**AGENDA**

**Standards Council Meeting**
**Via Teams Video Conferencing**
**April 14-15, 2021**

| 21-4-1 | Report of the Committee Membership Task Group (J. Quiter, Chair). No Attachment |
| 21-4-1-a | Consideration of Non-Reappointments. No Attachment |
| 21-4-1-b | Act on pending applications for Committee Members. No Attachment |
| 21-4-1-c | Request for classification reconsideration. No Attachment |
| 21-4-1-d | Report back to Council in accordance with Decision No. 20-6 (20-12-21). No Attachment |
| 21-4-2 | Report of the Awards Task Group (J. Golinveaux, Chair). No Attachment |
| 21-4-3 | Update from P&P Chair. No Attachment |
| 21-4-4 | Report of the December 2020 Minutes. No Attachment |
| 21-4-5 | Review of the process of Standards Council decision making by Suzanne Gallagher, Deputy General Counsel. No attachment. |

**TENTATIVE INTERIM AMENDMENTS (TIA)s**

<p>| 21-4-6 NFPA 2 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise section 10.5.1.6.2 and add new associated Annex material of the 2020 edition of NFPA 2, <em>Hydrogen Technologies Code</em> (TIA No. 1542). |
| 21-4-6-a | Text of proposed TIA No. 1542. See Attachment 21-4-6-a |
| 21-4-6-b | Ballot results of TIA No. 1542. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 29 voting members/26 agree on technical merit/0 disagree/0 abstained/3 ballots not returned/26 agree on emergency nature/0 disagree/0 abstained/3 ballots not returned. See Attachment 21-4-6-b |
| 21-4-6-c | No comments were received. |
| 21-4-7 NFPA 10 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Annex A.7.2.2.item (5) of the proposed 2022 edition of NFPA 10, <em>Standard for Portable Fire Extinguishers</em> (TIA No. 1557). |
| 21-4-7-a | Text of proposed TIA No. 1557. See Attachment 21-4-7-a |
| 21-4-7-b | Ballot results of TIA No. 1557. <strong>FAILED</strong> ballot - passed ballot on technical merit but failed ballot on emergency nature– 31 voting members/22 agree on technical merit/6 disagree/0 abstained/3 ballots not returned/19 agree on emergency nature/9 disagree/0 abstained/3 ballots not returned. See Attachment 21-4-7-b |
| 21-4-7-c | One comment was received. See Attachment 21-4-7-c |
| 21-4-8 NFPA 12 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise section 4.7.1.6 of the 2018 edition of NFPA 12, <em>Standard on Carbon Dioxide Extinguishing Systems</em> (TIA No. 1543). |
| 21-4-8-a | Text of proposed TIA No. 1543. See Attachment 21-4-8-a |
| 21-4-8-b | Ballot results of TIA No. 1543. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 34 voting members/26 agree on technical merit/0 disagree/1 abstained/7 ballots not returned/26 agree on emergency nature/0 disagree/1 abstained/7 ballots not returned. See Attachment 21-4-8-b |
| 21-4-8-c | No comments were received. |
| 21-4-9 NFPA 13 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise section 20.5.3.1.3 of the proposed 2022 edition of NFPA 13, <em>Standard for the Installation of Sprinkler Systems</em> (TIA No. 1560). |
| 21-4-9-a | Text of proposed TIA No. 1560. See Attachment 21-4-9-a |
| 21-4-9-b | Ballot results of TIA No. 1560. <strong>FAILED</strong> ballot on both technical merit and emergency nature – 36 voting members/22 agree on technical merit/12 disagree/0 abstained/2 ballots not returned/18 agree on emergency nature/16 disagree/0 abstained/2 ballots not returned. <strong>PASSED</strong> CC ballot on correlation but <strong>FAILED</strong> ballot on emergency nature – 22 voting members/19 agree on correlation/2 disagree/0 abstained/1 ballots not returned/7 agree on emergency nature/14 disagree/0 abstained/1 ballots not returned. See Attachment 21-4-9-b |
| 21-4-9-c | No comments were received. |
| 21-4-10 NFPA 72 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new Annex material A.14.3.2 to the 2019 edition of NFPA 72, <em>Fire Alarm Signaling Code</em> (TIA No. 1548). |
| 21-4-10-a | Text of proposed TIA No. 1548. See Attachment 21-4-10-a |
| 21-4-10-b | Ballot results of TIA No. 1548. <strong>FAILED</strong> ballot on both technical merit and emergency nature – 28 voting members/16 agree on technical merit/8 disagree/1 abstained/3 ballots not returned/16 agree on emergency nature/8 disagree/1 abstained/3 ballots not returned. <strong>PASSED</strong> CC ballot on both correlation and emergency nature – 19 voting members/17 agree on correlation/0 disagree/1 abstained/1 ballots not returned/14 agree on emergency nature/5 disagree/0 abstained/1 ballots not returned. <strong>REBALLOT FINAL RESULTS</strong> of TIA No. 1548. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 28 voting members/16 agree on technical merit/5 disagree/0 abstained/7 ballots not returned/16 agree on emergency nature/5 disagree/0 abstained/7 ballots not returned. See Attachment 21-4-10-b |
| 21-4-10-c | Four comments were received. See Attachment 21-4-10-c |
| 21-4-11 NFPA 72 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new section 26.2.10 to the 2019 edition and proposed 2022 editions of NFPA 72, <em>Fire Alarm Signaling Code</em> (TIA No. 1549). |
| 21-4-11-a | Text of proposed TIA No. 1549. See Attachment 21-4-11-a |
| 21-4-11-b | Ballot results of TIA No. 1549. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 26 voting members/24 agree on technical merit/0 disagree/0 abstained/2 ballots not returned/24 agree on emergency nature/0 disagree/0 abstained/2 ballots not returned. <strong>PASSED CC</strong> ballot on both correlation and emergency nature – 19 voting members/17 agree on correlation/0 disagree/0 abstained/2 ballots not returned/17 agree on emergency nature/0 disagree/0 abstained/2 ballots not returned. See Attachment 21-4-11-b |</p>
<table>
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<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-4-11-c</td>
<td>Two comments were received. See Attachment 21-4-11-c</td>
</tr>
<tr>
<td>21-4-12</td>
<td><strong>NFPA 92</strong> Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Annex A.5.11 Example 4 of the 2021 edition of NFPA 92, <em>Standard for Smoke Control Systems</em> (TIA No. 1547).</td>
</tr>
<tr>
<td>21-4-12-a</td>
<td>Text of proposed TIA No. 1547. See Attachment 21-4-12-a</td>
</tr>
<tr>
<td>21-4-12-b</td>
<td>Ballot results of TIA No. 1547. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 31 voting members/25 agree on technical merit/0 disagree/2 abstained/4 ballots not returned/26 agree on emergency nature/0 disagree/1 abstained/4 ballots not returned. See Attachment 21-4-12-b</td>
</tr>
<tr>
<td>21-4-12-c</td>
<td>No comments were received.</td>
</tr>
<tr>
<td>21-4-13</td>
<td><strong>NFPA 99</strong> Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new item (13) to section 6.1.3 and revise Section 6.1.4 of the 2021 edition of NFPA 99, <em>Health Care Facilities Code</em> (TIA No. 1522).</td>
</tr>
<tr>
<td>21-4-13-a</td>
<td>Text of proposed TIA No. 1522. See Attachment 21-4-13-a</td>
</tr>
<tr>
<td>21-4-13-b</td>
<td>Ballot results of TIA No. 1522. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 33 members/25 agree on technical merit/2 disagree/0 abstained/6 ballots not returned/24 agree on emergency nature/3 disagree/0 abstained/6 ballots not returned. <strong>PASSED</strong> CC ballot on both correlation and emergency nature – 18 voting members/14 agree on correlation/0 disagree/0 abstained/4 ballots not returned/14 agree on emergency nature/0 disagree/0 abstained/4 ballots not returned. See Attachment 21-4-13-b</td>
</tr>
<tr>
<td>21-4-13-c</td>
<td>No comments were received.</td>
</tr>
<tr>
<td>21-4-14-a</td>
<td>Text of proposed TIA No. 1559. See Attachment 21-4-14-a</td>
</tr>
<tr>
<td>21-4-14-b</td>
<td>Ballot results of TIA No. 1559. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 25 voting members/21 agree on technical merit/2 disagree/0 abstained/2 ballots not returned/22 agree on emergency nature/1 disagree/0 abstained/2 ballots not returned. <strong>PASSED</strong> CC ballot on both correlation and emergency nature – 12 voting members/10 agree on correlation/0 disagree/0 abstained/2 ballots not returned/10 agree on emergency nature/0 disagree/0 abstained/2 ballots not returned. See Attachment 21-4-14-b</td>
</tr>
<tr>
<td>21-4-14-c</td>
<td>One comment was received. See Attachment 21-4-14-c</td>
</tr>
<tr>
<td>21-4-15</td>
<td><strong>NFPA 407</strong> Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Sections 5.1.12, 6.1.3.12.2.7, 6.1.3.12.2.8, 6.1.3.12.2.9 and Table C.1 of the 2017 edition and proposed 2022 editions of NFPA 407, <em>Standard for Aircraft Fuel Servicing</em> (TIA No. 1558).</td>
</tr>
<tr>
<td>21-4-15-a</td>
<td>Text of proposed TIA No. 1558. See Attachment 21-4-15-a</td>
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<tr>
<td>Date</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>21-4-15-b</td>
<td>Ballot results of TIA No. 1558. <strong>FAILED</strong> ballot on both technical merit and emergency nature – 29 voting members/15 agree on technical merit/10 disagree/0 abstained/4 ballots not returned/15 agree on emergency nature/10 disagree/0 abstained/4 ballots not returned.</td>
</tr>
<tr>
<td>21-4-15-c</td>
<td>One hundred sixty (160) comments were received. One hundred fifty-eight (158) comments support the TIA, two (2) comments do not support the TIA.</td>
</tr>
<tr>
<td>21-4-15-d</td>
<td><strong>APPEAL</strong> Consider the appeal of Steve Berry, National Air Transportation Assoc., to overturn the ballot results of TIA No. 1558 and issue the TIA.</td>
</tr>
<tr>
<td>21-4-16-a</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise section 3.3.3, and associated Annex material of the 2021 edition of NFPA 499, <em>Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas</em>, (TIA No. 1546).</td>
</tr>
<tr>
<td>21-4-16-b</td>
<td>Ballot results of TIA No. 1546. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 20 voting members/15 agree on technical merit/0 disagree/1 abstained/4 ballots not returned/16 agree on emergency nature/0 disagree/0 abstained/4 ballots not returned.</td>
</tr>
<tr>
<td>21-4-16-c</td>
<td>No comments were received.</td>
</tr>
<tr>
<td>21-4-16-d</td>
<td><strong>APPEAL</strong> Consider the appeal of Ryan McGill, IAFF Local 2068, to overturn the ballot results of TIA No. 1552 and issue the TIA.</td>
</tr>
<tr>
<td>21-4-17-a</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new references to sections 2.2, 2.3.1, 2.4, revise section 11.2.5 and add a new section 11.2.6 to the 2021 edition of NFPA 909, <em>Code for the Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship</em>, (TIA No. 1544).</td>
</tr>
<tr>
<td>21-4-17-b</td>
<td>Ballot results of TIA No. 1544. <strong>PASSED</strong> ballot on both technical merit and emergency nature – 30 voting members/22 agree on technical merit/4 disagree/0 abstained/4 ballots not returned/20 agree on emergency nature/5 disagree/1 abstained/4 ballots not returned.</td>
</tr>
<tr>
<td>21-4-17-c</td>
<td>No comments were received.</td>
</tr>
<tr>
<td>21-4-18-b</td>
<td>Ballot results of TIA No. 1552 <strong>FAILED</strong> ballot on both technical merit and emergency nature – 36 voting members/9 agree on technical merit/21 disagree/2 abstained/2 ballots not returned/8 agree on emergency nature/24 disagree/2 abstained/2 ballots not returned.</td>
</tr>
<tr>
<td>21-4-18-c</td>
<td>Forty-four comments were received.</td>
</tr>
<tr>
<td>21-4-18-d</td>
<td><strong>APPEAL</strong> Consider the appeal of Ryan McGill, IAFF Local 2068, to overturn the ballot results of TIA No. 1552 and issue the TIA.</td>
</tr>
</tbody>
</table>
**21-4-19 NFPA 1977**

