]

55. The Code Classification Report also notes that the vertical walls on the second storey floor areas may also be required to have a 2-hour fire resistance rating, but that this requirement can be waived in a fully sprinklered building not containing an F1 occupancy.[69]

56. The Code Classification Report concludes that the Property is classified as an F2 major occupancy. It states that the general construction of the building either currently complies with or is being upgraded to meet the fire resistance rating requirements of the NBC(AE).[70]

Evidence on behalf of [redacted]:

57. [redacted] ("[redacted] is the engineering manager of Ramboll Engineering. He has sixteen years of engineering experience, eleven of those years in custom industrial equipment and atmosphere installations and five years leading engineering teams in chemical and aerospace markets.

58. [redacted] explained to the Tribunal that the Project involves producing an oxide product used in electrolyzers for green energy. The facility will manufacture [redacted] cells that can generate hydrogen or electricity offsite. [redacted] explained to the Tribunal that no power is generated or hydrogen used within the facility. The goal is to produce [redacted] high-quality cells per year, which would have a combined potential of 30 megawatts when used externally.

59. [redacted] submit to the Tribunal that the Property should be classified as F2, as no special fire hazards exist. Only the slurry and paste rooms allow open containers of hazardous materials, and even there, quantities are carefully controlled. Typically, the quantities of the chemicals are around 1 litre, with a maximum of 4 litres per container. [redacted] also explained that the slurry room and the paste rooms are the only rooms permitted to have open containers.

60. [redacted] described the process to be used in the project to the Tribunal and the key safety measures that have been implemented into the design of the Property. The materials used for the Project arrive in steel drums or totes and are stored in the Binders and Solids Storage room. When a material is needed, the drum or tote is brought to the Slurry Room and the materials are dispensed using a sealed pneumatic pump system under a fume hood specifically designed for this process that considers the airflow rate and velocity to ensure vapor capture, keeping all vapors below the occupational health and safety standard for exposure. The vapors would then be discharged outside.

---

[66] Appellant Brief, page 127-128
[67] Appellant Brief, page 128
[68] Appellant Brief, page 128
[69] Appellant Brief, page 128
[70] Appellant Brief, page 129

61. [redacted]

62. In the event of a Slurry Room spill, [redacted] explained that multiple containment measures exist. The pneumatic transfer pumps are tight fitting, and include a breather pump, and they are the only veins from the original totes or drums to the approved containers. The pumps have a master valve that managers the compressed air for those pumps, with two vapor sensors used to monitor. The first sensor will automatically shut off the pump if it detects vapors of 20% of air volume. The second sensor will set off an audible and visible alarm, both inside and outside the Slurry Room, if 4% vapors are detected. If either sensor breaks the pump system is automatically deactivated. Additionally, transfers only occur over a sump in the floor which is designed to hold the entire contents of a tote. There is also a secondary containment built into the room which can hold the entire contents of a tote and fire fighter water. The process ventilation system and HVAC system will also pump fresh air into the room and can provide approximately eight times the amount of air exchange required to keep the vapors below allowable limits in the event of a spill. The design also includes explosion-proof equipment and grounding systems throughout hazardous areas, a backup generator supports the safety systems to ensure these systems remain functional in the event of power loss, and fire measures include sprinkler systems as per NFPA 30 and additional safety systems within the slurry and spray rooms.

63. In response to a question from the Respondent, [redacted] confirmed that the safety measures included in the design would remain if the Property were classified as F1, as these measures follow best engineering practices. He also confirmed that the facility was initially considered F1 out of conservative early design assumptions but upon later review was determined to meet the F2 standards.

64. The Respondent also asked for clarification regarding a discrepancy in the chemical storage quantities in the previous report and those present in the updated permit application. [redacted] confirmed that the previous report indicating the 90-day supply is outdated and the correct storage volumes are in the Cameron Report, as per the building permit application. Those storage limits include a maximum of 1,800 litres in the slurry room and 5,400 litres in the Storage Room.

Evidence on behalf of [redacted]:

65. [redacted] ("[redacted] is an engineer with Cameron and has ten years of engineering experience.

