Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached

PERMIT ISSUED

Permit Number: 070400

MAY 4 2007

CITY OF PORTLAND

This is to certify that PENDE ASSOCIATES INC ul Papp

has permission to Change of use from sign com y to aut ody sh & install pray booth

AT 71 BISHOP ST L 293 A009001

provided that the person or persons, rm or tion a epting this permit shall comply with all of the provisions of the Statutes of ine and of the ances of the City of Portland regulating the construction, maintenance and u e of buildings and ctures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

N fication inspe n mus e g n and w en permi on procu d b re this ding or t there s la ed or osed-in. 4 H UR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. Circa Chase

Health Dept. _____

Appeal Board _____

Other _____
Department Name

Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Issue Date:	CBL:
07-0400		293 A009001

Location of Construction:	Owner Name:	Owner Address:	Phone:
71 BISHOP ST	PENDE ASSOCIATES INC	42 SOUTH ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Paul Pappas	42 South St Yarmouth	2074506855
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Change of Use - Commercial	IM

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
Commercial / sign company	Commercial / auto-body Change of use from sign company to auto body shop & install a spray booth	$105.00	$105.00	5

FIRE DEPT: ☑ Approved ☐ Denied

See Conditions

Signature: Greg Cross

INSPECTION:

Use Group: F1/B Type: 3B

IBC-2003

Signature: JMB 5/1/07

Proposed Project Description:

Change of use from sign company to auto body shop & install a spray booth

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
dmartin	04/13/2007

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

PERMIT ISSUED

MAY

CITY OF PORTLAND

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☑ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Ok w/conditions		ABM
Date: 4/23/07 ABM	Date:	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT | ADDRESS | DATE | PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE | DATE | PHONE

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Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
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dmartin	04/13/2007

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OK w/conditions		ABM
Date: 4/23/07 ABM	Date:	Date:

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SIGNATURE OF APPLICANT | ADDRESS | DATE | PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE | DATE | PHONE

Please call 874-8703 or 874-8693 to schedule your inspections as agreed upon

Permits expire in 6 months, if the project is not started or ceases for 6 months.

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initializing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

_____ Footing/Building Location Inspection:	Prior to pouring concrete
_____ Re-Bar Schedule Inspection:	Prior to pouring concrete
_____ Foundation Inspection:	Prior to placing ANY backfill
_____ Framing/Rough Plumbing/Electrical:	Prior to any insulating or drywalling
✓ Final/Certificate of Occupancy:	Prior to any occupancy of the structure or use. NOTE: There is a $75.00 fee per inspection at this point.

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection

X CV If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

X CERIFICATE OF OCCUPANICES MUST BE ISSUED AND PAID FOR; BEFORE THE SPACE MAY BE OCCUPIED

X _____ 5-4-07

Signature of Applicant/Designee Date

Donna Martin Admin 5-4-07

Signature of Inspections Official Date

CBL: 07-0400 Building Permit #: 293 A009

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Date Applied For:	CBL:
07-0400	04/13/2007	293 A009001

Location of Construction:	Owner Name:	Owner Address:	Phone:
71 BISHOP ST	PENDE ASSOCIATES INC	42 SOUTH ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Paul Pappas	42 South St Yarmouth	(207) 450-6855
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Change of Use - Commercial	

Proposed Use:	Proposed Project Description:
Commercial / auto-body - Change of use from sign company to auto body shop & install a spray booth	Change of use from sign company to auto body shop & install a spray booth

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Ann Machado **Approval Date:** 04/23/2007

Note: Needs 5 parking spaces for change of use. The lot has more than 30 spaces. **Ok to Issue:** ☑

1) Separate permits shall be required for any new signage.

2) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Jeanine Bourke **Approval Date:** 05/01/2007

Note: **Ok to Issue:** ☑

1) The spray booth must meet the requirements of the IBC 2003 and the mechanical ventilation the IMC

2) Separate permit required for electrical installations

3) Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approrval prior to work.

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Greg Cass **Approval Date:** 04/24/2007

Note: **Ok to Issue:** ☑

1) Compliance with NFPA 33 shall be verified at the C-O.
A copy is included with this permit.

2) Sprinkler install in spray booth requires hydrolic calculations.

Comments:

5/1/2007-jmb: Spoke to Paul D. To verify the enclosure of the spray booth with fire rated bifold doors. The ventilation exhaust is an integral part of the spray booth kit and does not need a separate permit.

General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 49 - 51 BISHOP ST UNIT #3		
Total Square Footage of Proposed Structure: EXISTING	Square Footage of Lot: EXISTING	
Tax Assessor's Chart, Block & Lot Chart# 293 Block# A Lot# 9	Owner: PENDE ASSOCIATES INC 42 SOUTH ST YARMOUTH ME 04096	Telephone: 846-6855 450-6855 cell
Lessee/Buyer's Name (If Applicable)	Applicant name, address & telephone:	Cost Of Work: $ / Fee: $ 30.00 C of O Fee: $ ~~105.00~~ 75.00 105.00

Current legal use (i.e. single family) SIGN COMPANY

If vacant, what was the previous use?

Proposed Specific use: AUTO BODY REPAIR

Is property part of a subdivision? NO If yes, please name

Project description:

Change of use - sign business to auto body w/ New Spray Booth

Contractor's name, address & telephone:

Who should we contact when the permit is ready: PAUL PAPPAS

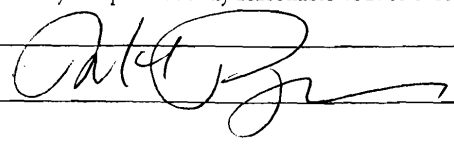
Mailing address: 42 SOUTH ST YARMOUTH, ME 04096

Phone: 450-6855

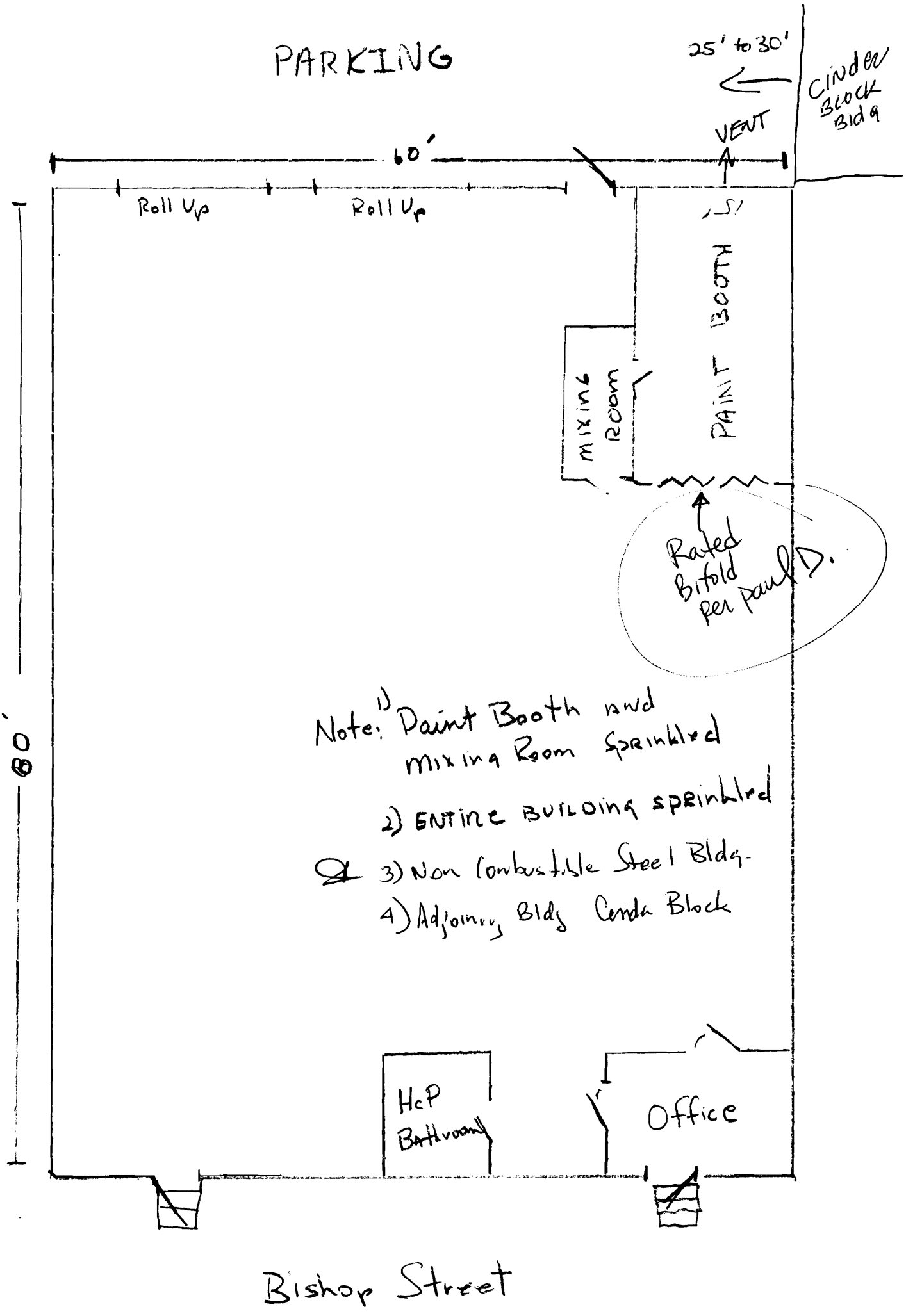
Please submit all of the information outlined in the Commercial Application Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information visit us on-line at www.portlandmaine.gov, stop by the Building Inspections office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant:  Date: 4-13-07

This is not a permit; you may not commence ANY work until the permit is issued.