Act on the issuance of proposed Tentative Interim Amendment (TIA) to delete and replace Figure 6.1.14.6(a) with existing figure from the 2016 edition of NFPA 1977, *Standard for Protective Clothing and Equipment for Wildland Fire Fighting*, (TIA No. 1562).

**21-4-19-a**

Text of proposed TIA No. 1562. See Attachment 21-4-19-a

**21-4-19-b**

Ballot results of TIA No. 1562. **PASSED** ballot on both technical merit and emergency nature – 23 voting members/17 agree on technical merit/0 disagree/0 abstained/6 ballots not returned/17 agree on emergency nature/0 disagree/0 abstained/6 ballots not returned. **PASSED** CC ballot on both correlation and emergency nature – 27 voting members/20 agree on correlation/0 disagree/0 abstained/7 ballots not returned/20 agree on emergency nature/0 disagree/0 abstained/7 ballots not returned.

See Attachment 21-4-19-b

**21-4-19-c**

No comments were received.

**21-4-20 NFPA 1986**

Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise sections 8.2.5.5, 8.2.5.7, 8.2.5.8, 8.23.5.4 through 8.23.5.6 and 8.23.5.7(new) of the 2017 edition of NFPA 1986, *Standard on Respiratory Protection equipment for Tactical and Technical Operations*, (TIA No. 1545).

**21-4-20-a**

Text of proposed TIA No. 1545. See Attachment 21-4-20-a

**21-4-20-b**

Ballot results of TIA No. 1545. **PASSED** ballot on both technical merit and emergency nature – 24 voting members/17 agree on technical merit/2 disagree/2 abstained/3 ballots not returned/17 agree on emergency nature/2 disagree/2 abstained/3 ballots not returned. **PASSED** CC ballot on correlation but **FAILED** ballot on emergency nature – 27 voting members/17 agree on correlation/5 disagree/1 abstained/4 ballots not returned/15 agree on emergency nature/6 disagree/2 abstained/4 ballots not returned.

See Attachment 21-4-20-b

**21-4-20-c**

Nine comments were received. See Attachment 21-4-20-c

**21-4-20-d APPEAL**

Consider the appeal of Clint Mayhue, Avon Protection Systems, to overturn the ballot results of TIA No. 1545 and issue the TIA. See Attachment 21-4-20-d

**21-4-20-d-1 APPEAL**

Consider the appeal of John Morris, 3M, to uphold the ballot results of TIA No. 1545 and not issue the TIA. See Attachment 21-4-20-d-1

### REVISION CYCLES

**21-4-21**

Consider a request to change the respective revision schedule as follows:

<table>
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<tbody>
<tr>
<td>NFPA 418</td>
<td>2021</td>
<td>PI Closing: January 5, 2022</td>
</tr>
</tbody>
</table>

See Attachment 21-4-21

### NEW PROJECTS

**21-4-22**

Consider the request of Christopher Wagner, AmeriGas Propane, to develop a standard to address Mobile Food Establishments/Mobile Cooking Operations. Seventeen (17) comments
were received on the proposed project. Sixteen (16) comments support the development of the project, one (1) does not support the project. See Attachment 21-4-22

| 21-4-23 | Consider the request of Brian Lucas, City and County of Denver, CO, to develop a standard to address fire protection of cannabis growing and processing facilities. Eighty-one (81) comments were received. Seventy (70) comments support development of the project, six (6) comments do not support the development of the project, five (5) provided commentary and twenty-six (26) indicated Technical Committee interest. See Attachment 21-4-23 |

| 21-4-24 | Consider the request of the Technical Committee on Hazardous Waste to approve the preliminary draft of NFPA 401, Recommended Practice for the Prevention of Fires and Uncontrolled Chemical Reactions Associated with the Handling of Hazardous Waste. If approved, the Technical Committee also requests the Standard to be entered into its initial revision cycle, with a Public Input closing date of January 5, 2022. See Attachment 21-4-24 |

**REPORTS BACK TO COUNCIL**

| 21-4-25 | At the December 2020 Council meeting, the Council reviewed the request of Megan Hayes on behalf of NEMA regarding the terms of listed versus certified. After review of all information before it, the issue was directed to staff for review and instructions to report back to the Council during the April 2021 meeting. No Attachment |

| 21-4-26 | In accordance with prior actions and direction of Council, the following standards have completed their current revision cycles and are therefore transferred to the Technical Committee on Emergency Responders Occupational Health:
NFPA 1581, Standard on Fire Department Infection Control Program
NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments
NFPA 1583 Standard on Health-Related Fitness Programs for Fire Department Members
NFPA 1584, Standard on the Rehabilitation process for Members During Emergency Operations and Training Exercises
Draft development of NFPA 1585, Standard on Contamination Control, continues by the Technical Committee on Emergency Responders Occupational Health and will be presented to Council for entry into its initial public revision cycle at a later date. No Attachment |

| 21-4-27 | Review and consider the request to remove NFPA 1081 from new consolidated document NFPA 1010. See Attachment 21-4-27 |

**GENERAL ITEMS**

| 21-4-28 | Consider the location/method and dates for the upcoming Council meetings in 2021:

August 24-26, 2021
Location/Method TBD

December 7-8, 2021
Location/Method TBD |

| 21-4-29 | Update from the Council Secretary. No Attachment |
Mary Maynard Davy
Standards Council Administrator NFPA
1 Batterymarch Park Quincy, MA 02169-7471

Dear Ms. Davy,

I am reaching out to state my support for the development of the proposed Standard NFPA 420 Fire Protection of Cannabis Growing and Processing Facilities from both an Industry perspective and from a professional perspective.

This support comes from my industry involvement at the NCIA – Nation Cannabis Industry Association. Two years ago I founded the Facilities Design Committee (FDC) within the NCIA as a way to promote sustainability, standards and the upcoming national legalization. The mission statement: "The FDC provides access to resources for the NCIA community and regulators that will inform the design and use of GMP-driven, sustainable and operationally efficient facilities positioning our industry to compete in the global marketplace" my current title is Chair-emeritus and I am serving as a member of subcommittee on Standards. We are compiling data for our members to navigate the myriad national and state codes and global standards.

Professionally I am principal of Anderson Porter Design in Cambridge, MA. We are Architects with a national practice designing CEA – Controlled Environment Horticulture, (aka Cannabis Cultivation Facilities), solvent extraction, manufacturing, and packaging facilities, testing laboratories, and retail stores and medical dispensaries. We have been a general practice in Architecture since 1994 with a focus on cannabis facilities since 2014.

I will submit an application to serve and enthusiastically support the NFPA 420 committee should the NFPA choose to move forward with the development of the Standard.

Thank you for your consideration.

Best,
Brian

Brian D. Anderson
AndersonPorterDesign
875 Main Street
Cambridge, MA
o. (617)354-2501 x 110
m. (617) 515-2648

Please forgive any delays as we work remotely
www.andersonporter.com
1. Are you, or your organization, in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities?
   YES

2. Please state your reason(s) for supporting or opposing such standards development.
   The industry appears to be settling into somewhat of its own standards here in Oklahoma. We are beginning to see a reduction in new ideas and experiments in the growing and processing of cannabis. Early on individuals were doing different things which made it difficult to review and approve. Now it seems it is more appropriate to begin detailing specific standards that will allow a national standard to be used, particularly in Oklahoma where we have been labeled as the “wild west”. One of the biggest issues is the classification of the occupancy from ICC, ie. (U)Barns, greenhouses, F-1, F-2, and even now some as S-1, S-2. Due to the hazards involved in the event of a fire or hazardous materials incident these facilities need to have sprinkler and alarm protections regardless of the classification to protect responding firefighters and the occupants. By NFPA developing a National Standard there will then be a standard that is adoptable by reference in ICC, and governments.

3. Are you or your organization interested in applying for membership on the Technical Committee if the Standards Council initiates development activities on the proposed project?
   I would need more information to present to my chain of command as no one from our agency has been involved in a technical committee.

4. If yes, please submit an application, in addition to your comments in support of the project, online at: Submit online application*

   Major Jonathan Wilk
   Fire Marshals Office
   City of Norman, Ok
   (405) 307-7103
Good morning. I am strongly in favor and support the development of a new standard for the fire protection requirements of cannabis facilities. I have attached a supplemental document to the Fire Code that I have created in the absence of specific NFPA requirements, specifically for cultivation and processing facilities, that are based upon the 2018 International Fire Code as adopted in my jurisdiction.

This effort, much like an NPFA standard, would provide for greater accountability to the industry in the pre-development and design phase to ensure fixed fire protection and fire service features are included and addressed for these unique facilities to address the complex hazards associated - high utility demands for electricity and water and complex systems to control them, facility security concerns which could delay access in the event of a fire, fire sprinkler and fixed suppression system requirements, use of compressed gases for cultivation and fumigation which could create an IDLH, potential for explosion from manufacturing procedures and the required use of blast vessels/rooms for safety and containment, exhaust and ventilation concerns, etc.

These are unique and complex facilities which required extensive knowledge for design support and ability to inspect and enforce applicable codes. A uniform standard to be relied upon, and potentially adopted by reference with a model code, such as the IFC, would bring the necessary standards to improve safety and limit opportunities for fire and emergencies.

I would be happy to assist in any way that I can provide in the development of this standard.