66. [redacted] submitted to the Tribunal that the F2 classification for the Property is appropriate. He told the Tribunal that he did review the design and the Appellant does not have any exceedances of the maximum quantities under section 4.2.7.5 of the 2019 NFC(AE). The maximum allowable quantity of Class 1 liquids per fire compartment is 10,000 litres, and the Solvent Room contains a maximum of 5,400 litres in containers and the Slurry Room has a maximum of 8,100 litres.

67. [redacted] informed the Tribunal that 2019 NFC(AE) subsection 4.2.9 applies to rooms for

container storage and dispensing which is applicable to the Project. Under this section, the requirement states that where Class 1 B liquids are used, dispensed or stored within a storage room the room shall be designed to prevent critical, structural and mechanical damage from an internal explosion in accordance with point 4 sentence 4 of Division B of the NBC(AE), which then states the design of the room shall be designed to prevent critical storage and mechanical damage from an internal explosion in conformance with good engineering practice, such as that described in National Fire Protection Association ("NFPA") 68. [redacted] explained that the design of the Property adheres to NFPA 69, which is an internationally certified system providing better protection than NFPA 68 in this specific design, as if focuses specifically on explosion prevention. [redacted] submitted to the Tribunal that the NFPA meets the intent and the performance requirement intended by the NBC(AE). [redacted] stated that NFPA 69 is the companion document to NFPA 68 and that NFPA 69 states that it can be used in place of or in conjunction with NFPA 68.

68. In response to the Respondent's question about the source of inventory numbers in the Cameron Report, [redacted] explained that the quantities came from FuelCell. The Respondent referenced the original design report, found at Addendum 6 of the Respondent's Brief, dated August 4, 2023, highlighting differences in the quantities included in that report and the Cameron Report. [redacted] acknowledged that the initial project had different quantities but clarified that FuelCell later reduced them. The Cameron Report reflects these updated figures, as provided by Fuel Cell to both [redacted] and the Respondent.

69. The Respondent also asked [redacted] to clarify the chemical quantities available in days' worth of chemical storage. [redacted] clarified that the report was not measured based on days but uses the maximum chemical quantity at any given time. In response to the follow up question regarding whether the inventory could increase, [redacted] stated that the protocol ensures that the quantities will not exceed the limits and therefore the inventory would not increase beyond the quantities provided.

70. The Respondent asked what was included in the October 27, 2023, unsigned document from Cameron Fire Engineering, noting that this original document indicates that flammable storage exceeds 5000 litres. [redacted] clarified that this was an internal document to the interior designer providing a general answer and that the report was not signed nor stamped and should not be considered as it was not supposed to be included in the application. [redacted] stated that the Cameron Report is the signed and stamped report that was the official fire assessment of the Property and that the Cameron Report is the only document that should be relied upon.

71. [redacted] also explained that the Cameron Report is the only document that is a full, holistic report, in response to the question from the Respondent asking what changed between the early reports and the Cameron Reports. [redacted] reiterated that the previous documents were sent by the interior designers in error and that the Cameron Report is the document that reflects the findings after Cameron Fire Engineering went to the Building and reviewed the layout and the processes of Fuel Cell. The older documents should not be considered nor relied upon, particularly because the City states that they will not consider any documents that are not submitted by a registered architect. The previous versions were not signed by a registered

architect. The Cameron Report and architectural drawings are stamped by registered professionals and so this is the threshold for continual review, not previous documents that were unstamped and not submitted properly.

72. [redacted] explained that the fire assessment went beyond looking solely at safety data sheets when asked by the Respondent about classification regarding the low flash point of certain chemicals. He explained that the assessment assessed the different combustion heat assessment included an assessment of vulnerabilities which were then addressed in the design of the facility under NFPA 69 specifications.

73. Finally, when asked by the Respondent regarding the choice between using NFPA 68 or NFPA 69, [redacted] explained that the vulnerability of the materials used is being monitored by the system. The vulnerability of the Class 1 liquids to be considered special fire hazards is included in the design under NFPA 69 because the 2019 NFC(AE) refers to quantities of liquids, not use. If there is presence of the Class 1 liquid does not require special fire requirements unless a specific quantity is exceeded.

