

Chapter ILHR 15

CLEANING AND DYEING

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Note: Chapter Ind 7 as it existed on November 30, 1981 was repealed and a new chapter Ind 7 was created effective December 1, 1981. Chapter Ind 7 was renumbered to be chapter ILHR 15, effective January 1, 1985.

**SUBCHAPTER 1
ADMINISTRATION AND ENFORCEMENT**

ILHR 15.001 Purpose of code. The purpose of this chapter is to provide reasonable safeguards for the prevention and control of fire and explosion hazards incident to drycleaning operations and for the protection of the public and employees who use and work in these facilities.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.002 Scope of code. The provisions of this chapter shall apply to dry cleaning and dry dyeing plants and to self-service drycleaning establishments.

Note #1: Whenever reference is made to "dry cleaning" it is to be construed as applying to both dry cleaning and dry dyeing operations.

Note #2: Dry cleaning and dry dyeing establishments are also subject to the requirements of other administrative codes, including chs. ILHR 50-64.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.003 Application of rules. (1) NEW ESTABLISHMENTS, ADDITIONS AND ALTERATIONS. The provisions of this chapter shall apply to all new establishments and to additions or alterations to existing establishments.

(2) **EXISTING ESTABLISHMENTS, EQUIPMENT AND INSTALLATIONS.** Existing plants, equipment, buildings, structures and installation in compliance with the provisions of chs. ILHR 15 and 50-64 at the time of construction or installation may continue in use provided that the use does not constitute a distinct hazard to life or property.

(2) **RETROACTIVITY.** The provisions of this code are not retroactive unless specifically stated in the rules.

(3) **DIFFERING RULES.** Where different sections of this code specify different requirements, the most restrictive requirement shall govern.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.01 Definitions. The following definitions shall apply for the purposes of these rules. Terms not herein defined shall be understood as having their usual and ordinary dictionary meaning.

(1) "Approved" means acceptable to the department.

(2) "Bonded" or "grounded" means protection against static electricity through a bond or ground which has been deliberately applied or that an electrically conductive path having a resistance adequate for the intended purpose, usually one million ohms or less, is inherently present by the nature of the installation.

(3) "Clarifier" means an apparatus utilizing the principle of centrifugal force for the purpose of removing suspended impurities from cleaning solvents.

(4) "Department" means the department of industry, labor and human relations.

(5) "Dry cleaning" means the process of removing dirt, grease, paint and other stains from wearing apparel, furs, textiles, fabrics, rugs and similar items, by use of:

1. Immersion or agitation or both with the solvent in open vessels,
2. Immersion or agitation or both with the solvent in closed machines,
3. Spotting or local application of solvents to spots of dirt, grease, paints and stains not removed by the immersion and agitation process, or

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4. Brushing or scouring with cleaning solvents.

(6) "Dry dyeing" means the process of dyeing clothes or other fabrics or textiles in a solution of dye colors and flammable liquid.

(7) "Dry dyeing plant" means any building, room or premises equipped to perform the service of dry cleaning or dry dyeing or both.

(8) "Dry cleaning plant" means a plant in which dry cleaning and associated operations are conducted, including office, receiving, and storage rooms.

(9) "Dry cleaning room" means a room in which the dry cleaning operations are conducted, including all additional sections containing such solvent or solvent handling equipment.

(10) "Dry cleaning units" or "dry cleaning machines" means any equipment in which textiles are immersed or agitated in solvent or in which dry cleaning solvent is extracted from textiles.

(11) "Drying cabinet" means an enclosure used in the dry cleaning or dry dyeing process, in which wearing apparel, fabrics, textiles or articles of any sort are dried in currents of heated air.

(12) "Drying room" means a room or rooms where wearing apparel, fabrics, textiles, or articles of any sort which have been dry dyed are subjected to the process of drying.

(13) "Drying tumblers" means any equipment in which solvent cleaned textiles are tumbled, agitated, and dried or deodorized while circulating heated air through the load to remove the solvent. A reclaiming tumbler means a drying tumbler as defined above, which, in addition, reclaims the solvent from vapors.

(14) "Existing dry cleaning or dry dyeing plants" means a plant, additions and alterations structurally completed or for which plans have been approved by the department and construction is in progress prior to the effective date of this chapter.

(15) "Extractor" means a centrifugal machine used for removing surplus solvent from wearing apparel, fabrics, textiles or articles of any sort.

(16) "Filter" means an apparatus used for straining impurities, solid particles or coloring matter from cleaning solvents.

(17) "Flash point" means the minimum temperature of a liquid at which sufficient vapor is given off to form an ignitable mixture with the air near the surface of the liquid or within the vessel used.

(18) "Gravity system of ventilation" means any ventilation, the practical effectiveness of which depends wholly upon atmospheric conditions, such as relative density, temperature or wind motion.

(19) "Mechanical system of ventilation" means any ventilation, exhaust or heating system, the effectiveness of which depends upon the operation of power driven equipment.

(20) "New dry cleaning or dry dyeing plant" means a plant, additions and alterations for which plans have not been approved by the department.

ment or construction is not in progress, prior to the effective date of this chapter.