Respectfully,

David

David Pennington
Fire Chief

830 Boonville
Springfield, Mo 65802
dpenning@springfieldmo.gov
417.874.2310
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Scope:

The scope of this document is to provide reference for applicable Code requirements of the City of Springfield and industry best practices for cultivation, extraction processes and other businesses related to medical marijuana. This document was developed by a task group who reviewed applicable requirements in the 2018 International Fire Code and other applicable Codes and standards applicable to the marijuana industry. This document is not intended to identify or provide guidance for every requirement of all adopted Codes and standards due to the uniqueness of facility design, building construction, equipment and processes. Applicants are required to follow all adopted Codes and standards of the City of Springfield. This document serves as a companion document to Title 19 of the Missouri Code of State Regulation, Division 30, Chpater95, Rules of Department of Health and Senior Services, (State of Missouri, 2020).

The City of Springfield has adopted the 2018 International Fire Code (IFC) to include adopted amendments. Chapter 39 of the IFC details the requirements of Processing and Extraction Facilities, Chapter 26 details the requirements when Fumigation or Insecticidal Fogging occurs in these facilities and Chapter 50 details Hazardous Materials storage. Each of these chapters refers to other chapters within the IFC and to various NFPA standards.

Purpose:

The purpose of this document is to provide reference for the development community for facilities associated with the marijuana industry, addressing requirements for life safety and property protection from associated hazards.

The information provided is solely for the guidance of the reader and is not intended to be used as an exclusive or adopted “enforcement” document or supersede the IFC as adopted.

Applicability:

This document applies to the processes for the cultivation and/or processing of medical marijuana and may also be applied to the cultivation and/or processing of hemp.
Administration and Definition:

These definitions are for the items discussed within this document. Local or state variations in terms or definitions may be different. Locally or state defined terms should be used as applicable.

**Water-Based Medical Marijuana Concentrate:** A Medical Marijuana Concentrate that was produced by extracting cannabinoids from Medical Marijuana through the use of only water, ice or dry ice.

**THCA:** Tetrahydrocannabinolic acid.

**THC:** Tetrahydrocannabinol.

**Standardized Serving of Marijuana:** A standardized single serving of active THC.

**Public Way:** A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which as a clear width and height of not less than 10 feet.

**Professional Engineer:** An individual who is licensed by a State, as a professional engineer.

**Occupancy Classification:** The Occupancy Classification of Marijuana Facilities may be found in Chapter 3 of the International Building Code (IBC) and the International Fire Code (IFC). Typical occupancies are summarized as follows:

2. **Infused Products Manufacturing Facility.** Considered high-hazard or factory industrial occupancy, depending on quantities and extraction method used.
3. **Testing Facility.** Considered business occupancy.
4. **Dispensary Facility.** Considered mercantile occupancy or business occupancy depending on patient care or other similar activities.
5. **Transportation Facility.** Considered business occupancy.
Alternative Methods or Materials (Research Report and Tests, Approved Materials and Equipment, Technical Assistance)

Fire code officials have the authority to require an owner to provide a technical report from an approved design professional, qualified specialist, laboratory or fire safety specialty organization as detailed in IFC 3904.3. The report must demonstrate that the equipment, devices, systems, products, technologies, materials and uses attending the design, operation and use of a building/premise comply with all applicable local and state building codes, fire codes, electrical codes and other laws. The City of Springfield accepts equipment that is listed for the intended use; however, much of the developing equipment and processes, are not listed and therefore require approval by the fire code official before use. Therefore, this technical report becomes critical to ensure safe operating compliance based on established criteria.

If nationally recognized testing laboratory (NRTL) listing of a submitted or proposed appliance(s)/equipment is not available, a third-party technical report or certification may be an acceptable alternative. The AHJ may obtain a detailed report examining and evaluating a given piece of extraction equipment, device or appliance for compliance with the building code, fire code, recognized standard or best practices. This report should be prepared by an approved third party agency. Common examples include solvent extraction devises which use flammable gases, liquefied petroleum gases and high-pressure carbon dioxide systems.

Any “approval” for equipment or a 3rd party agency as discussed above comes from the fire code official. The fire code official “approves” various devices, processes or people. Additional justification may be required in order to substantiate an approval; justification will be detailed by the jurisdiction. Design code analysis, process hazard analysis or consequence analysis reports should be compiled for the proposed facility/process. This may be a narrative evaluation of the existing occupancy and its proposed use, including change of occupancy evaluation, related to, in this situation, marijuana concentrate extraction. The report should cite all applicable building and fire codes/standards and identify compliance and/or noncompliance facility issues with corrections or recommendations listed for final inspection. These documents are useful as design and inspection tools.
Operational Permits

As with any specific hazard operation, the fire code official may require facilities to obtain operational permits. The Springfield Fire Department currently does not have any operational permits that will typically affect these types of occupancies.

Construction Permits

As with any specific installation or system, the Building Development Services (BDS) require construction permits. The Springfield Fire Department currently does not require construction permits that will typically affect these types of occupancies. As part of the building permit process, there are FIS (Sprinkler) inspections that encompass any required fire protection and water supply systems. Prior to permits being granted, plan review or proposals will occur. These systems typically involve any sprinkler, standpipe, fire pump, associated water supply and hood/duct systems as required. Fire Alarm system requirements and inspections are included under BDS Low Voltage electrical permits.

General Safety Provisions

When storing or using any type of hazardous materials, IFC Section 407 should be followed and the required paperwork made accessible to the fire code official. Additionally, IFC Sections: 5001.3 - 5001.6.3 should be consulted.

Section 407 of the IFC gives responders the information on the hazardous chemicals that are on the property.

- Material Safety Data Sheets (MSDS) shall be on property and easily accessible.
- Containers and/or packages related to hazardous materials shall be properly labeled and warning signage shall be properly displayed and easily visible. NFPA 704 placarding must be in place when required.
- Employees shall be trained on the emergency procedures in the event of an emergency involving hazardous material on the property. Training shall be documented and maintained on-site. Documentation shall be made available to the fire code official upon request.
- When required by the fire code official, a permit and authorized paperwork should be submitted to the AHJ.
- When hazardous materials are used or stored on site, a facility closure plan may need to be submitted to the fire code official and other organizations before the facility can be closed or relocated.
Building and Equipment Design Features

Fire Protection: IFC Chapter 9, Fire Protection and Life Safety Systems

Plant cultivation operations in commercial buildings are typically classified as F-1 occupancy. There are several common triggers for plant cultivation operations that require the installation of a fire sprinkler system. Section 1.1.4 of the IFC specifically addresses F-1 sprinkler requirements with the most common trigger being a fire area exceeding 12,000 square feet. Another common trigger is the desire for these businesses to have a sealed limited access building that leads to the creation of a story without openings (Section 903). An additional consideration would be a building that exceeds height and/or above grade area limitations. Per Section 903.2.5 of the IFC, Marijuana facilities that fall under a Group H occupancy classification require further consideration for a fire sprinkler system.

Interior Finishes: IFC Chapter 8, Interior Finish, Decorative Materials and Furnishings

It is common in marijuana grow facilities to use a Visqueen® or Mylar® type plastic/polyethylene or polyester sheeting to cover walls and ceilings. Any use of plastic to enclose rooms or cover walls and/or ceilings must be installed in accordance with requirements in the IFC and IBC. Interior finishes must comply with flame spread ratings in accordance with Table 803.3 of the IFC.

*Hanging plastic from ceilings or suspended overhead structures to create wall dividers is prohibited by the adopted code in the City of Springfield.

Exits and Exit Signage, Egress: IFC Chapter 10, Means of Egress

Security measures are often extreme in marijuana facilities. The desire for security in no way overrides the minimum requirements for exiting and egress found in Chapter 10 of the IFC. Common issues associated with exits and egresses are as follows:

- Number of exits shall be in accordance with Table 1006.2.1 and Table 1006.3.2(2) and Section 1017.2 of the IFC. Additional exiting requirements may be required in extraction rooms where LP-gas or CO2 extraction methods are used.
- Means of egress cannot be diminished or concealed in any way.
- Exit doors and their function cannot be eliminated without prior approval, see Section 504.2 of the IFC.
- Exterior doors that have been rendered non-functional and that retain a functional door appearance are required to have a sign affixed to the exterior of the door with the words THIS DOOR BLOCKED; reference Section 504.2 of the IFC.
- Where 2 or more exits are required, egress doors are required to swing in the direction of egress travel.
- Where more than one exit is required, illuminated exit signs are to be provided that must be readily visible from any direction of egress travel.
- Intermediary exit signs may also be required per Section 1013 of the IFC.
- H occupancies require specific considerations for exiting.

Locks and Key Box: IFC Chapter 5, Fire Service Features

Where security and life safety objectives conflict, alternative measures may be required or permitted by the AHJ. See IFC Section 506 for detailed requirements for access.

Locks: IFC Chapter 5, Fire Service Features

Due to the increased security measures required, and the potential hazards associated with marijuana facilities, the AHJ is authorized to require the installation of "approved" locks on any and all gates or similar barriers, which will permit timely access to all areas of the facility's property in the event of an emergency. If the facility has electronic access controls, the AHJ requires an access code or electronic access card be provided in the key box.

Key Boxes: IFC Chapter 5, Fire Service Features

Due to the increased security measures required, and the potential hazards associated with marijuana facilities, the AHJ is authorized to require the installation of a key box in an approved location, which will permit timely access to the facility in the event of an emergency.
Security Gates: IFC Chapter 5, Fire Service Features

Due to the increased security measures typically required, and the potential hazards associated with marijuana facilities, the AHJ is authorized by amended IFC 506.1 and 506.1.1 to require that any security gate installed across a fire apparatus road be approved before installation and include Knox padlocks or key operated switch.

Bolts, bars, locks and latches: IFC Chapter 10, Means of Egress

Egress doors are required to open easily when exiting without the need for a key, without using extra effort and/or without having special knowledge in order to operate the installed hardware. Door handles, pulls, latches, locks and other operating devices should be free of tight grasping, tight pinching or twisting of the wrist to operate. Slide bolts, dead bolts, thumb latches and similar hardware items are prohibited from being installed on emergency egress doors. Security bars are allowed but must meet requirements of the amended and adopted IFC Section 1010.1.4.6.

Alternative Locking Devices: IFC Chapter 10, Means of Egress

Delayed egress locks and electromagnetic locks are permitted for use in other occupancy types but must be approved for use by the AHJ.

Aisles:

Clear aisles are necessary to facilitate rapid evacuation of occupants and provide emergency egress in the event of an emergency. When considering product, equipment and fixture placement within a space, keep in mind that persons working in the area should be able to quickly stand and walk to an emergency exit door without having to twist or contort their body in order to avoid protruding objects from either side or above. Aisles require a clear width ranging from 28” to 44” or greater, depending on the occupancy load of a space. The AHJ may need to make a determination in this area with respect to the required widths based on obstruction and required responder egress.

Ventilation:

Marijuana facilities must implement and maintain appropriate ventilation and filtration systems to satisfy unwholesome or noxious odor nuisance standards that may be in place within the local jurisdiction. Generally, the AHJ may require that the odor of marijuana must not be perceptible at the exterior of the building, at the licensed premises or at any adjoining use of the property.