Evidence on behalf of [redacted]:

74. [redacted] ("[redacted] is a professional architect registered in Alberta, British Columbia, Saskatchewan, Manitoba and Ontario, with twenty four years of architectural experience. [redacted] founded T.I. Architecture ("T.I.") in 2007, which is a firm that specializes in tenant industrial interiors and has worked on over 900 tenant improvement projects across Canada, with more than 400 being industrial classifications.

75. T.I. was engaged in August 2024 to conduct a due diligence review of the permit as the City had required the involvement of a registered architect. T.I. prepared the secondary submission package to the City in response to their inquiries alongside Yeo.

76. [redacted] informed the Tribunal that no modifications have been made to the Property design to meet F1 classification because they have classified the Building as an F2 occupancy. T.I.'s review, based on an F2 occupancy, required the specific upgrades of a 2 hour fire rated floor assembly and structural members supporting those assemblies to be upgraded to meet the 2 hour requirement. The drawings submitted to the City reflected these changes and the necessary ULC ratings.

77. T.I. reviewed all tenants in the Building to ensure compliance with an F2 occupancy classification. In doing this review, the second floors required a 2 hour fire separation for compliance. They also found, with input from [redacted] that the fire spray in the second-floor space would be inappropriate. Ultimately, T.I.'s review determined that the entire building met the F2 classification except for the second-floor fire separation, which required upgrading.

78. In response to a question from the Respondent, [redacted] informed the Tribunal that T.I. does not rely on previous classifications of a building but conducts a current review of the building and tenants, which is the practice conducted for their review of the Building. Older base building classifications are considered irrelevant due to the subsequent permit application and tenant

changes, as base buildings are often constructed as shells with no tenants, meaning classifications need to be based on current use. Specifically, T.I. assessed who is currently occupying the spaces and their specific occupancies, the presence of mezzanines or second floors, and whether the current state met the intended F2 classification.

79. In response to the Respondent's question of the accuracy of section 3.2.2.74 classification, [redacted] clarified that her job is to look at what exists and what is being proposed. In this case, the concrete complies; however, the amount of spray was insufficient. The report looks at what future upgrades will need to occur to meet the 2-hour requirement.

80. In response to the Tribunal's question, [redacted] confirmed that the updated application package, which includes the updated architectural drawings and the Cameron Report, were sent to the City on October 29, 2024.

Summary of the Evidence Provided On Behalf of the Respondent:

Written Submissions made on behalf of the Respondent:

81. The City received the building permit application on February 27, 2024, from Shearer on behalf of Fuel Cell. The City states that Shearer failed to provide a building classification according to its major occupancies.[71]

82. In re-submission, Shearer did not "correctly classify" the building, identifying the facility as an F2 and there were subsidiary occupancy floor areas classified as F1. The City states that under the Building Code, article 3.2.2.8, F1 occupancies are not considered an exception for major occupancies even if the aggregate floor area is less than 10%. The City requested a professional architect to provide a proper code analysis to support the occupancy and design intent, specifically regarding correctly classifying the building.[72]

83. The City states they reviewed the safety data sheets from the Appellant to evaluate the application and states that a large quantity of highly flammable liquids were identified.[73] There were also additional hazard combinations that created a special fire hazard for firefighting that would require specific strategies should an event occur, such as avoiding the use of water, not allowing runoff into drains, and subsequent explosion risks. The City also points to the use of [redacted] as presenting a thermal hazard. [74]

84. The City points to a report titled "Review Outcome of Shearer Code Report and Further Assessment" from Cameron Fire Protection, wherein they identify that the flammable storage area has quantities exceeding 5000 litres which would lead to this area being classified as F1.[75] The City states in its brief that the oversight of Cameron Fire Protection failing to acknowledge that F1 does not fall under the exception under Article 3.2.2.8, as described above, "is the

[71] Respondent Brief, page 2
[72] Respondent Brief, page 3
[73] Respondent Brief, page 4
[74] Respondent Brief, page 5
[75] Respondent Brief, page 5

primary reason for [the City's] refusal."[76]