(21) "Purifier" means an apparatus for decolorizing and removing foreign matter from cleaning solvents.

(22) "Still" means an apparatus used to evaporate volatile cleaning solvents by means of steam heat and to condense the same in a condenser or cooling chamber as a purified product.

(23) "Storage system" means a tank or tanks used for the storage or settling of cleaning solvents together with all pipes, fittings, valves and traps used in connection with such tanks.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.02 Application and approval. (1) **GENERAL.** Application for permission to operate shall be filed with and approved by the department or the municipality having jurisdiction before:

- (a) Any drycleaning plant may be established or constructed;
- (b) The class of solvent is changed from Class IV to Class II, IIIA or IIIB; or
- (c) An existing plant is remodeled or altered.

(2) **PROOF OF APPROVAL.** A copy of the plans bearing the "conditionally approved" stamp of the department or municipality having jurisdiction shall be considered permission to operate.

(3) **PLAN SUBMITTAL AND APPROVAL.** In accordance with the provisions of s. ILHR 50.12, plans, together with the fee specified in ch. Ind 69, shall be submitted to and approved by the department prior to the construction of, addition to or alteration of any drycleaning or drydyeing plant within the scope of this chapter.

(4) **MUNICIPAL JURISDICTION.** In cities where plans are examined and building permits are issued by a city building official in a manner approved by the department, additional approval by the department is not required.

Note: See ss. ILHR 50.21 and 50.22, for additional information.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.03 Enforcement and inspections. (1) **ENFORCEMENT.** The rules in this chapter shall be enforced by the department and its authorized deputies, and by all local officials or bodies having jurisdiction to approve plans or specifications or issue permits for construction, alterations or installations within the scope of this chapter and chs. ILHR 50-64, or having authority to investigate and eliminate related fire hazards.

(2) **INSPECTIONS.** Inspections shall be conducted by an authorized deputy of the department or by local officials having jurisdiction to ascertain whether or not the construction or installations conform to the conditionally approved plans, the conditional approved letter, and the provisions of this chapter and chs. ILHR 50-64.

Note: See Appendix for example of inspection report and order form (SB-2).

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.04 Appeals. Pursuant to ch. 227, Stats., any municipality, corporation or any 5 or more persons having an interest in the rule may appeal to the department requesting the adoption, amendment or repeal of the rule.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.05 Petition for variance. (1) PROCEDURE. The department shall consider and may grant a variance to any administrative rule of this chapter upon receipt of a fee, a completed petition for variance form from the owner, and a position statement from the fire department having responsibility and an interest in the rule being petitioned provided an equivalency is established in the petition for variance which meets the intent of the rule being petitioned. The department may impose specific conditions in the petition for variance to promote the protection of the health, safety and welfare of the employes or the public. Violation of those conditions under which the petition is granted constitutes a violation of the rules of this chapter.

(2) PETITION PROCESSING TIME. Except for priority petitions, the department shall review and make a determination on a petition for variance within 30 business days of receipt of all calculations, documents and fees required to complete the review. The department shall process priority petitions within 10 business days.

Note #1: See Appendix for an example of the petition for variance (form SB-8) and the fire department position statement (form SB-8A).

Note #2: Section 101.02 (6), Stats., outlines the procedure for submitting petitions to the department and the department's procedures for hearing petitions.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81; am. (1) and cr. (2), Register, December, 1984, No. 348, eff. 1-1-85.

ILHR 15.06 Penalties. Penalties for violations shall be assessed pursuant to with s. 101.02, Stats.

Note #1: Section 101.02 (13) (a), Stats., indicates penalties will be assessed against any employer, employe, owner or other person who fails or refuses to perform any duty lawfully enjoined, within the time prescribed by the department for which no penalty has been specifically provided, or who fails, neglects or refuses to comply with any lawful order made by the department or any judgement or decree made by anyone in connection with ss. 101.01 to 101.25, Stats. For each such violation, failure or refusal, such employe, owner or other person must forfeit and pay into the state treasury a sum not less than \$10.00 nor more than \$100.00 for each violation.

Note #2: Section 101.02 (12), Stats., indicates that every day during which any person, persons, corporation or any officer, agent or employe thereof, fails to observe and comply with an order of the department will constitute a separate and distinct violation of such order.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.07 Adoption of standards. Pursuant to s. 227.025, Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the following standards. Copies of the standards in reference are on file in the offices of the department, the secretary of state, and the revisor of statutes.

(1) American Society of Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103, Standard Method of Test for Flash Point by the Tag Closed Tester, ASTM D-56-79.

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(2) National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, Standard for Carbon Dioxide Extinguishing Systems, NFPA No. 12-1977.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.08 Classification of plants. (1) **CLASSIFICATION TYPE.** Dry-cleaning plants shall be assigned one of the following 5 classifications depending upon the solvent and type of operation used:

- (a) Class I - Plants utilizing solvents having flash points below 100° F.
- (b) Class II - Plants utilizing solvents having flash points at or above 100° F. but which do not meet the requirements for Class III.
- (c) 1. Class IIIA - Plants utilizing solvents having a flash point at or above 140° F. and below 200° F.
2. Class IIIB - Plants utilizing solvents having a flash point at or above 200° F.
- (d) Class IV - Plants utilizing solvents classified as nonflammable.
- (e) Class V - Plants utilizing coin-operated self-service equipment operated by the public.