PARKING
25' to 30'
Cinder Block Bldg
VENT
60'
Roll Up
Roll Up
PAINT BOOTH
MIXING ROOM
Rated Bifold per Paul D.
60'
Note: 1) Paint Booth and Mixing Room Sprinkled
2) ENTIRE BUILDING SPRINKLED
3) Non Combustible Steel Bldg.
4) Adjoining Bldg Cinda Block
HcP Bathroom
Office
Bishop Street

THIS IS NOT A BOUNDARY SURVEY

INSPECTION OF PREMISES | [illegible] | [illegible]

Both Savings Institution and its Title Insurer

The monumentation is not in harmony with current deed description.

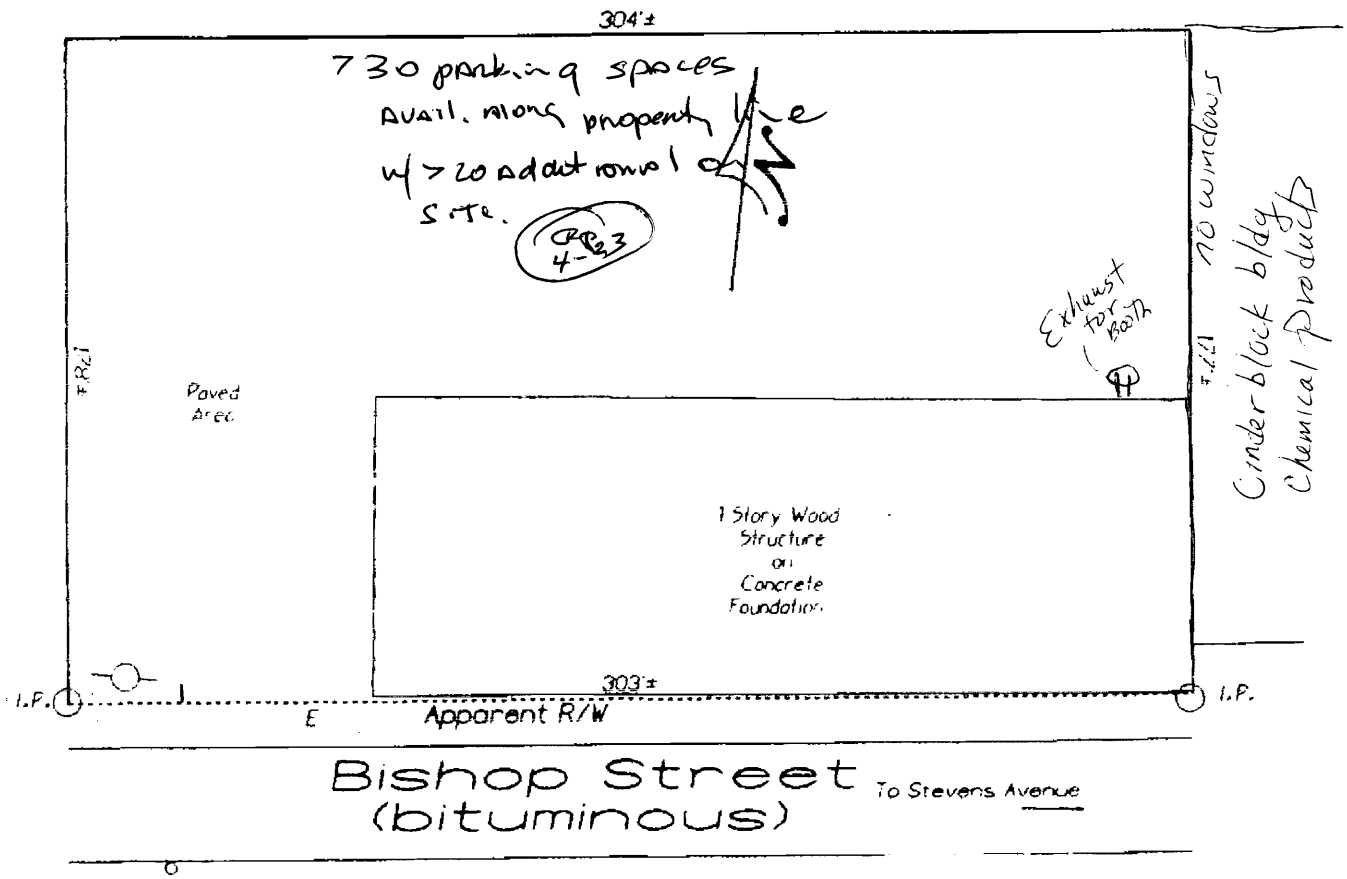
The building setbacks are ~~are not~~ in conformity with town zoning requirements.

The dwelling does not ~~appear~~ to fall within the special flood hazard zone as delineated by the Federal Emergency Management Agency.

The land does not ~~appear to~~ fall within the special flood hazard zone as indicated on community panel # [illegible]

Scale: 1" = 40'

BUYER: Pende Associates

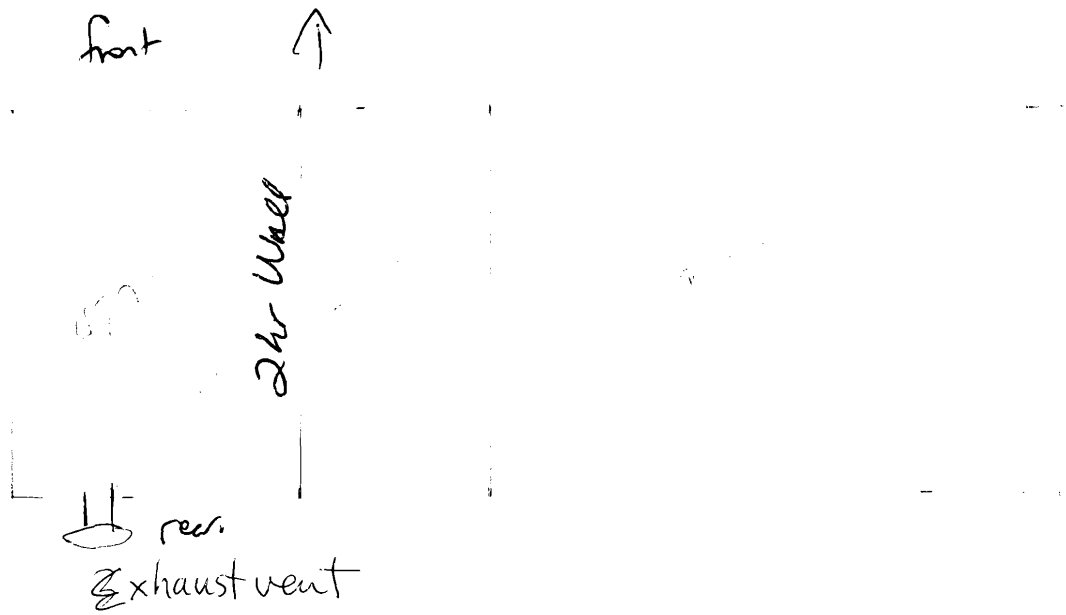


THIS PROPERTY IS SUBJECT TO ALL RIGHTS AND EASEMENTS OF RECORD. THOSE THAT ARE EVIDENT ARE SHOWN. THIS PLAN MIGHT NOT REVEAL CONFLICTS WITH ABUTTING DEEDS

BRUCE R. BOWMAN, INC.
P.O. Box 12 A
Cumberland, Maine 04021

PLAN BOOK _____ PAGE _____ LOT _____
DEED BOOK 13176 PAGE [illegible] COUNTY [illegible]

55 Bishop Street



Note: Business is non-retail and will not increase traffic or parking needs. 4-13-07

4800 ft needs 5 parking spaces

Future Cure Paint Booths
351 Christian St. Oxford, CT 06478

Install Date _____

Paint Booth
Model 2000
NFPA 33 compliant

Air Make-Up Heater:
AGA # C2678001
ANSI 283.4 & 283.18
ETL # 3031776

Exhaust Motor:
Reference # 3KW97G
UL # E47479

Lights:
Type; 1X432IS-T8-ELE
UL # E74660

GIVE TO PAUL

42.5.2.7.4 The vehicle shall not be parked near sources of heat, open flames, or similar sources of ignition, or near inadequately ventilated pits. [**58:**8.6]

42.5.3* Liquefied Natural Gas (LNG). Fuel dispensing facilities for marine, highway, rail, off-road, and industrial vehicles using LNG and LNG storage in ASME containers of 70,000 gal (265 m^3) or less shall comply with NFPA 57, *Liquefied Natural Gas (LNG) Vehicular Fuel Systems Code.*

42.5.3.1 Permits. Permits, where required, shall comply with 1.12.19.

Chapter 43 Spraying, Dipping, and Coating Using Flammable or Combustible Materials

43.1 Application.

43.1.1* Operations involving the spray application of flammable and combustible materials shall comply with NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials* and Section 43.1.

43.1.1.1 Section 43.1 shall apply to the spray application of flammable liquids, combustible liquids, or combustible powders either continuously or intermittently, by any of the following methods:

(1) Compressed air atomization
(2) Airless or hydraulic atomization
(3) Electrostatic application methods
(4) Fluidized bed application methods
(5) Electrostatic fluidized bed application methods
(6) Other acceptable application means

43.1.1.2 Section 43.1 shall not apply to the following:

(1)*Spray application processes or operations that are conducted outdoors
(2)*Small portable spraying equipment or aerosol products that are not used repeatedly in the same location
(3) Spray application of noncombustible materials
(4) The hazards of toxicity or industrial health and hygiene

43.1.1.3 Where certain waterborne, spray-applied materials that contain flammable or combustible liquids or that produce combustible residues or deposits are used, the applicable provisions of Section 43.1 shall apply.