85. In the Review Deficiency Report provided to the Appellant on November 14, 2024 (the "November 14 Deficiency Report"), the City re-affirms its statement that an F2 classification is not supported by the evidence provided and states "Letter from Cameron Fire Protection is dismissed."[77]

86. The November 14 Deficiency Report also states that the Appellant "has not demonstrated that the quantities of highly combustible, flammable, or explosive materials stored at the proposed facility are insufficient to create a "special fire hazard" as defined in High Hazard Industrial Occupancies." It further states that "if any part of an occupancy is considered F1, the entire occupancy must also be classified as F1 regardless of the area or containment methods."[78]

87. The City then references the Cameron Report concluding that the Building supporting structure has a 2-hour fire resistance rating and states that City records reveals that the construction drawings indicate it was constructed with only a 1-hour fire resistance rating.[79] Because of these drawings the City has concerns about the accuracy of the determinations made by Cameron Fire Protection and therefore a lack of trust in the overall judgement of the Cameron Fire Protection.[80]

88. The City states that the architectural plans are inaccurate as they state the design intent for the Building to be classified as an F2 building, which requires a 2-hour fire resistance rating for the floor assemblies, which the Cameron Report states that the floor assembly and supporting structure does not have the required 2-hour fire resistance rating on the floors, and therefore the architect's statement that the Building was intended to be classified as an F2 does is not supported. The City submits that the existing condition of the Building does not support an F2 classification unless upgrades are undertaken over the entire building. The City states that without an appropriate firewall between tenants, Fuel Cell's unit cannot be viewed as a separate building under the NBC(AE), Division A article 1.3.3.4.[81]

89. The City concedes that the facility's focus on production of the fuel cells and not the assembly of the cells, and specifically the assurance that no hydrogen is used or stored at the site, may significantly reduce the fire and explosion risks, but states that the following risks remain:

a) Ceramic production uses flammable solvents or binders ;

b) High temperature furnaces producing toxic byproducts from materials or binders during firing;

c) Ceramic powders may create dust hazards and combustible dust explosions if fine particles are dispersed in air and ignited;

d) [redacted];

[76] Respondent Brief, page 5
[77] Respondent Brief, Exhibit 17, page 1
[78] Respondent Brief, exhibit 17, page 2
[79] Respondent Brief, page 6
[80] Respondent Brief, page 6
[81] Respondent Brief, page 6

e) Dispensing flammable liquids creating special fire hazards.[82]

90. The City states that the definition for F1 occupancies "requires the classification to be based on experience, judgments and/or risk evaluations" and states that the production lines of the cells "side by side within the same building" constitutes a special fire hazard.[83] Because of this special fire hazard, the City submits that upgrades need to be undertaken across the entire Building or a sufficient firewall needs to be installed between the Property and the other Tenants within the Building.[84] Ultimately, the City states that, despite the involvement of multiple consultants, the Appellants continue to propose an F2 classification, and that the City does not believe the special fire hazard risks were adequately addressed by the parties.[85]

91. The City also contends that the Appellant and its consultants have "made repeated attempts to sidestep the appeal process to further discuss and debate the permit refusal." The City contends they have provided sufficient code-based evidence and therefore denied the meeting requests "maintaining the integrity of the appeal process."[86] The City states that the Appellant "refused to accept the interpretation of the City… leading to circular communication."[87]

Evidence on behalf of [redacted]:

92. [redacted] ("[redacted] is a safety codes officer with the City in the building discipline. [redacted] is the file manager and the plans reviewer for the Permit application.

93. [redacted] informed the Tribunal that the Appellant has misclassified the building as F2 instead of F1 which is leading to compliance issues requiring the permit application to be rejected. The 2019 NFC(AE) and the NBC(AE) require this refusal unless the classification is corrected. [redacted] submitted to the Tribunal that professional involvement does not override the requirements in the codes and that professionals must ensure compliance not redefine compliance.

94. The application for the permit was received in April 2024. The plans description submitted at the time included an analysis of the building code, which listed the major occupancy of the Building as F2 with a subsidiary occupancy as F1, which is not permitted under the NBC(AE). The NBC(AE) does not allow for F1 occupancies to be a subsidiary occupancy. As a result of this contradiction, it was requested that an architect provide services for classification of the Building.