The AHJ may or may not mandate particular equipment specifications with regard to filtration; however, all marijuana establishments are strongly encouraged to adopt best management practices with regard to implementing state-of-the-art technologies in mitigating marijuana odor, such as air scrubbers and charcoal filtration systems.

Marijuana product manufacturing facilities and testing facilities must implement appropriate exhaust ventilation systems to mitigate noxious gasses or other fumes used or created as part of any production process. Exhaust ventilation equipment is required to be appropriate for the hazard involved and must comply with local fire and mechanical codes.

Portable Fire Extinguishers: IFC Chapter 9, Fire Protection and Life Safety Systems

Approved portable fire extinguishers are required to give the occupants the means to suppress a fire during its initial or incipient stage. A readily available portable fire extinguisher can contribute to the protection of the occupants.

Each occupancy type is considered unique in design, intended use of spaces, and types of materials within each space. Portable fire extinguishers are classified according to the types of fire (A, B, C & D) for which they are intended to extinguish. Class A and B extinguishers are also rated according to performance capability, which is represented by a number.

The size, classification, total number, and distribution of portable fire extinguishers required for occupancy type will be determined by the AHJ based on fire code requirements. The installation requirements for portable fire
extinguishers vary according to size, weight and type of specific hazard. The AHJ will ensure that all portable fire extinguishers are located where they are readily visible and accessible at all times.

Proper maintenance of the installed portable fire extinguishers is the responsibility of the occupant or property owner.

**Electrical: Wiring, Extension Cords, Appliance, Lighting, Extraction Equipment, Kitchen:** IFC Chapter 6, Building Services and Systems

Electrical systems are a common cause of ignition for fires. In 2011, an estimated 64,100 structure fires across the United States were reportedly caused by some type of electrical failure or malfunction. When firefighters are working to extinguish a fire in a building, they need to be able to turn the electricity off so they can operate more safely. For these reasons, there are several considerations that must be taken by marijuana facilities in order to ensure that electrical systems are installed and maintained safely.

General electrical requirements for all facilities follow Section 604 of the IFC:

1. Doors into electrical control panel rooms are required to be marked with a sign stating ELECTRICAL ROOM. The means for turning off electrical power to each electrical service and each individual electrical circuit must be clearly and legibly marked.
2. Electrical panels and electrical disconnect switches must be accessible at all times. A clearance of 30 inches wide (wider for panels and equipment that exceeds 30 inches in width), 36 inches deep, and 78 inches high is required to be maintained free from storage.
3. Electrical systems must be maintained in good repair without exposed wiring, open junction boxes, or damaged equipment that could present an electrical shock or fire hazard.
4. Power strips with built-in overcurrent protection (“circuit breakers”) are allowed, provided they are plugged directly into a permanent electrical receptacle. Power strips may not be plugged into additional power strips (daisy chaining). A power strip’s cord may not be run through walls, above ceilings, or under doors or floor coverings. If power strips show evidence of physical damage, they must be replaced.
5. Extension cords may only be used to provide temporary power to portable electric appliances. Extension cords may not be used as a substitute for permanent wiring, and may not be affixed to structures, extended through walls, ceilings or floors, or under doors or floor coverings. Multi-outlet extension cords that do not have built-in overcurrent protection (“circuit breakers”) are not allowed. If extension cords show evidence of physical damage, they must be replaced immediately.
Special Requirements for Cultivation and Extraction

The amount of electricity needed for a cultivation operation can easily exceed that of other types of businesses. If the cultivation business/facility moves into an existing building, there is a strong likelihood that the electrical panel and the wiring inside the building will require upgrading in order to accommodate the required power needed to cultivate plants utilizing grow lamps and ventilation equipment. It is not uncommon to have the electrical utility provider upgrade the amount of electricity feeding the building from the transformer outside.

Flammable gases and liquids often used for marijuana oil extraction have the potential to create an explosive environment for which the electrical system can be an ignition source. Rooms or areas where extraction equipment utilizes these materials are subject to special wiring and equipment requirements to minimize this risk. These requirements keep the electrical system isolated from the remainder of the space in a way that typical electrical systems do not.

Premise Identification: IFC Chapter 5, Fire Service Features

Most cultivation and extraction operations try to remain discrete. This is often part of their overall security method and not wanting to draw a lot of attention to what they are doing. It is not unusual for the businesses to remove all markings from the building. All buildings are required to be provided with address identification. This address must be visible from the street or road fronting the property, on the rear of the property and contrasting with the background of the building by locally amended Section 505.1 of the IFC. Hazard signage should be addressed using NFPA 704 placards. Signage that identifies the name of the business is not regulated by fire code but may be regulated by other local city government.

Security: IFC Chapter 10, Means of Egress

While it is understood that security is very important to marijuana facilities, this security cannot create risks to employees, the general public, and emergency responders. Not only do occupants need to be able to exit the facility in an emergency, but firefighters must be able gain access. There are several factors that must be considered when balancing security with fire code compliance:

1. Egress doors are required to be readily openable from the egress side without the use of a key or special knowledge or effort, and cannot have hardware that requires tight grasping, tight pinching, or twisting of the wrist to operate. This means that double-cylinder deadbolts that allow the door to be locked with a key from either side are generally prohibited. Also prohibited are many styles of doorknobs and deadbolts that are often marketed for residential use. Door bars, surface bolts, and other security devices which require more knowledge or effort than the typical operation of a door latch are prohibited. (Section 1010)

2. The unlatching of an egress door cannot require more than one operation. This means that adding several locking devices to a door for increased security is prohibited. For example: the installation of a deadbolt to a door that has an existing locking door latch is prohibited. Again, if it takes any more effort than the typical operation of a door latch, the device is most likely not permitted on an egress door. (Section 1010)

3. The installation of security features designed to disable, injure, maim or kill intruders is prohibited.

Appliances: Extractor, Still, Vacuum Oven, Kitchen, CO2 Generator, Sulfur Evaporator: IFC Chapter 1, Scope and Administration, and IFC Chapter 39, Processing and Extraction Facilities

If required by the AHJ, a code analysis regarding compliance with the IFC in the use of all processing phases can be required to be provided by a third party per Section 104. The code analysis should cite all applicable building code, fire code/standards and identify compliance and/or non-compliance. Operational processes involving compressed gases should be documented in the analysis including annual LPG use and storage amounts; annual CO2 enrichment system process and storage amounts – including natural gas generators and for any system containing more than 100 lbs. of CO2; annual compressed gas use and storage (required for 6,000 cu/ft. or more of an inert – 1 lb. of CO2 = 8.74 cu/ft).
The AHJ should provide a list of requirements prior to the construction of a medical infused products (MIP) facility or processing room using the above listed appliances in the extraction, cultivation or processing of marijuana. Areas of interests include atmospheric monitoring, ventilation, posted proper emergency procedures, loading and offloading of compressed gases, storage of compressed gases and proper placarding on the building.

The AHJ is to confirm the recommendations made by the third-party peer review that the room or space of use is in compliance with their recommendations before issuing a certificate of occupancy. Once the Engineer and the AHJ have both signed off on the proper setup of the room and all state regulations, such as proper licensing, has been completed the owner will then be granted permission to use the space as designed. Any alterations to the room of appliance will require a second review following the same requirements listed above.

**Fire Department Access:** IFC Chapter 5, Fire Service Features

Buildings/facilities must have at least one all-weather road that is wide enough and strong enough to support the size and weight of fire department apparatus. Roads must extend close enough to buildings to allow for firefighting operations. Roads may have special requirements for “fire lane” signage to disallow parking. A means for turning fire department apparatus around may be required for roads that contain dead ends or no outlet. Gates or barricades that obstruct roads must be approved by the fire department. See the locally adopted IFC Section 503 for further.

All required exterior doors must remain operable for emergency access by firefighters. Eliminating the function of any exterior doors requires prior approval that cannot be granted in every circumstance, and where allowed, the door must be marked with a sign stating THIS DOOR BLOCKED.

Certain equipment rooms contained within a building may require identifying signage to aid firefighters.

1. Rooms containing fire protection equipment (fire alarm panels, fire sprinkler valves, etc.)
2. Rooms containing controls for air-conditioning equipment
3. Rooms containing utility equipment for gas or electrical service
4. Rooms containing hazardous materials or environments
Special Occupancies and Operations

**Combustible Fibers:** IFC Chapter 37, Combustible Fibers

Within most cultivation operations combustible fibers will rarely be a consideration but should also not be forgotten. The Hemp industry may have a processing operation that combustible fibers may need to be mitigated.

**Fumigation and Insecticidal Fogging:** IFC Chapter 26, Fumigation and Insecticidal Fogging

In marijuana facilities, fumigation and insecticidal fogging may be used to kill insects, rodents, other vermin, plant parasites, weed seeds, and fungi that adversely affect growth. Some fumigants are flammable under certain circumstances, and all fumigants are poisonous or toxic. Definitions of “fumigation” and “insecticidal fogging” should be looked at closely to determine if these processes are being utilized. To protect the public and firefighters, there are several requirements that must be followed when performing these operations:

1. Fire departments may require notification, at least 48 hours in advance, of performing these operations, including specific information about the location within the building, the products being used, and contact information for those conducting the operation.
2. Written notice must be given to building occupants with enough notice to allow evacuation and must include information about the duration of the operation and all hazards associated with the operation. Only those directly conducting the operation are allowed to remain in the building.
3. Sources of ignition must be secured before these operations commence and must remain secure until after the space has been ventilated. Sources of ignition include electricity, portable electronic devices (such as cell phones), telephone lines, and any other sources of spark or flame. Certain types of electrical appliances deemed safe for hazardous atmospheres may be allowed when approved by the fire department.
4. Materials used to seal the affected structure or space must comply with flame propagation performance standards and may be approved by the fire department prior to installation.
5. Every access point to the affected structure or space must have both a warning sign and watch personnel to protect against unauthorized entry Personnel engaged in these operations must have proper respiratory protection available.
6. At the end of the operation, the affected structure or space must be safely and properly ventilated, and all fumigation or fogging product containers, residues, debris, and other materials must be properly disposed of.

Sulfur burners used to burn sulfur prills is a form of fumigation and must be treated as such. This method is typically utilized to treat powdery mildew on the plants.

**Rack Storage:** IFC Chapter 32, High-Piled Combustible Storage

Rack storage systems present unique challenges for firefighting operations. They allow a larger volume of combustible material than would be present if only the floor was being used, and they place that combustible material in a vertical orientation that increases the potential for fire spread. For these reasons, rack storage systems are very heavily regulated by fire and building codes. There are provisions for structural stability of the racks, aisle widths, exterior access doors for firefighters, special types of fire protection systems, and building features to control the spread and ventilation of smoke. IFC Chapter 32 determines requirements for high rack storage. A qualified design professional will be required to analyze your space and submit documentation for rack storage to the local AHJ.
Hazardous Materials


Marijuana manufacturing processes utilize various hazardous materials subject to the activity. The AHJ should require a detailed chemical inventory in accordance with the fire code to determine the hazards and classifications of the materials used within any cultivation, infused product manufacturing, and concentrate extraction occupancy facility.

