tional Mechanical Code. Where such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable vapors.

[F] 416.3.1 Surfaces. The interior surfaces of spraying spaces shall be smooth and continuous without edges; shall be so constructed to permit the free passage of exhaust air from all parts of the interior and to facilitate washing and cleaning; and shall be so designed to confine residues within the spraying space. Aluminum shall not be used.

[F] 416.4 Spray booths. Spray booths shall be designed, constructed and operated in accordance with the *International Fire Code*

[F] 416.5 Fire protection. An *automatic sprinkler system* or *fire-extinguishing system* shall be provided in all spray, dip and immersing spaces and storage rooms and shall be installed in accordance with Chapter 9.

SECTION 417
DRYING ROOMS

[F] 417.1 General. A drying room or dry kiln installed within a building shall be constructed entirely of *approved* noncombustible materials or assemblies of such materials regulated by the *approved* rules or as required in the general and specific sections of this chapter for special occupancies and where applicable to the general requirements of the *International Mechanical Code*.

[F] 417.2 Piping clearance. Overhead heating pipes shall have a clearance of not less than 2 inches (51 mm) from combustible contents in the dryer.

[F] 417.3 Insulation. Where the operating temperature of the dryer is 175°F (79°C) or more, metal enclosures shall be insulated from adjacent combustible materials by not less than 12 inches (305 mm) of airspace, or the metal walls shall be lined with $^1/_4$-inch (6.4 mm) insulating mill board or other *approved* equivalent insulation.

[F] 417.4 Fire protection. Drying rooms designed for high-hazard materials and processes, including special occupancies as provided for in Chapter 4, shall be protected by an *approved automatic fire-extinguishing system* complying with the provisions of Chapter 9.

SECTION 418
ORGANIC COATINGS

[F] 418.1 Building features. Manufacturing of organic coatings shall be done only in buildings that do not have pits or *basements*.

[F] 418.2 Location. Organic coating manufacturing operations and operations incidental to or connected therewith shall not be located in buildings having other occupancies.

[F] 418.3 Process mills. Mills operating with close clearances and that process flammable and heat-sensitive materials, such as nitrocellulose, shall be located in a *detached building* or noncombustible structure.

[F] 418.4 Tank storage. Storage areas for flammable and combustible liquid tanks inside of structures shall be located at or above grade and shall be separated from the processing area by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

[F] 418.5 Nitrocellulose storage. Nitrocellulose storage shall be located on a detached pad or in a separate structure or a room enclosed with not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

[F] 418.6 Finished products. Storage rooms for finished products that are flammable or combustible liquids shall be separated from the processing area by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

SECTION 419
LIVE/WORK UNITS

419.1 General. A *live/work unit* shall comply with Sections 419.1 through 419.9.

Exception: Dwelling or sleeping units that include an office that is less than 10 percent of the area of the *dwelling unit* are permitted to be classified as *dwelling units* with accessory occupancies in accordance with Section 508.2.

419.1.1 Limitations. The following shall apply to all live/work areas:

1. The *live/work unit* is permitted to be not greater than 3,000 square feet (279 m^2) in area;
2. The nonresidential area is permitted to be not more than 50 percent of the area of each *live/work unit*;
3. The nonresidential area function shall be limited to the first or main floor only of the *live/work unit*; and
4. Not more than five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.

419.2 Occupancies. *Live/work units* shall be classified as a Group R-2 occupancy. Separation requirements found in Sections 420 and 508 shall not apply within the *live/work unit* where the *live/work unit* is in compliance with Section 419. Nonresidential uses that would otherwise be classified as either a Group H or S occupancy shall not be permitted in a *live/work unit*.

Exception: Storage shall be permitted in the *live/work unit* provided the aggregate area of storage in the nonresidential portion of the *live/work unit* shall be limited to 10 percent of the space dedicated to nonresidential activities.

419.3 Means of egress. Except as modified by this section, the *means of egress* components for a *live/work unit* shall be designed in accordance with Chapter 10 for the function served.

419.3.1 Egress capacity. The egress capacity for each element of the *live/work unit* shall be based on the occupant

load for the function served in accordance with Table 1004.1.2.

419.3.2 Spiral stairways. *Spiral stairways* that conform to the requirements of Section 1011.10 shall be permitted.

419.4 Vertical openings. Floor openings between floor levels of a *live/work unit* are permitted without enclosure.

[F] 419.5 Fire protection. The *live/work unit* shall be provided with a monitored *fire alarm* system where required by Section 907.2.9 and an *automatic sprinkler system* in accordance with Section 903.2.8.

419.6 Structural. Floors within a *live/work unit* shall be designed for the live loads in Table 1607.1, based on the function within the space.

419.7 Accessibility. Accessibility shall be designed in accordance with Chapter 11 for the function served.

419.8 Ventilation. The applicable *ventilation* requirements of the *International Mechanical Code* shall apply to each area within the *live/work unit* for the function within that space.