95. In response to the City's deficiencies, the designer sent an updated design, which still included the F2 classification with an F1 subsidiary. At this point, an architect was still not involved. In the issued deficiency notice the Appellant was given explicit instructions to do some property research to learn the true occupancy of the building. In doing the research, they would have

[82] Respondent Brief, page 7
[83] Respondent Brief, page 9
[84] Respondent Brief, page 9
[85] Respondent Brief, page 10
[86] Respondent Brief, page 8
[87] Respondent Brief, page 9

been able to obtain the original building permit for the Building which classified the Building as F2 in 1999 with one-hour fire separation, which is the equivalent of 3.2.2.75 of the NBC(AE). The Appellants were looking at 3.2.2.74.

96. On June 17, 2024, the City had a meeting with Shear and engineering and discussed that work would be required for an F1 occupancy to be in the Building. At this meeting it was stressed that a registered architect was required to do the proper classification of the Building.

97. July 12, 2024, a final application was submitted by Shearer which included the F2 occupancy claim. This is in contradiction to the October 27, 2023 report from Cameron Fire Engineering which states that the Building was F1. No change in the architectural plans was noted at this time.

98. On July 29, 2024, an architect was hired and so the refusal was postponed. The City met with T.I. to discuss the project and reiterated concerns that they believe the building to be F1.

99. On October 29, 2024, T.I. provided numerous documents, including the Cameron Report, and confirmed that they had classified the Building as F2 not F1. The floor areas and uses had not changed and the City was not aware of any changes in the quantities.

100. The Consensus within the City is that the Property needs to be classified as F1. The Permit Refusal was issued because the Appellant refuses to acknowledge the F1 occupancy.

101. The City submits to the Tribunal that their position is correct because the F1 occupancy includes high levels of flammable or combustible material, and unlike F2, it is not based on percentage but on sufficient quantities and processes. The City believes a special fire hazard exists for highly combustible and flammable materials, specifically the 90-day quantity of 18,000 litres. This is a minimum stock order and those quantities could grow. The City also believes that the use of the materials provides additional hazards, including [redacted] which create explosion and fire risks, and the dispensing of Class 1 B liquids as storage and use are different.

102. The City also submits to the Tribunal that the proposed safety measures are inadequate, as they are subject to failures including incorrect maintenance, human error, and power loss.

103. [redacted] informed the Tribunal that when the Permit Refusal was appealed the City denied communication with the Appellant to preserve the integrity of the appeal.

104. In response to a question from the Appellant, [redacted] confirmed that the City did receive and review the Cameron Report, including the reduced material quantities and that the City did not request a new inventory list after reviewing the Cameron Report.

105. [redacted] also submit to the Tribunal, in response to questions from the Appellant regarding the threshold for a special fire hazard, that the amount of a liquid alone is not the only determining factor but that the 2019 NFC(AE) sets the threshold at 10,000 litres as the quantity threshold. He also stated that, while the City did receive the quantity information of the

Appellant's operations from the Cameron Report, the City did not receive it from Fuel Cell directly. The Tribunal asked [redacted] if receiving the information directly from Fuel Cell would have made a difference to their analysis and he responded that it would not because the classification includes not just the quantities in storage but their use, which is in the dispensing of the chemicals.

Findings of Fact:

The Tribunal makes the following findings:

106. The Project involves the production of ceramic cells, including the storage and handling of raw materials. The Project does not involve the use or production of hydrogen on site.

107. The City required the Appellant to engage a professional architect to determine the Building's occupancy classification. This was not complied with immediately by the Appellant but ultimately the Appellant did engage a registered architect. Despite the Appellant's compliance with this requirement, the City ultimately rejected the architect's findings and refused to issue the permit.

108. The Appellant provided updated processes, material quantities and classifications through the Cameron Report and supporting documentation. This was submitted and received by the City in October 2024. However, the City did continue to reference previous versions of the application.

109. The Cameron Report is the appropriate document to be used for the permit application review. Previous, unstamped documents are outdated and do not reflect the current design, process, or expert assessments.

110. The Cameron Report focuses on material quantities which remain below 2019 NFC(AE) threshold levels for F2 occupancy. The City's communications largely centered on quantity, making this focus reasonable.