Marijuana cultivation or grow operations include similar materials to that of other indoor botanical or greenhouse operations. They may employ the use of pesticides, insecticidal fumigation or fogging techniques, in addition to nutrients and fertilizers. The materials can range from benign to toxic. Each state’s Department of Agriculture may have regulations and defined enforcement related to hazardous materials and should be consulted as a resource.

Carbon dioxide (CO2), an asphyxiant gas, is also commonly used in marijuana grow operations. Growing in a greenhouse or indoors, the CO2 levels can be reduced as the plants use CO2 during photosynthesis. Enriching the air with CO2 supports plant growth and development. Carbon dioxide may be stored in mini-bulk cryogenic liquid cylinders that are vacuum jacketed, in steel or aluminum cylinders as liquefied compressed gas or be produced by carbon dioxide generators. Supply gases for CO2 generators are often natural gas and/or propane.

Infused product manufacturing and concentrate extraction processes, also known as hash oil extraction, may utilize flammable and combustible liquids, flammable gases (LP Gas), and asphyxiant gases. Water-based marijuana, food-based marijuana, and solvent-based marijuana are typical marijuana concentrates.

Each concentrate requires different processes, as well as the use of different materials to extract the product from the plant. Processing may employ the use of closed-loop solvent extraction, pressurized equipment, steam distillation, heat, ice, water or other methods that do not require solvents.

Processing types include, but or not limited to:

1. Water-based marijuana concentrates extract cannabinoids through the use of water, ice or a solid form of carbon dioxide, better known as dry ice. Materials in this category are typically non-hazardous.
2. Food-based marijuana concentrates extract cannabinoids through the use of food products such as propylene glycol, glycerin, butter, olive oil or other typical cooking fats. Materials in this category may be hazard classified as physical hazards or combustible liquids.
3. Solvent-based marijuana concentrates extract cannabinoids through the use of pressurized closed loop systems and non-closed loop systems. Materials in this category may be classified as physical hazards using flammable liquids (hexane, isopropanol, ethanol, grain alcohol); flammable liquefied gas - LP Gases, butane, n-butane, propane; and health hazards, such as, high pressure carbon dioxide gas systems. Note that most of these are not ‘closed systems’ as they have to be opened at some time to get product and waste out, thereby releasing volatile gases.

Compressed Gases: IFC Chapter 53, Compressed Gases

Compressed gases of varying materials may be used in multiple processes in cultivation or extraction and are typically governed by Chapter 50 and Chapter 53 of the IFC. Listed below are highlighted sections and only refer to common requirements surrounding compressed gases in marijuana facilities. This list is not all-inclusive. Examples of these gases include, but are not limited to, butane, propane, and carbon dioxide.

A code analysis regarding compliance with these chapters in the related processing phases shall be provided by a third party, State Certified Professional Engineer or Fire Protection Engineer. The code analysis should cite all applicable building and fire codes/standards and identify compliance and/or non-compliance. Operational processes involving compressed gases that should be documented in the analysis should include annual LPG use & storage amounts; annual CO2 enrichment system process and storage amounts – including natural gas generators and for any system containing more than 100 lbs. of CO2; annual compressed gas use & storage (required for 6,000 cu/ft. or more of an inert – 1 lb. of CO2 = 8.74 cu/ft).
**Flammable Gases:** IFC Chapter 58, Flammable Gases and Cryogenic Fluids

Flammable gases of varying materials may be used in multiple processes in cultivation or extraction and are typically governed by Chapter 50, Chapter 58 and Chapter 61 of the IFC. Other referenced standards and/or documents from the IFC include, NFPA 58, Appendix B of NFPA 58, NFPA 70 and the International Fuel Gas Code. Sections listed below are highlighted sections of each, only refer to common code issues surrounding flammable gases in Marijuana Facilities and are not inclusive of all requirements. Some examples of these gases include but are not limited to butane and propane.

A code analysis regarding compliance with these chapters in the related processing phases shall be provided by a third party, State Certified Professional Engineer, or Fire Protection Engineer. The code analysis should cite all applicable building codes and fire codes/standards, as well as identify compliance and/or non-compliance. Operational processes involving flammable gases that should be documented in the analysis should include annual flammable gas usage and storage amounts.

**Pesticides and Fertilizers:**

Cultivation and extraction operations generally contain hazardous materials regulated by fire code, such as fertilizers, pesticides, and flammable gases and liquids. There are several factors that need to be considered to remain compliant with the storage and use of these materials:

1. All hazardous materials must be classified in accordance with the categories and definitions provided in fire code. This can be a complicated process and may require professional assistance.
2. Once hazardous materials have been classified, there is a maximum allowable quantity that can be stored in a facility. It is possible, and even likely, that different products share a classification and must be counted together towards the maximum allowable quantity. There are options to increase the maximum allowable quantity in a facility, such as use of special hazmat cabinets, building rooms with fire-resistant construction to create control areas, and installation of fire sprinkler systems.
3. Facilities where hazardous materials are stored in certain quantities must have special signage installed outside to make firefighters aware of what is located in the building.

**Gas Detection and Alarms:** IFC Chapter 50, Hazardous Materials – General Provisions, and IFC Chapter 53, Compressed Gases

Detection of gas or vapor release is typically not required unless the MAQ of hazardous materials are exceeded. However, Chapter 50 of the IFC states, if the release of hazardous material can cause immediate harm to a person or property a means to mitigate the release shall be provided. This could include the need of a gas detection system.

When using a flammable gas or flammable liquid, processes that are extracting oil from the marijuana plant will typically have some type of leak or gas detection. Carbon Dioxide is a very common gas used within the marijuana cultivation operation and can also be used to remove the oil from the plant as discussed within the Hazardous Material section. Carbon Dioxide enrichment systems shall meet the requirements set forth in Section 5307.4-5307.4.

When a gas detection system is required, the meter is required to be listed and labeled in accordance with UL 2075. Mechanical interlocks that shut down the flow of gas to the unit when gas is detected are required in any facility that is not constantly attended. If personnel are constantly attending the process in which gas is being used and can physically shut off the gas supply, the interlock is not required. In either case, atmospheric monitoring must give an audible alarm indicating the presence of gas in the air has reached its permissible exposure limit (PEL). Shutdown procedures must be followed by the manufactures recommendations and the room must be vacated until all alarms read normal. All equipment used in the detection of flammable and/or toxic gases must be approved by the AHJ and may require construction and mechanical permits. Emergency plans for administrative controls and shutdown should be reviewed and approved by the AHJ.
Liquefied Petroleum Gases (LPG), Indoor and Outdoor: IFC Chapter 61, Liquefied Petroleum Gases

Sites that have LPG such as propane and butane are regulated under Chapter 61 of the IFC and NFPA 58. Although LPG is flammable it is not regulated by IFC-Chapter 58 Flammable gas code. LPG gases are heavier than air and seek low lying areas. LPG has an extremely high expansive ratio, meaning amounts of LPG can lead to dangerously explosive levels quickly.

LPG Requirements:
- Allowed locations if LPG containers within a building are found in NFPA 58 and subject to the approval of the fire code official.
- Compliance for portable containers is determined by NFPA 58 and IFC Section 6103.
- Use of LPG in basements, pits or similar locations is prohibited in areas where heavier than-air gas can collect.
- Within F occupancies, where manifolded, the water capacity of containers can reach 735 pounds per manifold.
- Because of the physical properties of LPG, special consideration should be given as to the location of LPG. The locations allowed are regulated by NFPA 58 as well as the approval of the fire code official.
- LPG needs to be used with approved equipment for LPG.
- LPG can only be released to atmosphere with accordance to NFPA 58 Section 7.3.
- No Smoking signs, as required by the fire code official, need to be present, as well as combustible material must to be maintained a distance of 10 feet from containers. If containers, regulators and piping are subject to vehicle traffic then protection is required in accordance with NFPA 58.
- Locations for extinguishers need to be in compliance with IFC Section 906 and placed according to NFPA 58.
- LPG containers cannot be stored near a means of egress.
- No more than 200 lbs. of the 2.5 lb. containers may be stored within buildings accessible to the public.

Flammable and Combustible Liquids: IFC Chapter 57, Flammable and Combustible Liquids

Flammable and combustible liquids are used for solvent based extraction of marijuana concentrated products. Hazards involved are the release of the solvent and low-level ignition sources. Often these liquids are under pressure and a release could easily result in an explosion.

Classified locations are for areas where flammable liquids are stored, handled, dispensed and or mixed. The locations are held to the requirements of IFC Table 5703.1.1

Piping systems for flammable and combustible liquids need to be in accordance with IFC Sections 5703.6.1 through 5703.6.11 and the design of such systems need to be in accordance with NFPA 30 Chapter 27.

Ventilation:

Flammable/combustible liquids and compressed gases used in extraction or processing in Marijuana Facilities are required to be vented in accordance with IFC Chapters 50 and 53 and portions of the International Mechanical Code. This ventilation may include systems for gas rooms, exhausted enclosures, gas cabinets, indoor storage areas and storage buildings. Listed below are highlighted sections of the IFC that refer only to common code issues surrounding ventilation of flammable/combustible liquid vapors and compressed gases in Marijuana Facilities and are not inclusive of all requirements.

A code analysis regarding compliance with these chapters in the related processing phases may need to be provided by a third party, State Certified Professional Engineer or Fire Protection Engineer. The code analysis should cite all applicable building codes and fire codes/standards and identify compliance and/or non-compliance.
Referenced Standards

CURRENT EDITIONS OF THE FOLLOWING STANDARDS:

- NFPA 13: Standard for the Installation of Sprinkler Systems
- NFPA 1: Chapter 38- Marijuana Grow & Extraction Facilities
- NFPA 30: Flammable and Combustible Liquids Code
- NFPA 55: Compressed Gases and Cryogenic Fluids Code
- NFPA 58: Liquefied Petroleum Gas Code
- NFPA 70: National Electrical Code*
- NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

Referenced International Codes

- International Building Code
- International Existing Building Code
- International Mechanical Code
- International Fuel Gas Code
- International Plumbing Code
- International Fire Code
Considerations for other Regulatory Departments

BUILDING DEVELOPMENT SERVICES:

Construction:
Cultivation/grow facilities should comply with the AHJ adopted fire and building codes for Use and Occupancy for a Factory (F-1), moderate hazard occupancy, primarily due to unconventional electrical systems, fumigation, carbon dioxide enrichment, maze like rooms, and the usual close proximity to other occupancies.

Dispensaries should meet AHJ adopted fire code and building code for the use and occupancy for Mercantile (M) occupancy.

Many times, other MJ industry centered facilities will be based on a use and occupancy classification of a Mercantile Occupancy, “M” International Building Code (IBC 309.1) or possibly a “B” if there is patient care and similar.

“Use of a building and or structure or portion thereof, for the display and sale of merchandise and involves stocks of good, wares or merchandise incidental to such purposes and accessible to the public.”