419.9 Plumbing facilities. The nonresidential area of the *live/work unit* shall be provided with minimum plumbing facilities as specified by Chapter 29, based on the function of the nonresidential area. Where the nonresidential area of the *live/work unit* is required to be *accessible* by Section 1107.6.2.1, the plumbing fixtures specified by Chapter 29 shall be *accessible*.

SECTION 420
GROUPS I-1, R-1, R-2, R-3 AND R-4

420.1 General. Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

420.3 Horizontal separation. Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.

420.4 Smoke barriers in Group I-1, Condition 2. Smoke barriers shall be provided in Group I-1, Condition 2, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

420.4.1 Refuge area. Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 15 net square feet (1.4 m^2) for each care recipient.
2. Not less than 6 net square feet (0.56 m^2) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge or dining areas and other low-hazard areas.

[F] 420.5 Automatic sprinkler system. Group R occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.8. Group I-1 occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.6. Quick-response or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

[F] 420.6 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Group I-1, R-1, R-2 and R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, 907.2.9 and 907.2.10, respectively. Single- or multiple- station smoke alarms shall be provided in Groups I-1, R-2, R-3 and R-4 in accordance with Section 907.2.11.

SECTION 421
HYDROGEN FUEL GAS ROOMS

[F] 421.1 General. Where required by the *International Fire Code*, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections 421.1 through 421.7.

[F] 421.2 Definitions. The following terms are defined in Chapter 2:

GASEOUS HYDROGEN SYSTEM.

HYDROGEN FUEL GAS ROOM.

[F] 421.3 Location. Hydrogen fuel gas rooms shall not be located below grade.

[F] 421.4 Design and construction. Hydrogen fuel gas rooms not classified as Group H shall be separated from other areas of the building in accordance with Section 509.1.

[F] 421.4.1 Pressure control. Hydrogen fuel gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

[F] 421.4.2 Windows. Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716.

[F] 421.5 Exhaust ventilation. Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in

Building Valuation Data – AUGUST 2024

The International Code Council is pleased to provide the following Building Valuation Data (BVD) for its members. The BVD will be updated at six-month intervals, with the next update in February 2025. ICC strongly recommends that all jurisdictions and other interested parties actively evaluate and assess the impact of this BVD table before utilizing it in their current code enforcement related activities.

The BVD table provides the "average" construction costs per square foot, which can be used in determining permit fees for a jurisdiction. Permit fee schedules are addressed in Section 109.2 of the 2024 *International Building Code* (IBC) whereas Section 109.3 addresses building permit valuations. The permit fees can be established by using the BVD table and a Permit Fee Multiplier, which is based on the total construction value within the jurisdiction for the past year. The Square Foot Construction Cost table presents factors that reflect relative value of one construction classification/occupancy group to another so that more expensive construction is assessed greater permit fees than less expensive construction.

ICC has developed this data to aid jurisdictions in determining permit fees. It is important to note that while this BVD table does determine an estimated value of a building (i.e., Gross Area x Square Foot Construction Cost), this data is only intended to assist jurisdictions in determining their permit fees. This data table is not intended to be used as an estimating guide because the data only reflects average costs and is not representative of specific construction.

This degree of precision is sufficient for the intended purpose, which is to help establish permit fees so as to fund code compliance activities. This BVD table provides jurisdictions with a simplified way to determine the estimated value of a building that does not rely on the permit applicant to determine the cost of construction. Therefore, the bidding process for a particular job and other associated factors do not affect the value of a building for determining the permit fee. Whether a specific project is bid at a cost above or below the computed value of construction does not affect the permit fee because the cost of related code enforcement activities is not directly affected by the bid process and results.

Building Valuation

The following building valuation data represents average valuations for most buildings. In conjunction with IBC Section 109.3, this data is offered as an aid for the building official to determine if the permit valuation is underestimated. Again it should be noted that, when using this data, these are "average" costs based on typical construction methods for each occupancy group and type of construction. The average costs include foundation work, structural and nonstructural building components, electrical, plumbing, mechanical and interior finish material. The data is a national average and does not take into account any regional cost differences. As such, the use of Regional Cost Modifiers is subject to the authority having jurisdiction.

Permit Fee Multiplier

Determine the Permit Fee Multiplier:

1. Based on historical records, determine the total annual construction value which has occurred within the jurisdiction for the past year.
2. Determine the percentage (%) of the building department budget expected to be provided by building permit revenue.
3. $$\text{Permit Fee Multiplier} = \frac{\text{Bldg. Dept. Budget x (\%)}}{\text{Total Annual Construction Value}}$$

Example

The building department operates on a $300,000 budget, and it expects to cover 75 percent of that from building permit fees. The total annual construction value which occurred within the jurisdiction in the previous year is $30,000,000.

$$\text{Permit Fee Multiplier} = \frac{\$300{,}000 \times 75\%}{\$30{,}000{,}000} = 0.0075$$

Permit Fee

The permit fee is determined using the building gross area, the Square Foot Construction Cost and the Permit Fee Multiplier.