111. The maximum chemical quantities included in the Cameron Report are the highest levels at any given time. Speculation that the Appellant may exceed these levels by reordering before depletion is not appropriate.

112. The Appellant has implemented significant fire prevention and explosion prevention measures in the design of the Property, which should minimize risks.

113. Occupancy classification must be based on the Building's current state. While original permits can provide information, they are not determinative. The classification approach employed by T.I. was appropriate as it reviewed the Building as it exists today.

114. The F1 occupancy does not have a quantified threshold and the distinction between an F1 and an F2 occupancy classification does depend on sufficient quantities of hazardous materials alone. There is no objective definition for what constitutes sufficient quantities. Sufficient quantities is subjective based on the material properties itself and the context in

which those chemicals are present.

115. There are materials used in the Appellant's process that have low flash points, making them volatile and posing a significant fire hazard regardless of quantity.

Reasons for Decision:

116. On an appeal such as this, the powers of the Tribunal are set out in subsection 52(2) of the *Act*, the relevant excerpt is reproduced below:

> 52(2) The Council may by order
>
> (b) confirm a refusal or direct that a designation, certificate or permit be issued and direct the inclusion of terms and conditions in the designation, certificate or permit.

117. The Tribunal has determined that the standard of review regarding a refused permit is the standard of reasonableness, based on subsection 26(c) of the *Permit Regulation,* the relevant excerpt is reproduced below:

> 26 Without restricting the generality of section 46 of the *Act,* a permit issuer may refuse to issue a permit… if
>
> (c) in the opinion of the permit issued, the undertaking for which the permit would be or has been issued would or does contravene the *Act* or another enactment.

<u>Special Fire Hazard</u>

118. The Tribunal agrees with the Appellant that, based on the quantities of the chemicals they are below the maximum for storage of materials allowed for an F2 designation. If occupancy was based solely on storage quantities, the Appellants case is made. However, the distinction between an F2 and an F1 classification are not dependent solely on specific quantities but rather is also a qualitative distinction. An F1 occupancy requires "sufficient quantities of highly combustible and flammable or explosive materials which because of their inherent characteristics constitute a special fire hazard." As the Property is not used solely as a storage facility, wherein the quantities would be the only consideration, but as a processing facility, the Tribunal must look at the individual chemicals and the facility processes to determine whether there is a special fire hazard.

119. The City referenced appendix A in the NBC(AE), which provides examples of what could be considered as F1 and F2 major occupancies. A chemical processing plant is provided as an example of what could be an F1 whereas a laboratory or a factory are examples of what could be F2 occupancies. The 2019 NFC(AE) defines a process plant as an industrial occupancy where flammable liquids, combustible liquids, or gases are produced or used in a process.[88] This definition does describe the business of the Appellant. The appendix provides a chemical processing plant as an example of what could be an F1 occupancy. It is provided to further

[88] 2019 NFC(AE), Division A, Article 1.4.1.2

contextualize or provide guidance to interpret the Code, but the contents within the appendix are not binding themselves. Therefore, the City was within its right to use the appendix to guide its decision but cannot rely on the appendix solely as reasoning for their position. There must be further analysis into the specifics of the Appellant's use to determine whether there is actually a special fire hazard.

120. There are three chemicals identified in the Appellant's materials that have very low flashpoints that are below expected room temperatures. The Slurry Room is expected to have an average room temperature between 15 and 25 degrees Celsius. The Cameron Report states that there will be a maximum quantity of 3405 litres of on site.[89] It is not clear from the materials how much will be present within the Slurry Room. While the Appellants have made clear that the cleaning liquids, , will be contained in bottles of 1 litre or smaller, these bottles are filled in the Slurry Room from larger bottles.[91] Should an incident happen, it may provide opportunity for the lower explosive volume limit to be reached and therefore the risk of ignition. The specific characteristics of could constitute a special fire hazard, as the flash point is significantly lower than the temperature of the room and the lower reported explosive limit is a low percentage of the air's volume and below the 4% minimum alarm threshold proposed in the design.