43.1.1.4 Permits. Permits, where required, shall comply with 1.12.19.

43.1.2 Location of Spray Application Operations.

43.1.2.1* General. Spray application operations and processes shall be confined to spray booths, spray rooms, or spray areas, as defined in this *Code.* [**33:**2.1]

43.1.2.2 Locations in Other Occupancies. Spray application operations and processes shall not be conducted in any building that is classified as an assembly, educational, institutional, or residential occupancy, unless they are located in a room that is separated both vertically and horizontally from all surrounding areas by construction having a fire resistance rating of not less than 2 hours and that is protected by an approved automatic sprinkler system designed and installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems.* [**33:**2.2]

43.1.3 Construction and Design of Spray Areas, Spray Rooms, and Spray Booths.

43.1.3.1* Walls and Ceilings. Walls and ceilings that intersect or enclose a spray area shall be constructed of noncombustible or limited-combustible materials or assemblies and shall be securely and rigidly mounted or fastened. The interior surfaces of the spray area shall be smooth, designed and installed to prevent pockets that can trap residues, and designed to facilitate ventilation and cleaning. [**33:**3.1]

43.1.3.1.1 Air intake filters that are a part of a wall or ceiling assembly shall be listed as Class 1 or Class 2, in accordance with UL 900, *Standard for Test Performance of Air Filter Units.* [**33:**3.1]

43.1.3.1.2 The floor of the spray area shall be constructed of noncombustible material, limited-combustible material, or combustible material that is completely covered by noncombustible material. [**33:**3.1]

43.1.3.1.3 Aluminum shall not be used for structural support members or the walls or ceiling of a spray booth or spray room enclosure. Aluminum shall also not be used for ventilation ductwork associated with a spray booth or spray room. Aluminum shall be permitted to be used for interior components, such as platforms, spray apparatus components, and other ancillary devices. [**33:**3.1]

43.1.3.1.4 If walls or ceiling assemblies are constructed of sheet metal, single-skin assemblies shall be no thinner than 0.0478 in. (1.2 mm) and each sheet of double-skin assemblies shall be no thinner than 0.0359 in. (0.9 mm). [**33:**3.1.1]

43.1.3.1.5 Structural sections of spray booths shall be permitted to be sealed with a caulk or sealant to minimize air leakage. [**33:**3.1.2]

43.1.3.1.6 Spray rooms shall be constructed of and separated from surrounding areas of the building by construction assemblies that have a fire resistance rating of 1 hour. [**33:**3.1.3]

43.1.3.1.7 Enclosed spray booths and spray rooms shall be provided with means of egress that meet the requirements of NFPA *101®, Life Safety Code®.* [**33:**3.1.4]

43.1.3.1.8 Spray booths that are used exclusively for powder coating shall meet the requirements of Chapter 13 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* They shall be permitted to be constructed of fire-retardant combustible materials where approved by the AHJ.

Exception: Listed spray booth assemblies that are constructed of other materials shall be permitted. [33:3.1.5]

43.1.3.2 Conveyor Openings. Conveyor openings that are necessary for transporting or moving work into and out of the spray area shall be as small as practical. [**33:**3.2]

43.1.3.3* Separation from Other Occupancies. Spray booths shall be separated from other operations by a minimum distance of 3 ft (915 mm) or by a partition, wall, or floor/ceiling assembly having a minimum fire resistance rating of 1 hour. Multiple connected spray booths shall not be considered as "other operations."

Exception: As provided for in Section 11.3 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials. [33:3.3]

43.1.3.3.1 Spray booths shall be installed so that all parts of the booth are readily accessible for cleaning. [**33:**3.3.1]

43.1.3.3.2 A clear space of not less than 3 ft (915 mm) shall be maintained on all sides of the spray booth. This clear space shall be kept free of any storage or combustible construction.

Exception No. 1: This requirement shall not prohibit locating a spray booth closer than 3 ft (915 mm) to or directly against an interior partition, wall, or floor/ceiling assembly that has a fire resistance rating of not less than 1 hour, provided the spray booth can be maintained and cleaned.

Exception No. 2: This requirement shall not prohibit locating a spray booth closer than 3 ft (915 mm) to an exterior wall or a roof assembly provided the wall or roof is constructed of noncombustible material and provided the spray booth can be adequately maintained and cleaned. [33:3.3.2]

43.1.3.4 Movement of Powered Vehicles. Powered vehicles shall not be moved into or out of a spray area or operated in a spray area unless the spray application operation or process is stopped and the ventilation system is maintained in operation.

Exception: This requirement shall not apply to vehicles that are listed for the specific hazards of the spray area. [33:3.4]

43.1.3.5 Vision Panels. Panels for light fixtures or for observation shall be of heat-treated glass, wired glass, or hammered-wired glass and shall be sealed to confine vapors, mists, residues, dusts, and deposits to the spray area. Panels for light fixtures shall be separated from the fixture to prevent the surface temperature of the panel from exceeding 200°F (93°C). [**33:**3.5]

43.1.3.6 Ventilation. Spray areas that are equipped with ventilation distribution or baffle plates or with dry overspray collection filters shall meet the requirements of 43.1.3.6.1 through 43.1.3.6.5. [**33:**3.6]

43.1.3.6.1 Distribution plates or baffles shall be constructed of noncombustible materials and shall be readily removable or accessible for cleaning on both sides. [**33:**3.6.1]

43.1.3.6.2 Filters shall not be used when applying materials known to be highly susceptible to spontaneous heating or spontaneous ignition. [**33:**3.6.2]

43.1.3.6.3 Supports and holders for filters shall be constructed of noncombustible materials. [**33:**3.6.3]

43.1.3.6.4 Overspray collection filters shall be readily removable or accessible for cleaning or replacement. [**33:**3.6.4]

43.1.3.6.5 Filters shall not be alternately used for different types of coating materials if the combination of the materials might result in spontaneous heating or ignition. *(See also Section 8.8 of* NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.)* [**33:**3.6.5]

43.1.4 Electrical and Other Sources of Ignition.

43.1.4.1* General. Electrical wiring and utilization equipment shall meet all the applicable requirements of Articles 500, 501, 502, and 516 of NFPA 70, *National Electrical Code®*, and 43.1.4.1 through 43.1.4.7.

Exception No. 1: Powered vehicles shall meet the requirements of Section 3.4 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials.

Exception No. 2: Resin application operations shall meet the requirements of Chapter 15 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials. [33:4.1]

43.1.4.1.1 Electrostatic spray application apparatus also shall meet the requirements of Chapter 9 or Chapter 10 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, whichever is applicable. [**33:**4.1.1]

43.1.4.1.2 Drying, curing, and fusing apparatus also shall meet the requirements of Chapter 11 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* [**33:**4.1.2]

43.1.4.1.3 Vehicle undercoating and body lining operations also shall meet the requirements of Section 12.1 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* [**33:**4.1.3]

43.1.4.1.4 Powder coating apparatus also shall meet the requirements of Chapter 13 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* [**33:**4.1.4]

43.1.4.1.5* Open flames, spark-producing equipment or processes, and equipment whose exposed surfaces exceed the autoignition temperature of the material being sprayed shall not be located in the spray area or in surrounding areas classified as Division 2.

Exception: This requirement shall not apply to drying, curing, or fusing apparatus as covered by Chapter 11 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials. [33:4.1.5]

43.1.4.1.6* Any utilization equipment or apparatus that is capable of producing sparks or particles of hot metal and is located above or adjacent to either the spray area or the surrounding Division 2 areas shall be of the totally enclosed type or shall be constructed to prevent the escape of sparks or particles of hot metal. [**33:**4.1.6]

43.1.4.2 Electrical Devices in Spray Areas.

43.1.4.2.1* Electrical wiring and utilization equipment that is located in the spray area and is not subject to deposits of combustible residues shall be suitable for Class I, Division 1 or Class II, Division 1 locations, whichever is applicable. [**33:**4.2.1]

43.1.4.2.2* Electrical wiring and utilization equipment that is located in the spray area and is subject to deposits of combustible residues shall be listed for such exposure and shall be suitable for Class I, Division 1 or Class II, Division 1 locations, whichever is applicable. [**33:**4.2.2]

43.1.4.3 Electrical Devices Adjacent to Spray Areas. Electrical wiring and utilization equipment located adjacent to the spray area shall be classified in accordance with 43.1.4.3.1 through 43.1.4.3.5. [**33:**4.3]

43.1.4.3.1 Electrical wiring and utilization equipment located outside, but within 20 ft (6100 mm) horizontally and 10 ft (3050 mm) vertically, of an unenclosed spray area and not separated from the spray area by partitions extending to the boundaries of the area designated as Division 2 in Figure 43.1.4.3.1 shall be suitable for Class I, Division 2 or Class II, Division 2 locations, whichever is applicable. [**33:**4.3.1]

43.1.4.3.2 If spray application operations are conducted within a closed-top, open-face or open-front booth or room, any electrical wiring or utilization equipment located outside of the booth or room but within the boundaries designated as Division 2 in Figure 43.1.4.3.2(a) and Figure 43.1.4.3.2(b) shall be suitable for Class I, Division 2 or Class II, Division 2 locations, whichever is applicable. [**33:**4.3.2]

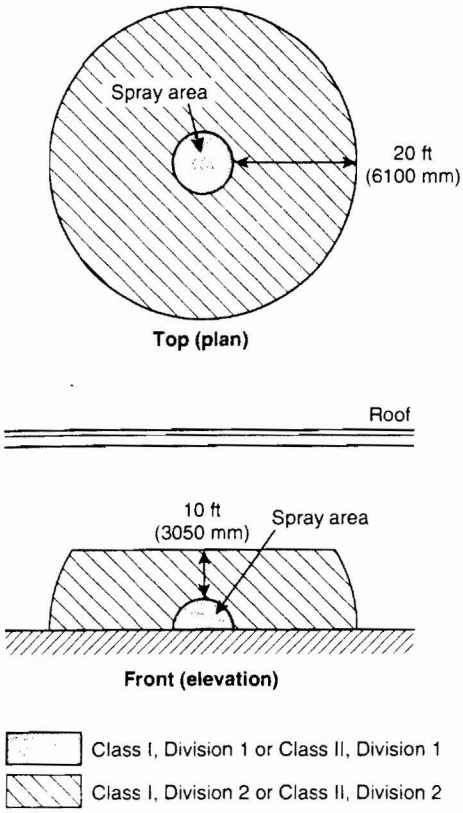


FIGURE 43.1.4.3.1 Electrical Area Classification for Open Spray Areas. [33:Figure 4.3.1]