When a building department determines a structure or portion thereof to be a “classified” occupancy, the designer of record may be required to demonstrate “declassification” through ventilation designs or other methods.

Electrical:
Apart from being a demanding electrical consumer, most cultivation facilities are no different to the electrical reviewer than any other F1 occupancy; however, when dealing with a hazardous process the location will be classified according to NFPA 70, Article 500.

Mechanical:
City of Springfield will require that the MIPP operation be located in a designated room and most AJHs require a hazardous exhaust system installed to capture any potential release of flammable gas.

Many AHJs require a system be installed to ensure that the odor from such locations cannot be detected at the exterior of the facility. Confirm with Uniform Mechanical Code (UMC) for confirmation of air changes required.

Technical Assistance:
The Fire Code Official is authorized to require the owner or agent to provide, without charge to the jurisdiction, a technical opinion or report by a third party.

In MJ cases, a qualified professional can provide engineer certification to a piece of equipment for compliance with fire code, standards or best practices. The professional can also provide an Occupancy Evaluation Report that evaluates the occupancy and identifies facility compliance with the fire and building codes specific to the MJ operation.

PLANNING AND ZONING:
A medical marijuana cultivation facility is a facility licensed by the State of Missouri to acquire, cultivate, process, store, transport, and sell marijuana to a medical marijuana dispensary facility, medical marijuana testing facility, or to a medical marijuana-infused products manufacturing facility. This use is permitted in the Highway Commercial, Commercial Service and all Industrial zoning districts (RI, Restricted Industrial, LI, Light Industrial, GM, General Manufacturing, HM, Heavy Manufacturing and IC, Industrial Commercial Districts). A 1,000-foot separation from schools, child day cares and churches as recommended by the State is required. The City is concerned about the effects of odor from these types of facilities and requires a Conditional Use Permit (CUP) if located adjacent to or across the street from any residential zoning district. The CUP process will provide residents notification if they are within 500 feet of the property and the ability to protest the establishment of the use if within 185 feet of the property. The CUP must be reviewed and approved by Planning and Zoning Commission and City Council.
The following general standards shall apply to all medical marijuana facilities:

1. A business license shall be obtained annually, and the medical marijuana license issued by the State of Missouri shall be displayed in an open and conspicuous place on the premises.
2. Facilities must develop, implement, and maintain an odor control plan, which shall address odor mitigation practices including, but not limited to, engineering controls, such as system design and operational processes, which shall be reviewed and certified by a professional engineer or a certified industrial hygienist as sufficient to effectively mitigate odors for all odor sources. No use shall emit an odor that creates a nuisance in violation of City Code.
3. No medical marijuana business shall be located in a building that contains a residence.
4. All medical marijuana businesses shall be closed to the public between the hours of 10:00 P.M. and 6:00 A.M.; no persons not employed by the business shall be on the premises, and no sales or distribution of marijuana shall occur upon the premises during that time.
5. No marijuana may be smoked, ingested, or otherwise consumed on the premises of a medical marijuana establishment.
6. All operations and all storage of materials, products, or equipment shall be within a fully enclosed building. No outdoor operations or storage shall be permitted.
7. If multiple licenses are issued for one location, then restrictions for the highest intensity use shall apply.
8. All other City Codes shall apply.

BUSINESS LICENSING:

Medical marijuana facilities located inside the city limits of Springfield will require a City of Springfield business license. The type of license required will be based on the type of services and sales being conducted by the applicant. A State of Missouri medical marijuana facility license and State of Missouri retail sales tax license, including a current no tax due statement will be required. All applications will be subject to Planning and Zoning approval. Licenses are obtained annually and must be renewed by January 31st to avoid penalty and/or enforcement activity.
Greetings:

I think we would be in favor of and support a NFPA rule for fire safety concerning Cannabis production and retail facility. We actually have a retail facility on the brink of opening in our small community. And within 3 miles of our station there will be a marijuana production facility, which is housed in an old Walmart building. I'm not sure if there is anything unusual about growing marijuana or selling the products, but in Missouri there will be several facilities opening probably this year, and it would be better to have guidelines now as no guidelines for the safety of our firemen and employees of the facility. Let me know if we can be of some help.

Glen Whitener
Hayti Fire
101 Delta Lane
Hayti, MO 63851
To whom it may concern,

I, Elijah Flowers, am in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities. The reason for my support is quite clear: the cannabis industry is growing at rates faster than we have witnessed in decades and regulation is minimal. The hazardous processes involved from the raw cannabis storage, to the oil extraction process, to distribution must be closely analyzed for fire and life safety.

Based on my understanding, extraction processes can vary from each business model, state, region, municipality, etc. but one thing appears to be consistent: The utilization of flammables during the cannabis oil extraction process. The flammable liquids are typically used across multiple control areas during the synthetization process. Additionally, the cannabis oil, once synthesized, is typically stored outside of the control area(s), unprotected. While the cannabis oil might not have the same LFL as other combustible/flammable liquids, the threat to life safety would be equivalent in the event of a fire. How long until an occupant could no longer consciously exit the building or structure upon being exposed to the products of combustion of the burning cannabis oil? Would a responding fire fighter’s breathing apparatus provide them with sufficient protection for these specific byproducts?

Typically, NFPA 45 would provide some added level of enforcement capability specific to the handling of chemicals but I have witnessed these facilities are using language from NFPA 45: 1.1.3(4), in that they identify as manufacturing plants, therefore they are exempt from NFPA 45 requirements.

Again, based on my understanding, the individuals synthesizing the cannabis oil utilizing flammable liquids, typically are not educated scientists or chemical engineers; nor are there standardized requirements for their training. We all need more guidance on this industry and its processes to better protect the public.
Additionally, a new standard could assist these facilities in safe practice by means of not only engineering, but education regarding safe operating features.

Elijah Flowers  
Engineering Specialist III  
Office of Chief Financial Officer Jimmy Patronis  
Florida Department of Financial Services  
Division of State Fire Marshal  
Office: (850) 413-3731  
Cell: (850) 755-7318  
Email: Elijah.flowers@myfloridacfo.com

Subscribe to Weekly Rundown, CFO Patronis’ weekly newsletter;
Download CFO Patronis’ Hurricane Financial Preparedness Toolkit

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Please note that the information contained in this response is my own opinion. While it is based on my knowledge and experience with the Division of State Fire Marshal, it is not necessarily the official position or interpretation of the State Fire Marshal.

How is the Bureau of Fire Prevention doing? Please go to the following link to complete a survey regarding the services you have received from us: http://www.myfloridacfo.com/Division/SFM/BFP/BFPCustomerServiceSurveys.htm
Maynard, Mary

From: Dove, Paul (LARA) <DoveP1@michigan.gov>
Sent: Tuesday, February 9, 2021 1:56 PM
To: stds_admin
Subject: Comments on new project request for fire protection of cannabis growing and processing facilities

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Please accept this comment in support of creating this new standard. I support the development of the standard based on my experience having been part of the development of our state’s regulatory process and regulating the industry for three years presently. The industry is constantly evolving specifically in the Cultivation and Processing operations. Our unit will be submitting proposals addressing issues we have discovered concerning the operations that we feel are necessary to enhance the fire and life safety provisions presently outlined in Chapter 38 of NFPA 1, 2018. I am certain that a representative from our organization will submit an application for technical committee membership consideration.

In Fire Safety,

Paul L. Dove, Fire Safety Inspector
Michigan State Fire Marshal’s Office
Bureau of Fire Services, Marijuana Unit
611 W. Ottawa St.
4th Floor
Lansing, MI 48933
PH: 517-582-1427
Email: dovep1@michigan.gov

Please Note: My Work Schedule is - Tuesday - Friday 7:00 am – 5:00 pm and I am off on Mondays.
Good morning.

In the January NFPA newsletter, you asked for input on potentially expanding the development of standards relating to the fire protection of cannabis growing and processing facilities. Knox would be in favor of this and have attached our comments for consideration on why "rapid access" should be considered as an integral part of any expansion of the standards. We are dealing with these issues right now with a facility in Colorado so these are "real-life" issues.

Thanks and please let me know if we can be of any assistance.

Neal Zipser
Industry Affairs Manager

Knox Company
1601 W. Deer Valley Rd.
Phoenix, AZ 85027

c: 602-558-4958
knoxbox.com
New Project on the Fire Protection of Cannabis Growing and Processing Facilities

1. Are you, or your organization, in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities?

Yes. The Knox Company is in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities.

2. Please state your reason(s) for supporting or opposing such standards development.

- Knox specializes in rapid access solutions which permit timely access to the facility in the event of an emergency while reducing the risks to firefighter and reducing property damage. Knox understands that there are numerous unique challenges and hazards that cannabis growing and processing facilities pose including:

The growth of cannabis legalization has led to an increase in robbery and crime across grow operations, warehouses and processing facilities. Warehouses and grow operations are usually tucked out of the way, rarely publicized and less noticeable – all which make criminal activity more likely.

As a result, grow operations and warehouses usually opt for additional security measures such as an increased number of security gates, more visible security doors, etc. Padlocks keyed for the fire department should be considered (or required) for all security gates.

Heavy duty rolling security doors can be made with up to 12-gauge steel with interlocking slats and tamper resistant fasteners – making them stronger than standard garage doors. High-end security at loading docks, and more specifically, limited access in the interior of the building also raise accessibility issues. Some rolling doors may be paired with automatic protection features to enhance the building’s security and help workers feel safe. These automatic closing systems allow the security doors to be immediately activated by a building alarm or the push of a panic button in emergency situations. The doors also feature advanced locking systems – some of which are hidden in non-traditional locations – providing further tamper resistance.

Because of these and other additional theft-prevention measures, firefighters may face increased obstacles to get to the necessary part of the facility. Any device needed for ingress, such as access cards, keys, etc., must be made available to firefighters. A variety of rapid access solutions are available and should be considered (or required) to help reduce the risks firefighters face, while reducing the damage to the property.

- Accessibility of Material Safety Data Sheets (MSDS). Firefighters need to know what types of flammable and/or asphyxiant gases and chemicals they may experience such as liquefied petroleum gas (LPG) and carbon dioxide which is used in the extraction process. These sheets should be in a fire-safe cabinet in a readily accessible area. Blueprints/facility layouts of the grounds should also be required to be in the document cabinet.
Unique electrical setups such as generators, solar power panels, etc., which may be in isolated areas, may require firefighters to have easy to access power shut-off options which will shut off primary and secondary power.

3. Are you or your organization interested in applying for membership on the Technical Committee if the Standards Council initiates development activities on the proposed project?

Possibly.
Maynard, Mary

From: stds_admin
To: Brian Hogg
Subject: RE: Comments on new project request for fire protection of cannabis growing and processing facilities

Maynard, Mary

From: Brian Hogg <BHogg@delta.ca>
Sent: Thursday, February 11, 2021 1:39 PM
To: stds_admin <stds_admin@nfpa.org>
Subject: Comments on new project request for fire protection of cannabis growing and processing facilities

Hello,
I am in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities.
My department has numerous growing and extracting facilities within our city and inspect these facilities annually. I have concerns regarding the “greenhouses” building warehouses, processing areas and extraction facilities. I was the lead fire investigator on a large structure fire at the Canopy Growth facility.