121. The other two liquids are Both and are also listed as being present in the Slurry Room. is listed as one of the flammable liquids dispensed and used in the mixing process. Again, the Slurry Room is expected to have an average room temperature of between 15 and 25 degrees celsius, which is higher than the flashpoint of . The Cameron Report states that there will be a maximum quantity of 2724 litres of and 600 litres of on site. Again, the specific characteristics of these materials could reasonably be determined to pose a special fire hazard.

122. It is because these chemicals are inherently highly combustible that the Tribunal has determined the City is within its authority to assess the proposed use of the Building as an F1 occupancy. The Tribunal agrees with the Appellant that the volumes are below the maximum quantities for an F2 designation. However, the F1 classification does not require a minimum or maximum quantity, rather uses "sufficient", requiring the individual chemicals to be considered individually. The Tribunal has determined that the presence of these chemicals within a process that does include mixing and potential high heat exposure makes the City's determination that the Property should be classified as F1 as a reasonable decision and therefore the refusal is upheld.

Mitigation Efforts and NFPA 69

123. The Appellants provided significant amounts of information regarding their processes,

[89] Appellant Brief, page 56
[90] Appellant Brief, page 56
[91] Appellant Brief, page 126

safeguards, and prevention measures. By designing the Property through NFPA 69 the Appellants have implemented mitigation strategies and safeguards to prevent the likelihood of explosion. The Appellants have designed their facility with numerous safeguards to keep volatile vapors, such as [redacted], from reaching a dangerous concentration, and with secondary containment measures for spills within the different areas of the facility. The Appellant points to these measures as evidence that there is no special fire hazard present because they have been meticulous in mitigating these risks. These are important features and the Tribunal wants to emphasize that these measures are important and have not been overlooked.

124. The Tribunal agrees with the Appellant that the proposed design is likely to reduce the likelihood of an explosion. However, while these measures are important, the 2019 NFC(AE) does not allow for any softening of controls addressing an explosion should an explosion occur, as evidenced by sentence 4.9.3.1(1) of the 2019 NFC(AE) which states that where Class 1A liquids are processed within a room or a building, it "shall be designed to prevent critical structural and mechanical damage from an internal explosion in conformance with NFPA 68…" [emphasis added].[92] The mitigation efforts certainly show that the Appellant takes safety seriously and recognizes the risks presented in their processes, but their mitigation efforts do not constitute an approved code variance.

125. While the design significantly reduces the likelihood of explosion, that likelihood can never be zero. The Tribunal has been provided significant evidence regarding the prevention measures undertaken by the Appellants but evidence has not been provided that demonstrates the Building can withstand structural failure in the event of an explosion.

126. The Tribunal cannot assess whether the Property was designed to architectural and engineering standards for preventing explosions. Based on the information provided by the Appellant significant effort has been made in this area. However, even if the design does meet these standards, there must be evidence that the Building design will prevent structural failure in the case of an explosion to be compliant with the 2019 NFC(AE). Therefore, a variance would be required to address this issue.

127. The Tribunal cannot order a permit be issued to the Appellant because it is unclear whether the City would have accepted the alternative solution of preventing an explosion instead of designing for structural resistance. This is not an appeal of a refused variance but rather a refused permit, and the Tribunal is not in a position to determine whether these efforts are equal to or as safe as the requirements of the NBC(AE), nor has the Tribunal been asked to.

Assessment and Communication

128. The City emphasized in their materials and during the hearing that they had provided code-based explanations to the Appellants and that they stopped communications with the Appellants because they believed the Appellants were trying to side-step the appeal process.[93] The Tribunal disagrees with this characterization.