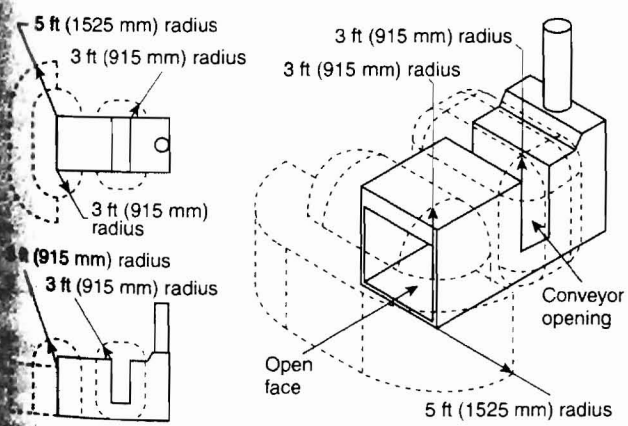


FIGURE 43.1.4.3.2(a) Class I (or Class II), Division 2 Locations Adjacent to an Open-Faced or Open-Front Spray Booth or Spray Room Where Exhaust Ventilation Interlocked with Spray Application Equipment. [33:Figure 4.3.2(a)]

43.1.4.3.2.1 The Class I, Division 2 or Class II, Division 2 locations shown in Figure 43.1.4.3.2(a) and Figure 43.1.4.3.2(b) shall extend from the edges of the open face or open front of the booth or room in accordance with the following:

(1) If the exhaust ventilation system is interlocked with the spray application equipment, then the Division 2 location shall extend 5 ft (1525 mm) horizontally and 3 ft (915 mm) vertically from the open face or open front of the booth or room, as shown in Figure 43.1.4.3.2(a).

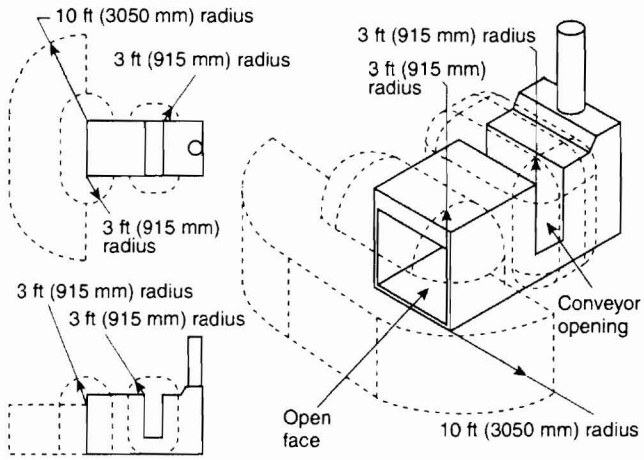


FIGURE 43.1.4.3.2(b) Class I (or Class II), Division 2 Locations Adjacent to an Open-Faced or Open-Front Spray Booth or Spray Room Where Exhaust Ventilation Not Interlocked with Spray Application Equipment. [33:Figure 4.3.2(b)]

(2) If the exhaust ventilation system is *not* interlocked with the spray application equipment, then the Division 2 location shall extend 10 ft (3050 mm) horizontally and 3 ft (915 mm) vertically from the open face or open front of the booth or room, as shown in Figure 43.1.4.3.2(b).[**33:**4.3.2]

43.1.4.3.2.2 For the purposes of this subsection, *interlocked* shall mean that the spray application equipment cannot be operated unless the exhaust ventilation system is operating and functioning as designed and spray application is automatically stopped if the exhaust ventilation system fails. [**33:**4.3.2]

43.1.4.3.3 If spray application operations are conducted within an open-top booth, any electrical wiring or utilization equipment located within the space 3 ft (915 mm) vertically of the top of the booth shall be suitable for Class I, Division 2 or Class II, Division 2 locations, whichever is applicable. In addition, any electrical wiring or utilization equipment located within 3 ft (915 mm) in all directions of openings other than the open top also shall be suitable for Class I, Division 2 or Class II, Division 2 locations, whichever is applicable. [**33:**4.3.3]

43.1.4.3.4 If spray application operations are confined to an enclosed spray booth or room, any electrical wiring or utilization equipment located within 3 ft (915 mm) of any opening shall be suitable for Class I, Division 2 or Class II, Division 2 locations, whichever is applicable, as shown in Figure 43.1.4.3.4. [**33:**4.3.4]

43.1.4.3.5 Where spray application equipment, spray gun cleaners, and supply containers are located in an area that is ventilated at a rate that is sufficient to maintain the concentration of ignitible vapors in the area at or below 25 percent of the lower flammable limit, the area within 3 ft (915 mm) in all directions from any open container or equipment and extending to the floor or grade level shall be classified as Class I, Division 1 or Class II, Division 1, whichever is applicable. The area extending 2 ft (610 mm) beyond the Division 1 location shall be classified as Class I, Division 2 or Class II, Division 2,

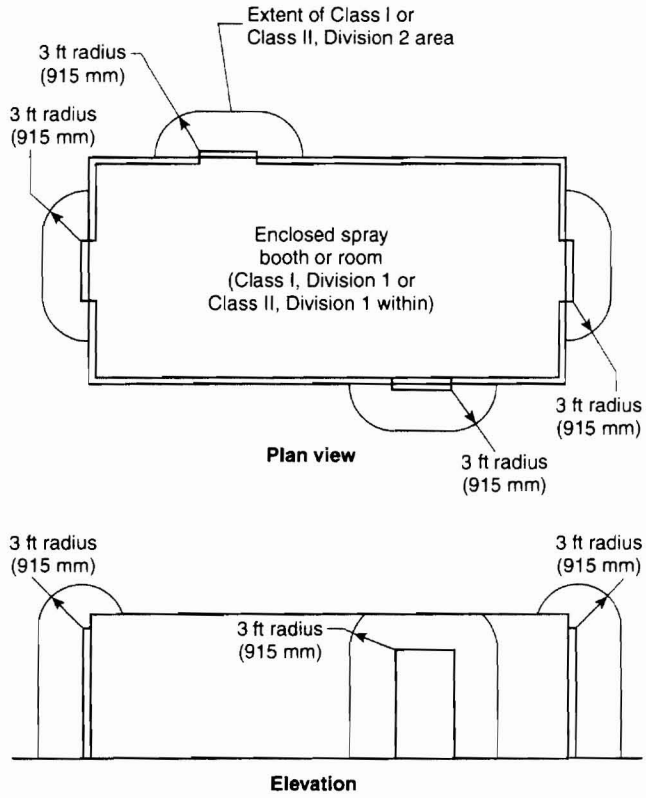


FIGURE 43.1.4.3.4 Class I (or Class II), Division 2 Locations Adjacent to an Enclosed Spray Booth or Spray Room. [33:Figure 4.3.4]

whichever is applicable. In addition, the area within 10 ft (3050 mm) horizontally of the perimeter of such open container or equipment up to a height of 18 in. (458 mm) above the floor or grade level shall be classified as Class I, Division 2 or Class II, Division 2, whichever is applicable. Electrical wiring and utilization equipment installed in these areas shall be suitable for the location, as shown in Figure 43.1.4.3.5. [**33:**4.3.5]

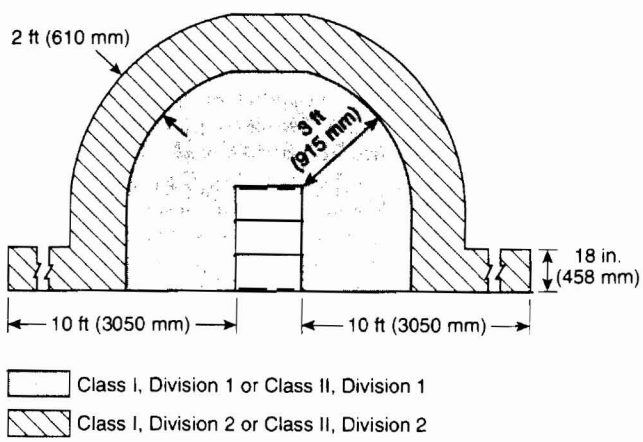


FIGURE 43.1.4.3.5 Electrical Area Classification Around an Open Container. [33:Figure 4.3.5]

43.1.4.4 Light Fixtures.

43.1.4.4.1 Light fixtures that are attached to the walls or ceilings of a spray area, but are outside of any classified area and are separated from the spray area by glass panels that meet the requirements of 43.1.3.3 shall be suitable for use in ordinary hazard (general purpose) locations, as shown in Figure 43.1.4.4.1. Such fixtures shall be serviced from outside the spray area. [**33:**4.4.1]

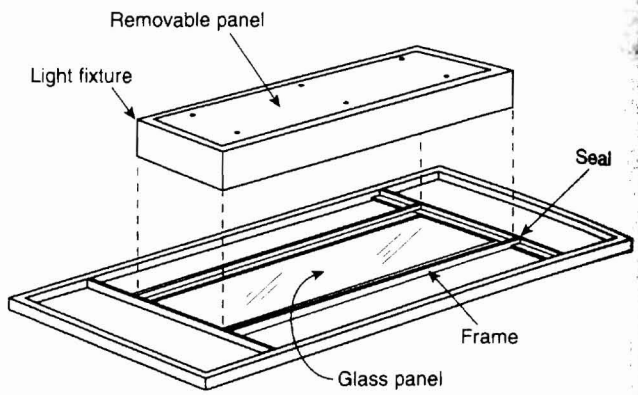


FIGURE 43.1.4.4.1 Example of a Light Fixture Mounted Outside of the Spray Area and Serviced from Outside the Spray Area. [33:Figure 4.4.1]