Brian Hogg
Fire Prevention Officer
Delta Fire & Emergency Services | City of Delta
Office: 604.952.3107 | Email: bhogg@delta.ca
Curing, drying, trimming and deflowering marijuana process rooms should be categorized as a class 3 hazardous location due to the accumulation of combustible flyings of the plant greater than 500µ in size, present in the air during the trimming and deflouring process of marijuana production. These rooms should be looked at as the same as a woodworking facility with dust build-up on and around electrical utilization equipment and should require a standard mandated ventilation system to safely filter these particles from the air. Tagged in Facebook post- Don Ganiere Ryan Jackson Derek Vigstol.

Submitted by Electrician Jacob Ross Riddle
Hello. I am a current tech committee member for compressed gas and cryogenics and long standing member of NFPA.

I applaud this as a great deal of my compressed gas safety work has been in cannabis facilities now for about 12 years.

I was in Colorado when cannabis legalized and was working as engineering support for tech sales in the Denver area.

My work between 2008 and 2017 became all cannabis. Since 2017 I have been largely working on cannabis projects.

I have worked in the cultivation side having to develop controls suitable for CO2 atmospheric enrichment, I have designed and built processing centers in 13 states and I have worked extensively with the analytical chemistry side of the industry.

I guess you could say I have become the poster guy for safety and efficiency in cannabis processing industry.

I think NFPA 1-38 was a blessing but more is needed.

I am happy to expand on what is needed if your interested in hearing my opinions.

Jef

Sent from my iPhone
Hello,

I would fully support development of a standard to address cannabis growing and processing facilities. As a part of the risk management field in insurance carriers, we are charged with evaluating exposures and controls related to facilities we ensure to determine if the extent of controls are adequate. We use NFPA standards as a minimum threshold to determine what safety controls are required. Because this is a new industry with little formalized guidance or standards, it is difficult to determine what specific fire and life safety standards should apply to these facilities. Having a standard dedicated to these facilities would help us understand the fire and life safety requirements as well as help business owners implement the proper safety standards.

Regards,

Mary Jorgensen, CSP, CFPS, ARM
Loss Control Technical Services Manager
Cincinnati Insurance Companies
Office/Cell (815) 641-6602

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NFPA is seeking comments from all interested organizations and individuals to gauge whether support exists for development of a standard dedicated to the fire protection of cannabis growing and processing facilities. Specifically, please submit your comments to the following:

1. Are you, or your organization, in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities? **Yes**

2. Please state your reason(s) for supporting or opposing such standards development.

   The cannabis industry has traditionally been very “hush hush” about their growing facilities. This means that when a growing facility increases their electrical load, the electric meter, electric service, and electric transformer could be overloaded and start a fire. Standards should be put in place to ensure that all cannabis growing facilities take fire prevention seriously, including notifying the local utility of a possible increase in load due to an increase in electrical usage. This will not only make the growing facility safer, but also the community at large when it comes to electric reliability.

3. Are you or your organization interested in applying for membership on the Technical Committee if the Standards Council initiates development activities on the proposed project? **No**

**Adrienne Forester (she/her/hers), CFEI, FIT**
Xcel Energy
Senior Investigator: Colorado, New Mexico, and Texas Regions – Law Department
PO Box 840, Denver CO 80201
O: 303-294-2815 (may not be immediately available due to pandemic protocols)
E: adrienne.forester@xcelenergy.com

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Hello;

My name is Jeremy Mitchell, and I’m an NFPA and IFMA member and member of the NFPA 1037 TC. I’m also a deputy fire marshal for the City of Champaign (IL) and owner of GTC Fire Prevention, providing fire prevention services to fire departments without their own fire prevention staff. I’m writing about the solicitation of input on whether or not to develop a separate standard for cannabis growing and processing facilities. Our input is:

1. Are you, or your organization, in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities? If the growth and processing of cannabis and derived products is substantially different than other agricultural process or production of flammable liquids for consumer use, then yes. If these processes are in the main similar to those procedures and processes of products with similar flammability properties, then cannabis growth facilities would be better addressed in updated relevant sections of NFPA 1.

2. Please state your reason(s) for supporting or opposing such standards development. Among non-CFI end users in the fire service there is a tendency to be overwhelmed by the volume and variety of codes and standards; this is of course being addressed in the bundling process, but if a separate grow facility is developed when the intent can be met with TIAs or subsequent updated editions of the Fire Code, it will undermine the bundling program and in all likelihood not be applied as intended. I think as an industry we are in agreement that this particular type of facility presents a higher level of risk that must be addressed—but to do that requires careful study of the growth and processing procedures, and comparison to other facilities with a similar level of risk based on existing processes to see if grow facilities can be included as TIAs or in updated chapters of subsequent editions of the Fire Code, or if they are different enough to warrant development of their own standard.

3. Are you or your organization interested in applying for membership on the Technical Committee if the Standards Council initiates development activities on the proposed project? I am personally, but I’m unsure of organizational support for my appointment to another TC.

4. If yes, please submit an application, in addition to your comments in support of the project, online at: I am interested to see how we mitigate this risk as an industry; I can be reached at Jeremy.mitchell@champaignil.gov or my email on file with NFPA of jrmitchll@hotmail.com

Thanks for the opportunity to contribute,

Jeremy Mitchell
Fire protection for these companies needs to be the same as fire protection as the policies already in place for all businesses such as tobacco processing, cigarette companies, fireworks production and storage... And policies for medical facilities. The policies already in place for the above facilities need to be applied to cannabis growing and processing facilities as well. Common sense.
Hi,

I'm a fire protection engineer who has provided code consulting services for various cannabis growing and processing facilities. I would argue that NFPA codes (NFPA 1, 30, 70, 101, etc.) already provide most of the guidance needed to protect cannabis growing and processing facilities. However, I think it would be extremely beneficial to expand NFPA 1 so it does a better job navigating the user to applicable codes. However, this could get cumbersome – especially over time. Portions of NFPA 1 direct users to individual standards, while highlighting the more important requirements from the respective standards. I think this type of direction should be used for cannabis growing and processing facilities. This would result in users having an easier time implementing appropriate safeguards (instead of having to be well versed in NFPA 1, 30, 70, 101, etc.). Also, AHJ’s would have an easier time enforcing the safeguards. It should not be a discussion about personal preferences concerning the legality of cannabis growing and processing facilities. They are here and must be protected accordingly.

In conclusion, I support upgrading NFPA 1 to direct users to a new standard for cannabis growing and processing facilities. I'll gladly discuss this further if anyone is interested.

Have a great day,

Mark R. Richards, PE
Fire Protection Engineer
Nortech Systems
150 Ham Rd
Barrington, NH 03825
Office: (603) 664-5050
Cell: (603) 234-3172
www.nortechsystems.com
Cannabis operations can often deal with combustible dust fire and explosion hazards on the processing side of operations. Proper references need to be made to NFPA 652 for the inclusion of safety Standards on the dust aspect in facilities.

As a technical committee member on several committees combustible dust standard and having worked with cannabis plants, a gap in combustible dust awareness is clearly apparent in the industry.

Best Regards,

Jason Krbec, PE | Sales Engineering Manager
Address: 15852 Mercantile Court - Jupiter, FL 33478
Main: (561) 694-9588 Ext. 103 | Direct: (561) 318-4051 | Cell: (727) 460-5519
Email: jkrbec@cvtechnology.com | Website: www.cvtechnology.com

Read Our Latest Whitepaper, Advancing Forward After Your DHA

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The following comments are on behalf of only myself, Todd Lewis, a user of NFPA resources in my employment. To be clear, I have no connection to the cannabis industry in any way, nor do I consume the product.

I am strongly in favor of NFPA developing standards pertaining to the fire protection of cannabis growing and processing facilities.

Why? The basics – fire injures and kills, and fire destroys property. Fire consumes community resources. Fire does not follow any perceived moral arc, and the cannabis industry appears to be here to stay. The cannabis industry, to me, clearly has its own fire safety challenges. Without some standards, and the follow-through of enforcing said standards, more firefighters, and more people and property in the cannabis industry, are sure to be needlessly impacted by injury, loss, and perhaps even death.

Having no idea of the commitment involved in joining, I’m not sure of applying for membership on the Technical Committee. My involvement in fire protection in my employment, and thus in the use of NFPA resources, is to be aware of regulations that affect the fire protection systems employed in the safeguarding of our IT resources.

However, if my input were deemed useful regardless, I would be happy to entertain applying.

Regards,
Todd Lewis
Maple Valley WA

206.375.2058
Hello,

As a consulting organization which services the cannabis and hemp processing industries on matters related to combustible dust fire and explosion safety, my organization, Dustcon Solutions Inc., and I are in firm support of new standards development for the prevention of fire and explosion in the cannabis industry.

With this young and rapidly growing industry segment handling materials in large quantities, the potential for adverse events affecting life safety is great. Specific standards that are targeted and applicable to these facilities will help to improve the awareness of the hazards and protection schemes.

Best Regards,

Timothy Heneks, PE | Director of Engineering Services
Address: P.O. Box 33207 – West Palm Beach, FL 33420
Main: (561) 626-5556 | Mobile: (561) 789-6411
Email: theneks@dustconsolutions.com | Website: www.dustconsolutions.com
Answering these comments:

1. Are you, or your organization, in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities?

Absolutely in favor—between the four broad aspects of cannabis production (growing, processing/extraction, post processing purification, and sales) there are a myriad of fire aspects and risks vary widely. I know NFPA has weighed in on extraction in Ch 38, but you’re missing post processing and retail sales. Particularly in post processing, you can continue to have harmful or flammable/combustible liquids, and the retail sales continue to contain some level of hazard in their packaging. There are no standards, except local regulation for the processing and disposal or manufacturing waste, which is often hydrocarbon or ethanol laden.

2. Please state your reason(s) for supporting or opposing such standards development.

We’ve worked on approximately 60 extraction and post extraction facilities. Local jurisdictions have adopted different version of the 2018 IFC Ch 39, leading to a wide ranging application of the code, with quite a lot of confusion on what equipment the code applies to. The industry needs a single best practice document that both fire marshals and designers can work to that covers more than just extraction.

Thanks!

Ben Roush, PE-ME, FPE,
LEED AP BD+C, CCP, ASHRAE BEMP and BEAP
Principal
FSi Engineers
Seattle // Baltimore // Spokane

office 410.929.6894 ext. 236 // direct 206.300.7368
FSi-Engineers.com

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If required by the authority having jurisdiction, a complete equipment schedule including but not limited to all extraction equipment, other equipment specific to cannabis preparation, pumps, motors, refrigeration equipment, and other electrical equipment, must be provided.