129. Despite the Tribunal agreeing with the City's conclusion that the proposed use could be considered an F1 major occupancy, the Tribunal disagrees that the reasons for this finding were

[92] 2019 NFC(AE) sentence 4.9.3.1

[93] Respondent Brief, pages 8-9.

effectively communicated. In the June 14, 2024 Deficiency Report, the City initially stated that the evidence provided did not support a medium hazard classification for the occupancy and required a registered architect to review the building permit application and specifically to verify the correct classification of the occupancy. The Appellant complied, submitting additional documentation, including a review from the registered architect and drawings, updated processes and chemical quantities, and the Cameron Report, which classified the Building as a medium hazard occupancy. The City then refused to accept these drawings because they did not classify the Building the way the City believed it needed to be classified. The City further continued to refer to outdated, unstamped drawings rather than acknowledging the professionally sealed documents. The City's stance that the Appellants merely reclassified the Building from F1 to F2 ignores the fact that a regulated professional has done this review and that it is within the Appellant's rights as an applicant to reassess and adjust their classification if justified by the evidence. The City's role is to review the submitted and updated application materials and not rely on outdated documents that are no longer relevant. The City further incorrectly stated in the Deficiency Report that hydrogen was being produced on site, while the applicant clearly demonstrated that no hydrogen was present or would be produced. The deficiencies identified in the Deficiency Report were addressed by the Appellant and therefore it is understandable why the Appellant would want to have further discussions regarding the Permit Refusal because, from their standpoint, the issues identified by the City were addressed.

130. The Appellant designed the property to meet F2 classification. The fundamental issue in this appeal is the breakdown in communication regarding the building occupancy. Requiring an expert classification implies that an F2 designation was a valid possibility, subject to supporting evidence.

131. The City also used their position that an F1 classification as the only possible option and the information in unstamped and outdated reports as a reason to reject the legitimacy of registered professional reports. This reasoning is improper. Permit issuers are not permitted to declare an expert's conclusions incorrect. Therefore, rejecting an expert's findings and legitimacy because they are not supportive of the City's conclusion and then further rejecting a code consultant's report solely because it used those expert's findings is neither reasonable nor appropriate. If the City requires expert assessments, such as requiring a professional architect to provide occupancy classifications, it must recognize their legitimacy. Otherwise, the requirement and expectation of professional involvement becomes meaningless. If competing expert reports exist, their merits should be debated, or concerns about an expert's qualifications should be substantiated. The City did neither.

132. The City could have more clearly communicated that its F1 classification assessment was based not only on the quantity and type of chemicals but also on how those chemicals were being used within the facility. Instead of focusing primarily on storage volumes, the City should have explicitly stated that the combination of storage, handling, and processing of volatile materials necessitated an F1 designation and that only a design meeting F1 building requirements would be approved. Compounding the confusion, the City repeatedly referred to outdated, unstamped documents rather than the expert reports provided by the Appellant. Because the City relied on information that was no longer relevant, the Appellant could have reasonably believed that the City's position was based on incorrect data and that by clarifying

the information through expert reports, the City would recognize and accept their position. A more direct and transparent approach from the City – clearly outlining that an F1 occupancy was non-negotiable could have prevented unnecessary delays and confusion in the permit process.

133. Refusing to engage in communication once an appeal application has been submitted is counterproductive and undermines good customer service. While appeals must be submitted within a prescribed timeframe under the *Safety Codes Act*, this does not mean that the parties should cease efforts to resolve the issue collaboratively. On the contrary, open dialogue is essential. The appeal function serves as a critical mechanism for addressing disputes that cannot be resolved, ensuring access to justice. However, when a matter could reasonably be settled through better communication and cooperation, that opportunity should be pursued. The evidence before this Tribunal demonstrates that the Appellant has not been difficult, combative, or unreasonable but has actively sought discussions to understand key concerns and explore mutually acceptable solutions. The Appellant even offered to engage in mediated discussions with a knowledgeable third party. These efforts should not be considered attempts to bypass the appeal process but rather good-faith attempts to foster cooperation and coordination. Appeals should be a last resort when a third-party decision is required, not a reason to halt constructive dialogue.

Conclusion:

134. The Permit Refusal is upheld, as the determination by the City that the Building should be classified as F1 is reasonable based on the proposed processes, chemical volatility, and low flash points of certain chemicals used in the Appellant's process. While the Appellant has demonstrated significant safety design measures to mitigate these risks it does not change the inherent properties of the chemicals constituting a special fire hazard and does not address the requirements to control an explosion should one occur.

[redacted]

Signed at the City of Edmonton)
in the Province of Alberta)
this 17th day of April, 2025)

[redacted]
Chair, Building Sub-Council
Administrative Tribunal