43.1.4.4.2 Light fixtures that are attached to the walls or ceilings of a spray area; are located within the Class I, Division 2 or Class II, Division 2 location; and are separated from the spray area by glass panels that meet the requirements of 43.1.3.3 shall be suitable for use in that location, as shown in Figure 43.1.4.4.1. Such fixtures shall be serviced from outside the spray area. [**33:**4.4.2]

43.1.4.4.3 Light fixtures that are an integral part of the walls or ceiling of a spray area shall be permitted to be separated from the spray area by glass panels that are an integral part of the fixture. Such fixtures shall be listed for use in Class I, Division 2 or Class II, Division 2 locations, whichever is applicable and as shown in Figure 43.1.4.4.3, and also shall be listed for accumulations of deposits of combustible residues. Such fixtures shall be permitted to be serviced from inside the spray area. [**33:**4.4.3]

43.1.4.4.4 Light fixtures that are located inside the spray area shall meet the requirements of 43.1.4.2 and 43.1.4.5. [**33:**4.4.4]

43.1.4.5* Static Electricity. In order to prevent sparks from the accumulation of static electricity, all persons, all electrically conductive parts of the spray room or spray booth, the exhaust ducts, spray equipment, objects or containers that receive the spray stream, and piping systems that convey flammable or combustible liquids or aerated combustible solids shall be electrically bonded and grounded. [**33:**4.5]

43.1.4.6 Flexible Power Cords. For automated equipment and robotic equipment, flexible power cords shall be permitted to be used in hazardous (classified) locations and shall be permitted to be connected to the fixed part of the electrical circuit, provided they meet all of the following conditions:

(1) They are approved for extra-hard usage.

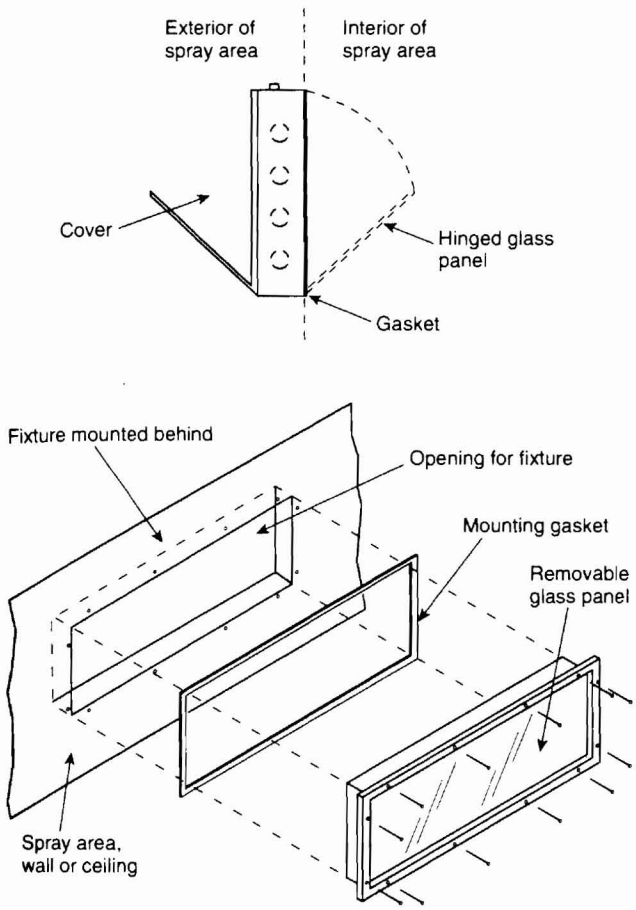


FIGURE 43.1.4.4.3 Examples of Light Fixtures That Are an Integral Part of the Spray Area and Are Serviced from Inside the Spray Area. [33:Figure 4.4.3]

(2) They are equipped with a grounding conductor that meets the requirements of Section 400.2 of NFPA 70, *National Electrical Code®*.
(3) They are connected to terminals or conductors in an approved manner.
(4) They are supported by a positive mechanical clamp in such a manner that permits the cord to be readily replaced and prevents strain at the cord connections within the terminal enclosure.
(5) They are provided with explosionproof seals where the cord enters junction boxes, fittings, or enclosures.
(6) They are listed for deposits of combustible residues. [**33:**4.6]

43.1.4.7 Portable Electric Lights. Portable electric light fixtures shall not be used in any spray area while spray application operations are being conducted.

Exception: Where portable electric light fixtures are required for use in spaces that are not illuminated by fixed light fixtures within the spray area, they shall meet the requirements of 43.1.4.2.2. [33:4.7]

43.1.5 Ventilation.

43.1.5.1 General. Ventilating and exhaust systems shall be designed and installed in accordance with the applicable requirements of NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids*, except as amended by the requirements of Chapter 5 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*. [**33:**5.1]

43.1.5.2* Performance Requirements. Each spray area shall be provided with mechanical ventilation that is capable of confining and removing vapors and mists to a safe location and is capable of confining and controlling combustible residues, dusts, and deposits. The concentration of the vapors and mists in the exhaust stream of the ventilation system shall not exceed 25 percent of the lower flammable limit.

Exception: In confined spaces, where ventilation might not be capable of providing the necessary ventilation, a properly applied inerting procedure shall be permitted to be used. Such procedures shall meet the applicable requirements of NFPA 69, Standard on Explosion Prevention Systems, and shall be acceptable to the AHJ. [33:5.2]

43.1.5.2.1 Spray areas equipped with overspray collection filters shall have visible gauges, audible alarms, or an effective inspection program to ensure that the required air velocity is being maintained. [**33:**5.2.1]

43.1.5.2.2 Powder Coating Systems. Powder coating systems also shall meet the requirements of Section 13.7 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*. [**33:**5.2.2]

43.1.5.2.3 Mechanical ventilation shall be kept in operation at all times while spray operations are being conducted and for a sufficient time thereafter to allow the vapors from drying coated objects or material and residues to be exhausted. Where spray operations are conducted automatically without an attendant constantly on duty, the operating controls of the spray apparatus shall be arranged so that the spray apparatus cannot function unless the exhaust fans are operating. [**33:**5.2.3]

43.1.5.3* Make-Up Air. An adequate supply of clean make-up air shall be provided to compensate for the air exhausted from spray operations. The intake for this make-up air shall be located so that the air exhausted from spray operations is not recirculated. [**33:**5.3]

43.1.5.4 Routing of Exhaust Ducts. Air exhausted from spray operations shall be conducted by ducts directly to the outside of the building. Exhaust ducts shall follow the most direct route to the point of discharge, but shall not penetrate a fire wall. The exhaust discharge shall be directed away from any fresh air intakes. The exhaust duct discharge point shall be at least 6 ft (1830 mm) from any exterior wall or roof. The exhaust duct shall not discharge in the direction of any combustible construction that is within 25 ft (7625 mm) of the exhaust duct discharge point nor shall it discharge in the direction of any unprotected opening in any noncombustible or limited-combustible construction that is within 25 ft (7625 mm) of the exhaust duct discharge point. [**33:**5.4]

43.1.5.5 Recirculation of Exhaust.

43.1.5.5.1* Air exhausted from spray areas shall not be recirculated.

Exception: Air exhausted from a spray operation shall be permitted to be recirculated as make-up air for an unmanned spray operation or cascaded to subsequent unmanned spray operations, provided all of the following conditions have been met:

(1) Solid particulates have been removed from the recirculated air.

(2) The concentration of vapors in the exhaust airstream do not exceed 25 percent of the lower flammable limit.
(3) Listed equipment is used to monitor the concentration of vapors in all exhaust airstreams.
(4) An alarm will sound and the spray operation will automatically shut down if the concentration of any vapor in the exhaust airstream exceeds 25 percent of the lower flammable limit.
(5) Equipment installed to process and remove contaminants from the air exhausted from spray operations is approved by the AHJ. [33:5.5.1]

43.1.5.5.2* The provisions of 43.1.5.5.1 shall not disallow the use of recirculated air to occupied spaces. However, other requirements addressing the toxicity and the permissible exposure limits shall also apply. [**33**:5.5.2]

43.1.5.6* Manifolding of Exhaust Ducts. Individual spray booths shall be separately ducted to the building exterior.

Exception No. 1: Multiple cabinet spray booths whose combined frontal area does not exceed 18 ft² (1.7 m²) shall be permitted to be manifolded, if the sprayed materials used will not react and cause ignition of the residue in the ducts.