Nick Sasso
Electrical Plans Examiner Specialist
Clark County Department of Building & Fire Prevention
Las Vegas, NV 89119
702-455-8385

>> For additional contact information, CLICK THE CLARK COUNTY ICON <<
1. I am in favor of NFPA developing a standard pertaining to the fire protection of cannabis grow and extraction facilities.
2. There are various requirements in NFPA 1 and the International Fire Code. A lot of these facilities are unique in their processes. It would be nice to have a more uniform approach and documentation to help regulate these facilities. As it becomes more common in the US, more fire depts will have to educate themselves on what it required and a source document would help.
3. I would be interested in applying for membership on the Technical Committee.
4. Application submitted

Dave Ruben
Battalion Chief/Fire Marshal
Carson City Fire Department
777 S. Stewart Street
Carson City, NV 89701

Direct 775-283-7153
Main 775-887-2210
FAX 775-887-2209
Maynard, Mary

From: Thomas Crow <tcrow@tac-associates.com>  
Sent: Wednesday, February 17, 2021 9:21 PM  
To: stds_admin  
Subject: Comments on new project request for fire protection of cannabis growing and processing facilities

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I am in favor of the development of an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities. Our firm has been involved with a number of cannabis cultivation and processing facilities in the State of Michigan, and the lack of a clearly defined Standard that is specific to the unique fire safety and protections issues that these types of facilities present has made it difficult to design the facilities to a standardized set of requirements that are agreed upon for all cities where the facility is located.

A couple of the issues that we have encountered that are not clearly defined in the current Standards that are published in NFPA 1, Chapter 38 and NFPA 101 “The Life Safety Code”, and which have been subject to the interpretation of the local AHJ, which varies depending on the location of the facility are the following:

1. If a fire alarm system is required, and if required, is the system a manual system or an automatic system? We have encountered the requirement in one municipality that required complete automatic smoke detection coverage throughout the facility even though the facility was fully suppressed with a NFPA 13 fire suppression system.

2. Requirement for emergency egress lighting in the Cultivation Rooms. Due to the requirement by the Cultivators that these rooms be completely dark, and remain dark during specific hours in the daily growing cycle, the inclusion of emergency egress lighting in the space can have a negative impact on the plant growth. Being left to interpret the requirement of emergency egress lighting in the Flower, Veg and Mother Rooms based on the current NFPA 101 Code results in differing opinions by the local AHJ. It is our opinion that the Flower, Veg and Mother Rooms are exempt from the requirement for Emergency Egress Lighting per the Industrial Exemption in the Life Safety Code. These spaces are not publicly accessed spaces, and are only accessed by trained personnel in the care and cultivation of the plants.

There are most likely additional items we have encountered in the design of these facilities, but the above two are the primary ones that readily come to mind and we would like to see specifically addressed in an NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities.

Thank you.

Thomas G. Crow, P.E., LEED AP  
TAC Associates, LLC  
Consulting Engineers  
4321 East Camden Road  
Osseo, MI 49266  
Ph. (517) 254-4789  
Fax (517) 254-4886
I am in favour of a NFPA Standard pertaining to the fire protection of cannabis growing and processing facilities, I’ve been involved in several “raids” (provide support and assistance to Police services, and co ordinate external agencies with potential charges under their individual acts) on these facilities and guidance for governing bodies would be helpful in the health and safety of those working and responding in these facilities. Patchwork assessment of existing acts and legislations needs to be bolstered to ensure the communities are protected.

Dave Howse
Program Specialist-Emergency Preparedness and Response Unit (EPRU)
Office of the Fire Marshal and Emergency Management
2284 Nursery Road
Midhurst, ON
L9X 1N8
David.Howse@ontario.ca
Cell (705) 725-3570
In an effort to flatten the curve I will be working from home, please use the information above to contact me at this time. Please keep healthy and look out for others.
Hello!

I am a fire marshal in St Louis County MO. I am very interested in a standard for the marijuana industry. I have been challenged by the arrival and expansion of a grow and processing facility over the past year. Specifically, I am dealing with an issue concerning 2 tier rolling racks for growing marihuana. I will send pictures. I actually have a call in for technical help on this for NFPA 13. It is my interpretation that these 2 tier racks are obstructing the sprinkler system. The racks used are 4’x8’x3” deep. They are ABS plastic and will hold about 60 gallons of water each. The upper level is about 8’ above finished floor.

The business owner keeps telling me that these are already in use all over the country. If that is the case then what has been the rationalization for allowing them? How are they not an obstruction?

Also, the requirement for alarm signaling needs to be addressed where CO2 enrichment and hydrocarbon extraction is used. It just isn’t very clear.

If you have any free time I am pretty much desperate for an approach to these rolling 2 tier racks. I reached out to Denver Fire and received some great direction, but any guidance direct from NFPA is greatly appreciated!

Thank you!

Laurie (Taylor) Licavoli

Deputy Chief Fire Marshal

Pattonville Fire Protection District

13900 St Charles Rock Road

St. Louis, MO 63044

(O) 314.739.3118

(D) 314.281.5026
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Product Specification Sheets
Lightweight corrosion resistant construction due to aluminum structural members
- Carriage capacity is 1,000 lbs per linear foot of carriage
- Maximum carriage length is 56’ long
- Built to order carriages can accommodate any shelving system

Cost effective corrosion resistance in key components
- Marine grade aluminum construction
- Steel track inserts and wheels are chemically treated to resist rust and corrosion
- Steel drive pipe utilizes a robust Galvanized coating

Mechanical-Assist Drive System allows easy movement of carriage
Vertical Grow Rack

- Quick and easy shelving assembly
- High Capacity Shelving
  - Beams can support 2,150 lbs
  - Uprights can support up to 17,000 lbs
  - Racks available up to 23’ high
    (Racks higher than 23’ require engineering approval)
- Constructed from high strength steel
  - White powder coat is UV-stable, and contains anti-microbial and fungal-resistant additives
- Supports a wide variety of growing trays, dry and cure racks, accessories for LED lights and other utilities

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Combination Tray

- Tray can be used for drip-to-drain irrigation or ebb & flow
- 11ga aluminum with powder coat finish
- Built in trough for easy drainage
- Optional HDPE Inserts are fungal-resistant and anti-microbial
- Capable of flooding to a depth of 4” maximum (without Inserts)
- Built-in struts provide support and attachment points for lights, air circulation, and plumbing
- Flood fill location can be added at most convenient location by G.C. or customer
- Available in: 8’x4’, 8’x3’, 4’x4’, 4’x3’
- Patent Pending
- Made to order, longer leads will apply. Check with your sales person for details.

Combination Tray with Optional HDPE Inserts

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Tray is designed for use in a drip-to-drain irrigation style
- 11ga aluminum with powder coat finish
- Built in trough for easy drainage
- Optional HDPE Inserts are fungal-resistant and anti-microbial
- Inserts easily slide out for access to rear plants and cleaning
- Built in struts provide support and attachment points for lights, air circulation, and plumbing
- Available in: 8’x4’, 8’x3’, 4’x4’, and 4’x3’
- Patent Pending
- Made to order, longer leads will apply. Check with your sales person for details.

Drip-To-Drain Tray

Drip-To-Drain Tray with Optional HDPE Inserts
- Designed for use with Combination or Drip-To-Drain Trays
- HDPE material is fungal-resistant and anti-microbial
- Tapered design to provide a level surface for plants
- Creates space for air circulation and water runoff underneath plants in order to maintain healthy roots
- Slides easily for access to rear plants
- Easily removable for fast and efficient cleaning
- Patent Pending
ABS Combination Tray

- Tray can be utilized for drip-to-drain or ebb & flow irrigation styles
- Durable ABS construction
- .187" / 4.75mm thick plastic
- Thermoformed with a Korad cap to provide UV-stability, anti-microbial and fungal-resistant properties
- Tray sits level to provide plants with a flat growing surface
- Network of sloped canals within the tray ensure proper drainage away from plants to drain location
- Easy cleanup
- Available in: 8’x4’, 8’x3’, 4’x4’, and 4’x3’
- Patent Pending

![Diagram of ABS Combination Tray]

- Sloped herring bone style drainage canals
- Sloped Collection Trough
- Recessed Drain Location
- Low Profile design reduces lost vertical space while still providing 2” of depth for Ebb and Flood irrigation method

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Drain fitting included with tray

- 3/4” Straight barbed Drain Fitting
  - Designed for 1.280” hole
- For use with all Greenhaus tray options
- Best Hose option - 110 CL KanaFlex hose (not included)
Wire Grid

- Round wire welded in a 2” x 4” pattern
- Ideal application for wire grid is as a hanging lattice for drying rooms
- Wire grid is available for operations providing their own tray solutions
- Includes powder coated steel supports for attachment points for lights, air circulation, and plumbing
- Wire is powder coated a light grey
- Sizes available: 8’x4’, 8’x3, 8’x2’, 4’x4’, 4’x3’, 4’x2’
- Wire grid sizes over 48” come in two parts
Dry/Cure Room Mobile Storage

- 14 gauge steel Rivet Style Shelving which is adjustable on 1-1/2” increments
- Rack configuration is fully customizable. Typical rack configuration is 24” wide x 16’ high with 3 dry levels

**Hang Options:**

- **Round Hang Bars** - hang full plants on our hang bar with simple hook attachment for faster trimming
- **Grid Hang** - hang plants from any position directly on 4” x 4” wire grid spacing allowing for greater air circulation with built in Flue Space.
- **Finger Bars** (shown) - easily hang plants from adjustable cantilever prongs without hooks or wires. The hang attachment comes standard with 12 rods which easily adjust along the support bracket.
The Pipp Horticulture **Drying Cart** is designed to accommodate hanging plants in order to dry them out for further processing. It has adjustable cantilever-style finger attachments which allow you to configure the cart as needed. The drying cart is an essential part of the cultivation process that can provide an increase in production and help streamline your workflow.

- 65”H x 60”W x 24”D
- 14-gauge steel posts and supports
- Finish – medium gray E-Coat finish
- Option to upgrade to anti-bacterial & anti-microbial white powder coating
- Ships unassembled
- Assembles with minimal tools
- Adjustable hang attachments, carts can utilize 1-3 levels for hanging dry plants
- The hang attachment comes standard with 7 rods which easily adjust along the support bracket
- The bottom shelf is a 1/4” HDPE plastic insert with a 1/4” lip on all four sides
- Cart has a 1,000 lbs weight capacity
The versatile Shelf Cart can be used for both general storage and transporting goods. The shelf levels are adjustable and additional shelves can easily be added to the cart to customize it to suit your needs.

- **65”H x 60”W x 24”D**
- **14-gauge steel posts and supports**
- **Finish – medium gray E-Coat finish**
- **Option to upgrade to anti-bacterial & anti-microbial white powder coating**
- **Ships unassembled**
- **Assembles with minimal tools**
- **Comes standard with 3 adjustable shelves, 2 openings**
- **Additional shelves can easily be added to cart if required**
- **Shelves are a 1/4” HDPE plastic insert with a 1/4” lip on all four sides**
- **Cart has a weight capacity 1,000 lbs**