Permit Fee = Gross Area x Square Foot Construction Cost
X Permit Fee Multiplier

Example

Type of Construction: IIB
Area: 1st story = 8,000 sq. ft.
2nd story = 8,000 sq. ft.
Height: 2 stories
Permit Fee Multiplier = 0.0075
Use Group: B

1. Gross area:
   Business = 2 stories x 8,000 sq. ft. = 16,000 sq. ft.
2. Square Foot Construction Cost:
   B/IIB = $260.46/sq. ft.
3. Permit Fee:
   Business = 16,000 sq. ft. x $260.46/sq. ft x 0.0075
   = $31,255

Important Points

- The BVD is not intended to apply to alterations or repairs to existing buildings. Because the scope of alterations or repairs to an existing building varies so greatly, the Square Foot Construction Costs table does not reflect accurate values for that purpose. However, the Square Foot Construction Costs table can be used to determine the cost of an addition that is basically a stand-alone building which happens to be attached to an existing building. In the case of such additions, the only alterations to the existing building would involve the attachment of the addition to the existing building and the openings between the addition and the existing building.

- For purposes of establishing the Permit Fee Multiplier, the estimated total annual construction value for a given time period (1 year) is the sum of each building's value (Gross Area x Square Foot Construction Cost) for that time period (e.g., 1 year).

- The Square Foot Construction Cost does not include the price of the land on which the building is built. The Square Foot Construction Cost takes into account everything from foundation work to the roof structure and coverings but does not include the price of the land. The cost of the land does not affect the cost of related code enforcement activities and is not included in the Square Foot Construction Cost.

Square Foot Construction Costs [a, b, c]

Group (2024 International Building Code)	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
A-1 Assembly, theaters, with stage	333.98	322.10	312.59	300.28	280.58	272.46	290.01	261.47	251.46
A-1 Assembly, theaters, without stage	306.63	294.75	285.24	272.92	253.47	245.34	262.66	234.35	224.35
A-2 Assembly, nightclubs	264.07	256.33	248.28	238.82	223.69	217.61	230.62	203.42	195.71
A-2 Assembly, restaurants, bars, banquet halls	263.07	255.33	246.28	237.82	221.69	216.61	229.62	201.42	194.71
A-3 Assembly, churches	311.21	299.32	289.82	277.50	258.18	250.05	267.24	239.06	229.06
A-3 Assembly, general, community halls, libraries, museums	261.35	249.47	238.96	227.64	207.19	200.06	217.38	188.07	179.07
A-4 Assembly, arenas	305.63	293.75	283.24	271.92	251.47	244.34	261.66	232.35	223.35
B Business	292.48	282.09	271.97	260.46	237.85	229.40	250.46	212.56	202.84
E Educational	279.20	269.50	260.98	250.17	233.48	221.55	241.57	204.55	198.00
F-1 Factory and industrial, moderate hazard	162.52	154.68	144.93	139.48	124.19	118.17	132.99	102.98	95.90
F-2 Factory and industrial, low hazard	161.52	153.68	144.93	138.48	124.19	117.17	131.99	102.98	94.90
H-1 High Hazard, explosives	151.65	143.81	135.05	128.61	114.61	107.60	122.11	93.40	N.P.
H234 High Hazard	151.65	143.81	135.05	128.61	114.61	107.60	122.11	93.40	85.33
H-5 HPM	292.48	282.09	271.97	260.46	237.85	229.40	250.46	212.56	202.84
I-1 Institutional, supervised environment	264.93	255.57	246.84	238.11	217.64	211.63	238.15	195.82	189.67
I-2 Institutional, hospitals	459.84	449.45	439.33	427.82	403.26	N.P.	417.81	377.98	N.P.
I-2 Institutional, nursing homes	319.21	306.86	296.74	285.23	264.10	N.P.	275.22	238.82	N.P.
I-3 Institutional, restrained	341.48	331.09	320.97	309.46	288.34	278.89	299.46	263.05	251.33
I-4 Institutional, day care facilities	264.93	255.57	246.84	238.11	217.64	211.63	238.15	195.82	189.67
M Mercantile	197.08	189.34	177.79	171.82	156.33	151.25	163.63	136.06	129.35
R-1 Residential, hotels	267.42	258.06	249.33	240.60	220.62	214.60	240.64	198.79	192.64
R-2 Residential, multiple family	223.61	214.25	205.52	196.79	177.77	171.76	196.82	155.95	149.80
R-3 Residential, one- and two-family [d]	211.77	205.84	200.99	197.13	190.36	183.32	193.75	177.67	167.37
R-4 Residential, care/assisted living facilities	264.93	255.57	246.84	238.11	217.64	211.63	238.15	195.82	189.67
S-1 Storage, moderate hazard	150.65	142.81	133.05	127.61	112.61	106.60	121.11	91.40	84.33
S-2 Storage, low hazard	149.65	141.81	133.05	126.61	112.61	105.60	120.11	91.40	83.33
U Utility, miscellaneous	115.27	108.48	100.93	96.59	86.02	80.36	91.94	68.09	64.85

a. Private Garages use Utility, miscellaneous
b. For shell only buildings deduct 20 percent
c. N.P. = not permitted
d. Unfinished basements (Group R-3) = $31.50 per sq. ft.