Exception No. 2: Where treatment of exhaust is necessary for air pollution control or for energy conservation, ducts shall be permitted to be manifolded if all of the following conditions are met:

(1) The sprayed materials used will not react and cause ignition of the residue in the ducts.
(2) No nitrocellulose-based finishing material is used.
(3) An air-cleaning system is provided to reduce the amount of overspray carried into the duct manifold.
(4) Automatic sprinkler protection is provided at the junction of each booth exhaust with the manifold, in addition to the protection required by Chapter 7 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials.
(5) The installation is approved by the AHJ. [33:5.6]

43.1.6 Storage, Handling, and Distribution of Flammable and Combustible Liquids.

43.1.6.1* General. Storage, handling, and mixing of flammable and combustible liquids shall meet all the applicable requirements of NFPA 30, *Flammable and Combustible Liquids Code.* Storage, handling, and mixing of flammable and combustible liquids at process areas shall also meet the requirements of 43.1.6. [**33**:6.1]

43.1.6.2 Storage in Process Areas.

43.1.6.2.1 There shall be not more than three approved flammable liquid storage cabinets in any single process area without the approval of the AHJ. Storage cabinets shall be listed or shall be designed and constructed to meet the requirements of NFPA 30, *Flammable and Combustible Liquids Code.* Any single cabinet shall contain not more than 120 gal (454 L) of Class I, Class II, or Class IIIA liquids, of which not more than 60 gal (227 L) shall be Class I and Class II liquids. [**33**:6.2.1]

43.1.6.2.2 The quantity of liquid located in the vicinity of spraying operations, but outside of a storage cabinet, an inside storage room, a cut-off room or attached building, or other specific process area that is cut off by at least a 2-hour fire-rated separation from the spraying operations, shall not exceed the quantity given in either (1) or (2), whichever is greater:

(1) A supply for one day
(2) 25 gal (95 L) of Class IA liquids in containers, plus 120 gal (454 L) of Class IB, IC, II, or III liquids in containers, plus 2 portable tanks each not exceeding 660 gal (2498 L) of Class IB, IC, Class II, or Class IIIA liquids, plus 20 portable tanks each not exceeding 660 gal (2498 L) of Class IIIB liquids. [**33**:6.2.2]

43.1.6.2.3 The quantity of flammable and combustible liquids located in a spray area or in a mixing room adjacent to a spray area shall meet the requirements of 43.1.6.3. [**33**:6.2.3]

43.1.6.3 Mixing.

43.1.6.3.1 Dispensing or transfer of liquids from containers, mixing of liquids, and filling of containers, including portable mixing tanks and "pressure pots," shall be done only in a mixing room or in a spray area. [**33**:6.3.1]

43.1.6.3.2 Mixing rooms shall meet all of the following requirements:

(1) The mixing room shall meet the construction requirements of Section 3.1 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.*
(2) The mixing room shall not exceed 150 ft² (14 m²).
(3) The mixing room shall be designed to contain a spill of the contents of the room.
(4) The mixing room or a spray area used for mixing and dispensing operations shall be provided with continuous mechanical ventilation capable of providing not less than 1 ft³/min of air movement per ft² (0.3 m³/m·m²) of floor area or 150 ft³/min (4 m³/min), whichever is greater. The ventilation system shall be in operation at all times.
(5) Dispensing and mixing rooms shall be classified, for purposes of electrical area classification, the same as enclosed spray booths, in accordance with 4.3.4 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.*
(6) The mixing room shall be provided with an approved automatic fire protection system that meets all applicable requirements of Chapter 7 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.*
(7) The mixing room shall be provided with portable fire extinguishers located in accordance with NFPA 10, *Standard for Portable Fire Extinguishers.*

Exception: See 43.1.6.3.6. [33:6.3.2]

43.1.6.3.3 The amount of liquid permitted in a single spray area shall not exceed 60 gal (227 L). [**33**:6.3.3]

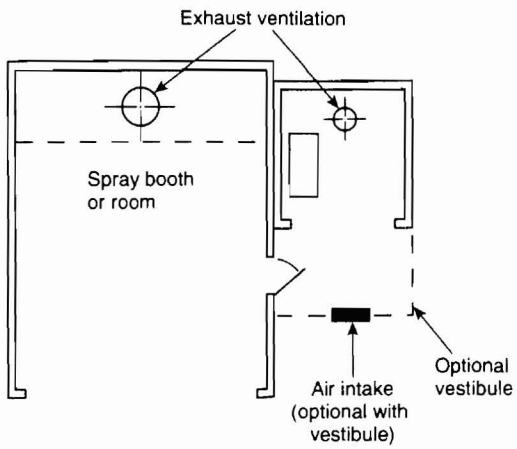
43.1.6.3.4 Where a separate mixing room is provided and the mixing room is located within 6 ft (1830 mm) of an adjacent spray area or areas, the combined quantities of liquids located in the spray areas and the mixing room shall not exceed 120 gal (454 L), as shown in Figure 43.1.6.3.4(a) and Figure 43.1.6.3.4(b).

Exception: See 43.1.6.3.6. [33:6.3.4]

43.1.6.3.5 Where a separate mixing room is provided and the mixing room is located 6 ft (1830 mm) or more from an adjacent spray area or areas, the quantity of liquid permitted in the mixing room shall not exceed 2 gal/ft² (80 L/m²), up to a maximum of 300 gal (1135 L), as shown in Figure 43.1.6.3.5.

Exception: See 43.1.6.3.6. [33:6.3.5]

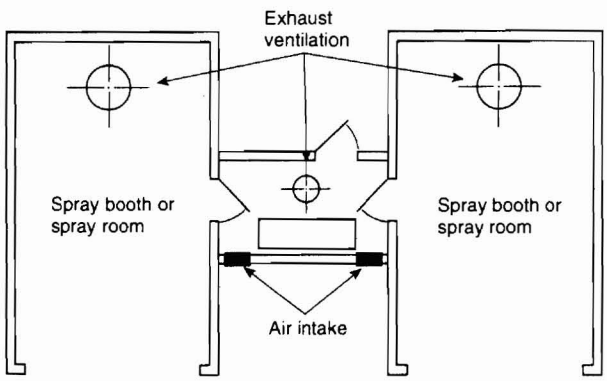
43.1.6.3.6 Where the quantities of liquids required or the floor area necessary to provide a suitable mixing room exceeds the limits specified in 43.1.6.3.2 through 43.1.6.3.5, the mixing room shall meet all applicable requirements of NFPA 30, *Flammable and Combustible Liquids Code.* [**33**:6.3.6]



Maximum volume of liquid allowed:

	Gal	L
Spray area	60	227
Spray area and mix room	120	454

FIGURE 43.1.6.3.4(a) Mixing Room within 6 ft (1830 mm) of Spray Area, Including Maximum Volume of Liquid Allowed. [33:Figure 6.3.4(a)]



Maximum volume of liquid allowed:

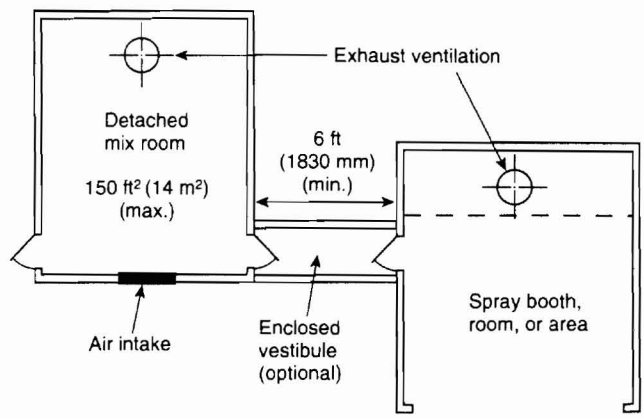
	Gal	L
Each spray area	60	227
Mixing room and all spray areas	120	454

FIGURE 43.1.6.3.4(b) Mixing Room within 6 ft (1830 mm) of Spray Area and with Direct Entry to Spray Area, Including Maximum Volume of Liquid Allowed. [33:Figure 6.3.4(b)]

43.1.6.4 Distribution Systems — Piping.

43.1.6.4.1* Piping systems that convey flammable or combustible liquids between storage tanks, mixing rooms (paint kitchens), and spray areas shall be of steel or other material having comparable properties of resistance to heat and physical damage. Piping systems shall be properly bonded and grounded. [**33:**6.4.1]

43.1.6.4.2* Piping systems within the spray area shall be of steel or material having comparable heat and physical resistance where possible. Where tubing or hose is used, a shutoff valve shall be provided on the steel pipe at the connection. [**33:**6.4.2]



Maximum volume of liquid allowed:

	Gal	L
Spray area	60	227
Mix room	300	1135

FIGURE 43.1.6.3.5 Mixing Room 6 ft (1830 mm) or More from Spray Area, Including Maximum Volume of Liquid Allowed. [33:Figure 6.3.5]

43.1.6.4.3* Tubing or hose shall be inspected and replaced as necessary. Replacement tubing or hose shall be that recommended by the equipment manufacturer. [**33:**6.4.3]

43.1.6.4.4 Where a pump is used to supply the liquid used in the spray application process, piping, tubing, hose, and other accessories shall be designed to withstand the maximum working pressure of the pump, or means shall be provided to limit the discharge pressure of the pump. [**33:**6.4.4]

43.1.6.4.5* Where a pump is used to supply the liquid used in the spray application process, an automatic means shall be provided to shut off the supply of liquid in the event of a fire. When pressurized tanks larger than 5 gal (19 L) are used to supply the liquid used in the spray application process, an automatic means shall be provided to shut off liquid flow at the tank outlet in the event of fire. [**33:**6.4.5]

43.1.6.4.6 All pressure tubing, hose, and couplings shall be inspected at regular intervals. With the hose extended, the hose and couplings shall be tested using the "in-service maximum operating pressure." Any hose showing material deteriorations, signs of leakage, or weakness in its carcass or at the couplings shall be replaced. [**33:**6.4.6]

43.1.6.5 Distribution Systems — General.

43.1.6.5.1 Liquids shall be transported by means of closed containers, approved safety cans, or approved portable tanks, or shall be transferred by means of a piping system. Open containers shall not be used for moving or storing liquids. [**33:**6.5.1]

43.1.6.5.2* Wherever liquids are transferred from one container to another, both containers shall be effectively bonded and grounded to dissipate static electricity. [**33:**6.5.2]

43.1.6.5.3 Containers that supply spray nozzles shall be of the closed type or shall be provided with metal covers that are kept closed. Containers that do not rest on the floor shall have supports or shall be suspended by wire cables. Containers that supply spray nozzles by gravity flow shall not exceed 10 gal (38 L) capacity. [**33:**6.5.3]

43.1.7 Protection.

43.1.7.1* General. Spray areas, which include by definition the associated exhaust plenums and exhaust ductwork, and mixing rooms shall be protected with an approved automatic fire protection system. The fire protection system shall be an automatic sprinkler system installed in accordance with Section 7.2 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, or an alternate fire protection system installed in accordance with Section 7.3 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*. In addition, the fire protection system, regardless of type, shall meet the applicable requirements of 43.1.7.1.1 through 43.1.7.1.3. [**33:**7.1]

43.1.7.1.1 For continuous spray application operations, activation of the fire-extinguishing system shall automatically accomplish all of the following:

(1) Activate a local alarm in the vicinity of the spraying operation and activate the facility's alarm system, if such a system is provided
(2) Shut down the coating material delivery system
(3) Terminate all spray application operations
(4) Stop any conveyors into and out of the spray area. *(See 43.1.7.5 and 43.1.7.6 for additional requirements for fixed powder application systems and fixed liquid electrostatic application systems.)* [**33:**7.1.1]

43.1.7.1.2 Also for continuous spray application operations, a manual fire alarm and emergency system shutdown station shall be installed to serve each spray area. When activated, this station shall accomplish all of the functions listed in 43.1.7.1.1(1) through (4). At least one such station shall be within ready access of operating personnel. If access to this station is likely to involve exposure to danger, an additional station shall be located adjacent to an exit from the area. [**33:**7.1.2]

43.1.7.1.3 Air make-up and spray area exhaust systems shall not be interlocked with the fire alarm system and shall remain functioning during any fire alarm condition.

Exception No. 1: Where the type of fire extinguishing system used requires that ventilation be discontinued, air make-up and exhaust systems shall be permitted to be shut down and dampers shall be permitted to close.

*Exception No. 2: For powder coating systems, the requirements of 43.1.7.5 shall be met instead of 43.1.7.1.3. [**33:**7.1.3]*

43.1.7.2* Automatic Sprinkler Systems.

43.1.7.2.1 If an automatic sprinkler system is used, it shall meet all applicable requirements of NFPA 13, *Standard for the Installation of Sprinkler Systems*, for Extra Hazard (Group 2) occupancies.

*Exception: As provided for in Section 15.3 of NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials. [**33:**7.2.1]*

43.1.7.2.2 The automatic sprinkler system shall be a wet pipe system where practical. Spray operations that require an open-head deluge system, a combination open- and closed-head automatic sprinkler system, a foam-water sprinkler system, or any other type of extinguishing system (dry chemical or gaseous agent) shall be so protected, subject to the approval of the AHJ. [**33:**7.2.2]

43.1.7.2.3 Water supply for sprinklers shall be sufficient to supply all sprinklers likely to open in any one fire incident without depleting the available water for use in hose stre... Where sprinklers are installed to protect spray areas and m... ing rooms only, water shall be permitted to be furnished fr... the domestic supply, subject to the approval of the AHJ ... provided the domestic supply can meet the design criteria ... Extra Hazard (Group 2) occupancies, as defined in NFPA ... *Standard for the Installation of Sprinkler Systems*. [**33:**7.2.3]

43.1.7.2.4* The sprinklers for each spray area and mixi... room shall be controlled by a separate, accessible, listed ind... cating valve. Sprinkler systems in stacks or ducts shall be aut... matic and of a type not subject to freezing. [**33:**7.2.4]

43.1.7.2.5 Sprinklers protecting spray areas and mixing... rooms shall be protected against overspray residue so that they... will operate quickly in the event of fire. If covered, cellophane... bags having a thickness of 0.003 in. (0.076 mm) or less or thin... paper bags shall be used. Coverings shall be replaced fre... quently so that heavy deposits of residue do not accumulate. Sprinklers that have been painted or coated, except by the... sprinkler manufacturer, shall be replaced with new listed... sprinklers having the same characteristics. [**33:**7.2.5]

43.1.7.3 Alternate Fire Protection Systems.

43.1.7.3.1* Where automatic sprinkler protection is not pro... vided or where another type of fire protection system is better... suited to provide the required protection for the spray appli... cation operation, spray areas and mixing rooms shall be per... mitted to be protected with one or more of the following:

(1) A dry chemical extinguishing system installed in accor... dance with the requirements of NFPA 17, *Standard for Dry Chemical Extinguishing Systems*
(2) A carbon dioxide system installed in accordance with the requirements of NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*
(3) A gaseous agent extinguishing system installed in accor... dance with NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems* [**33:**7.3.1]

43.1.7.3.2* The fire protection system shall be capable of dis... charging its contents into the entire protected area simulta... neously, including the exhaust plenum and exhaust ductwork. [**33:**7.3.2]

43.1.7.4 Portable Fire Extinguishers. Portable fire extinguishers shall be provided and located in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*. [**33:**7.4]

43.1.7.5* Protection for Automated Powder Application Equipment. Automated powder application equipment shall be protected further by the installation of an approved, supervised flame detection apparatus that shall, in the event of ignition, react to the presence of flame within one-half (0.5) second and shall accomplish all of the following:

(1) Shut down all energy supplies (electrical and compressed air) to conveyor, ventilation, application, transfer, and powder collection equipment
(2) Close segregation dampers in associated ductwork to interrupt airflows from application equipment to powder collectors
(3) Activate an alarm [**33:**7.5]

43.1.7.6* Protection for Automated Liquid Electrostatic Spray Application Equipment. Automated liquid electrostatic spray application equipment shall be further protected by the installation of an approved, supervised flame detection apparatus that shall, in the event of ignition, react to the

presence of flame within one-half (0.5) second and shall accomplish all of the following:

(1) Meet all of the requirements of 43.1.7.1.1
(2) Disconnect power to the high voltage elements in the spray area and de-energize the system [**33:**7.6]

43.1.8 Operations and Maintenance.

43.1.8.1* General. Maintenance procedures shall be established to ensure that all spray application apparatus and processes are operated and maintained in accordance with the manufacturers' specifications and the requirements of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* Maintenance shall be the responsibility of the users of the apparatus and processes. [**33:**8.1]

43.1.8.1.1* Spray application operations shall not be conducted outside of predetermined spray areas. [**33:**8.1.1]

43.1.8.1.2 Inspection of extinguishing systems shall be conducted to ensure that the performance of the extinguishing system components will not be affected by overspray and residues. [**33:**8.1.2]

43.1.8.2* Combustible Deposits. All spray areas shall be kept free of the accumulation of deposits of combustible residues. Combustible coverings (thin paper, plastic, etc.) and strippable coatings shall be permitted to be used to facilitate cleaning operations in spray areas. If residue accumulates to excess in booths, duct or duct discharge points, or other spray areas, then all spraying operations shall be discontinued until conditions are corrected. [**33:**8.2]

43.1.8.3 High Pressure Hose Lines. High pressure hose lines that convey flammable or combustible coating material in "airless" spray application operations shall be inspected frequently and shall be repaired or replaced, as necessary. Hose lines and equipment shall be located so that, in the event of a leak or rupture, coating material will not be discharged into any space having a source of ignition. [**33:**8.3]

43.1.8.4 Maintenance Procedures.

43.1.8.4.1 Maintenance procedures shall be established to ensure that overspray collector filters are replaced before excessive restriction to airflow occurs. Overspray collectors shall be inspected after each period of use, and clogged filters shall be discarded and replaced. [**33:**8.4.1]

43.1.8.4.2 All discarded overspray collector filters, residue scrapings, and debris contaminated with residue shall be removed immediately to a well-detached location or placed in a water-filled metal container and disposed of at the close of the day's operation unless maintained completely submerged in water. [**33:**8.4.2]

43.1.8.5* Waste Containers. Approved metal waste cans shall be provided wherever rags or waste are impregnated with sprayed material and all such rags or waste deposited therein immediately after use. The contents of waste cans shall be disposed of at least once daily at the end of each shift. [**33:**8.5]

43.1.8.6 Clothing. Employees' clothing contaminated with sprayed material shall not be left on the premises overnight unless kept in metal lockers. [**33:**8.6]

43.1.8.7 Cleaning Solvents.

43.1.8.7.1 Solvents for cleaning operations shall have flash points above 100°F (37.8°C).

Exception: Solvents having flash points not less than those used in spray operations shall be permitted to be used for cleaning spray nozzles and auxiliary equipment. [33:8.7.1]

43.1.8.7.2 Cleaning operations using flammable or combustible solvents shall be conducted inside spray areas with ventilating equipment operating or in other adequately ventilated locations that meet the requirements of 43.1.4 through 43.1.4.7. [**33:**8.7.2]

43.1.8.7.3 Spray gun cleaners using flammable or combustible solvents shall conform to the requirements of 43.1.4.3.5. [**33:**8.7.3]

43.1.8.8* Spontaneous Ignition Hazards. The same spray booth shall not be alternately used for different types of coating materials if the combination of the materials is conducive to spontaneous ignition, unless all deposits of the first-used coating material are removed from the booth and exhaust ducts prior to spraying with the second coating material. [**33:**8.8]

43.1.8.9* Chlorinated Solvents. Coating materials containing chlorinated solvents shall not be used with spray application apparatus or fluid-handling equipment if the chlorinated solvent will come into contact with aluminum within a piping system, pump, enclosed container, or any enclosure that is capable of being pressurized by the potential reaction. This shall apply even if the container or system has been constructed with pressure relief devices. [**33:**8.9]

43.1.8.10 Smoking. NO SMOKING OR OPEN FLAMES signs in large letters on contrasting color background shall be conspicuously posted at all spray areas and paint storage rooms. [**33:**8.10]

43.1.8.11* Hot Work. Welding, cutting, and other spark-producing operations shall not be permitted in or adjacent to spray areas until a written permit authorizing such work has been issued. The permit shall be issued by a person in authority following his or her inspection of the area to ensure that precautions have been taken and will be followed until the job is completed. [**33:**8.11]

43.2 Organic Peroxides and Plural Component Coatings.

43.2.1* Scope. The spray application operations that involve the use of organic peroxide formulations and other plural component coatings shall comply with NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, and Section 43.2.

Exception: As covered in Section 43.3. [33:14.1]

43.2.2 General. Spray application operations that involve the use of organic peroxide formulations and other plural component coatings shall be conducted in spray areas that are protected by approved automatic sprinkler systems that meet the requirements of Chapter 7 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* [**33:**14.2]

43.2.3 Prevention of Contamination. Measures shall be taken to prevent the contamination of organic peroxide formulations with any foreign substance. Only spray guns and related handling equipment that are specifically manufactured for use with organic peroxide formulations shall be used. Separate fluid-handling equipment shall be used for the resin and for the catalyst, and they shall not be interchanged. [**33:**14.3]

43.2.3.1 The wetted portions of equipment and apparatus that handle organic peroxide formulations shall be constructed of stainless steel (300 series), polyethylene, Teflon®, or other materials that are specifically recommended for the application. [**33:**14.3.1]

43.2.3.2* Measures shall be taken to prevent contamination of organic peroxide formulations with dusts or overspray residues resulting from the sanding or spray application of finishing materials. [**33:**14.3.2]

43.2.3.3 Spills of organic peroxide formulations shall be promptly removed so there are no residues. Spilled material shall be permitted to be absorbed by using a noncombustible absorbent and then disposed of promptly in accordance with the manufacturers' recommendations. [**33:**14.3.3]

43.2.4 Storage of Organic Peroxides. Organic peroxide formulations shall be stored in accordance with the requirements of NFPA 432, *Code for the Storage of Organic Peroxide Formulations*, and with the manufacturers' recommendations. [**33:**14.4]

43.2.5 Handling of Organic Peroxides. Measures shall be taken to prevent handling organic peroxide formulations to avoid shock and friction, which can cause decomposition and violent reaction. [**33:**14.5]

43.2.6* Mixing of Organic Peroxides with Promoters. Organic peroxide formulations shall not be mixed directly with any cobalt compounds or other promoters or accelerators, as violent decomposition or explosion can result. To minimize the possibility of such accidental mixing, these materials shall not be stored adjacent to each other. [**33:**14.6]

43.2.7 Smoking. Smoking shall be prohibited, NO SMOKING signs shall be prominently displayed, and only nonsparking tools shall be used in any area where organic peroxide formulations are stored, mixed, or applied. [**33:**14.7]

43.2.8 Trained Personnel. Only designated personnel trained to use and handle organic peroxide formulations shall be permitted to use these materials. [**33:**14.8]

43.2.9 Material Safety Data Sheets. Where organic peroxide formulations are used, the Material Safety Data Sheet (MSDS), or its equivalent, shall be consulted. [**33:**14.9]

43.3 Styrene Cross-Linked Composites Manufacturing (Glass Fiber Reinforced Plastics).

43.3.1* Scope. The manufacturing processes involving spray application of styrene cross-linked thermoset resins (commonly known as glass fiber reinforced plastics) for hand lay-up or spray fabrication methods, that is, resin application areas, and where the processes do not produce vapors that exceed 25 percent of the lower flammable limit shall comply with NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, and Section 43.3. [**33:**15.1]

43.3.2 Resin Application Equipment. The equipment and apparatus for spray application of the resin shall be installed and used in accordance with the requirements of Chapters 14 and 15 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*. [**33:**15.2]

43.3.3* Fire Protection. Resin application areas shall be protected by an automatic sprinkler system that is designed and installed in accordance with the requirements of NFPA 13, *Standard for the Installation of Sprinkler Systems*, for at least Ordinary Hazard, Group 2 occupancies. [**33:**15.3]

43.3.4 Resin Storage. The quantity of flammable and combustible liquids located in the vicinity of resin application areas outside of an inside storage room or storage cabinet in any one process area shall not exceed the greater of any of the following:

(1) A supply for one day
(2) The sum of 25 gal (95 L) of Class IA liquids in containers and 120 gal (454 L) of Class IB, IC, II, or III liquids in containers
(3) One approved portable tank not exceeding 660 gal (2498 L) of Class IB, IC, II, or III liquids [**33:**15.4]

43.3.5 Electrical and Other Hazards.

43.3.5.1 Electrical wiring and utilization equipment located in resin application areas that is not subject to deposits of combustible residues shall be installed in accordance with the requirements of NFPA 70, *National Electrical Code®*, for ordinary hazard locations. [**33:**15.5.1]

43.3.5.2 Electrical wiring and utilization equipment located in resin application areas that is subject to deposits of combustible residues shall be listed for such exposure and shall be suitable for Class I, Division 1 or Class II, Division 1 locations, whichever is applicable. Such wiring and utilization equipment shall be installed in accordance with the requirements of NFPA 70, *National Electrical Code®*, for the hazardous (classified) location involved. [**33:**15.5.2]

43.3.5.3* All metal parts of resin application areas, exhaust ducts, ventilation fans, spray application equipment, workpieces or containers that receive the spray stream, and piping that conveys flammable or combustible liquids shall be electrically grounded. [**33:**15.5.3]

43.3.5.4 Space heating appliances or other hot surfaces in resin application areas shall not be located where deposits or residues accumulate. [**33:**15.5.4]

43.3.6 Ventilation.

43.3.6.1 Mechanical ventilation shall be designed and installed throughout the resin application area in accordance with the requirements of Chapter 5 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.*

Exception: Buildings that are not enclosed for at least three-quarters of their perimeter shall not be required to meet this requirement. [33:15.6.1]

43.3.6.2 Local ventilation shall be provided where personnel are under or inside of the workpiece being fabricated. [**33:**15.6.2]

43.3.7 Use and Handling.

43.3.7.1 The storage and use of organic peroxide formulations shall meet the requirements of Chapter 14 of NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials.* [**33:**15.7.1]

43.3.7.2 Excess catalyzed resin, while still in the liquid state, shall be drained into an open-top, noncombustible container. Enough water shall be added to the container to cover the contained resin by at least 2 in. (51 mm). [**33:**15.7.2]

43.3.7.3 In areas where chopper guns are used, paper, polyethylene film, or similar material shall be provided to cover the exposed surfaces of the walls and floor to allow the build-up of overchop to be removed. When the accumulated overchop has reached an average thickness of 2 in. (51 mm), it shall be disposed of after a minimum curing time of 4 hours.

Exception: A single day's accumulation of more than an average of 2 in. (51 mm) shall be permitted, provided that it is properly cured and disposed of before operations are resumed. [33:15.7.3]

43.3.7.3.1 Used paper, polyethylene film, or similar material shall be placed in a noncombustible container and disposed of when removed from the facility. [**33:**15.7.3.1]

43.4 Dipping and Coating Processes.

43.4.1* Dipping and coating processes in which articles or materials are passed through tanks, vats, containers, or process equipment that contain flammable or combustible liquids shall comply with NFPA 34, *Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids*, and Section 43.4.

43.4.1.1 Section 43.4 shall not apply to processes involving noncombustible liquids except when the waterborne, water-based, and water-reducible materials contain flammable or combustible liquids or produce combustible deposits or residues. [**34:**1.1.2; **34:**1.1.3]

43.4.1.2 Section 43.4 shall not apply to the use of a liquid that does not have a fire point when tested in accordance with ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change. [**34:**1.1.3 Exception]

43.4.1.3* Section 43.4 shall not apply to quench tanks that are addressed in Chapter 51 of this *Code*.

43.4.2* Where unusual industrial processes are involved, the AHJ shall be permitted to require additional safeguards or modifications to the requirements of NFPA 34, *Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids*, provided equivalent safety is achieved.

43.5 Training.

43.5.1 All personnel involved in the spray application processes covered by Chapter 43 shall be instructed in the following:

(1) The potential safety and health hazards
(2) The operational, maintenance, and emergency procedures required
(3) The importance of constant operator awareness [**33:**16.1]

43.5.1.1 Personnel required to handle or use flammable or combustible materials shall be instructed in the safe handling, storage, and use of the materials, as well as emergency procedures. [**33:**16.1.1]

43.5.1.2* All personnel required to enter or to work within confined or enclosed spaces shall be instructed as to the nature of the hazard involved, the necessary precautions to be taken, and the use of protective and emergency equipment required. [**33:**16.1.2]

43.5.1.3 All personnel shall be instructed in the proper use, maintenance, and storage of all emergency, safety, or personal protective equipment that they might be required to use in their normal work performance. [**33:**16.1.3]

43.5.1.4 Documentation shall be employed to record the type and date of training provided to each individual involved in these processes. [**33:**16.1.4]

Chapter 44 Solvent Extraction

44.1 General. Solvent extraction plants shall comply with NFPA 36, *Standard for Solvent Extraction Plants*, and Chapter 44.

44.2 Application.

44.2.1 Chapter 44 shall apply to the following:

(1) The commercial scale extraction processing of animal and vegetable oils and fats by the use of Class I flammable hydrocarbon liquids, hereinafter referred to as solvents
(2) Any equipment and buildings that are located within 100 ft (30 m) of the extraction process

Exception: As provided for in 44.2.1(3) through (6).

(3) The unloading, storage, and handling of solvents, regardless of distance from the extraction process
(4) The means of conveying material to be extracted from the preparation process to the extraction process
(5) The means of conveying extracted desolventized solids and oil from the extraction process
(6) Preparation and meal finishing processes that are connected by conveyor to the extraction process, regardless of intervening distance

44.2.2 Chapter 44 shall not apply to the following:

(1) The storage of raw materials or finished products
(2) Extraction processes that use liquids that are miscible with water
(3) Extraction processes that use flammable gases, liquefied petroleum gases, or nonflammable gases

44.3 Permits. Permits, where required, shall comply with 1.12.16.

44.4 Special Requirements. The use of processes that employ oxygen-active compounds that are heat or shock sensitive, such as certain organic peroxides, shall be prohibited within the area defined in 44.2.1(2).

Chapter 45 Reserved

Chapter 46 Reserved

Chapter 47 Reserved

Chapter 48 Reserved

Chapter 49 Reserved

Chapter 50 Commercial Cooking Equipment

50.1 Application.

50.1.1* The design, installation, operation, inspection, and maintenance of all public and private commercial cooking equipment shall comply with this chapter and NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*.

50.1.2 This chapter shall apply to residential cooking equipment used for commercial cooking operations. [**96:**1.1.2]