(2) **APPARATUS AND TEST METHOD.** Flash points shall be determined by using the closed cup tester using test methods conducted in accordance with the ASTM D-56-79 - Standard Method of Test for Flash Point by the Tag Closed Tester.

Note #1: Mixtures of solvents are considered as having the same flash point as that constituent of the mixture having the lowest flash point, except that when a solvent has been certified by a recognized testing laboratory to be a stable mixture and to have a definite minimum flash point, such flash point is used for classification.

Note #2: The department will approve, subject to the provisions of this rule, dry cleaning equipment and cleaning liquids which have been inspected and listed by Underwriters' Laboratories or equivalent.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

SUBCHAPTER 2 GENERAL REQUIREMENTS

ILHR 15.09 Restrictions. (1) **GENERAL.** All dry cleaning shall be carried on only in dry cleaning rooms or buildings constructed in accordance with requirements of this chapter.

(2) **PROHIBITED AND PERMITTED OPERATIONS.** Dry cleaning by immersion and agitation in open vessels is prohibited. Dry cleaning shall be done only in closed dry cleaning machines.

(a) *Exception:* Scouring, brushing spotting and prespotting may be conducted with nonflammable Class II or Class III liquids, or Class I liquids if stored in safety containers of not more than one gallon capacity.

(3) **MACHINE LABELING AND USE.** Machines shall be equipped with nameplates indicating the class of solvent for which the machine is

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designed. The use of solvents with a flash point below that for which a machine is designed shall be prohibited.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.10 Electrical. (1) **ELECTRICAL EQUIPMENT.** Electric wiring and equipment and other electrical devices in dry cleaning buildings or rooms shall be of the type specified in ch. ILHR 16.

(2) **GROUNDING OF EQUIPMENT.** Storage tanks, treatment tanks, filters, pumps, piping, dry cleaning units, stills, drying cabinets, tumblers, and other equipment in the dry cleaning room shall be grounded. Isolated units of equipment shall be grounded.

(3) **STATIC ELECTRICITY.** Special consideration shall be given to the generation and accumulation of static electricity when loading fabrics into or removing fabrics from dry cleaning units. When fabrics are transferred from one piece of equipment to another, the two pieces of equipment shall be electrically bonded together.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.11 Fire extinguishers. (1) **DRY CLEANING PLANT.** (a) An approved extinguisher having a minimum 2A rating shall be provided for each 2000 square feet gross area.

(b) The maximum travel distance to a fire extinguisher shall not exceed 75 feet.

(2) **DRY CLEANING ROOM** (a) An approved 10 BC portable fire extinguisher shall be provided immediately adjacent to any dry cleaning room.

(b) A separate approved 10 BC portable fire extinguisher shall be provided inside any dry cleaning room where Class II or III solvents are used.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.12 Smoking prohibition. Smoking in a dry cleaning room shall be strictly prohibited. Signs bearing the words "NO SMOKING" shall be posted.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

SUBCHAPTER 3 CLASS I PLANTS

ILHR 15.13 Class I plants prohibited. Use of solvents having a flash point below 100° F. shall be prohibited for dry cleaning by immersion or agitation.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.14 Permitted operations. Spotting, brushing or scouring with solvents having a flash point below 100° F. shall be permitted, provided the quantity of solvent used at any one time does not exceed one gallon.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

**SUBCHAPTER 4
CLASS II PLANTS**

ILHR 15.15 Scope and limitations. (1) TYPE OF SOLVENT PERMITTED. Only flammable solvents having flash points at or above 100° F., but less than 140° F., shall be utilized at Class II dry cleaning plants.

(2) **OTHER OCCUPANCIES.** Dry cleaning operations shall not be carried on in the same building with other occupancies. Living quarters of the owner or operator of the business, and operations incidental to or in connection with the dry cleaning business, such as laundering and drying, pressing, ironing, and similar operations shall not be considered as other occupancies for the purpose of this subsection.

Note: For the purpose of this subsection, a 4-hour fire division wall pursuant to s. ILHR 51.02 (14), in a building creates 2 separate buildings.

(3) **FLOOR OF OPERATIONS.** Dry cleaning operations shall be restricted to the lowest floor of a building, but shall not be carried on in any basement.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.16 Setback. The exterior walls of Class II plants facing any other building or the line of adjoining property shall be unpierced when less than 10 feet distant from such building or property line. Piercing of any wall regardless of distance to property line or building with fire rated door and window assemblies shall be permitted, provided the wall has a minimum 2-hour fire resistive rating.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.17 Dry cleaning room construction requirements. (1) WALLS AND PARTITIONS. Walls and partitions shall be of at least 2-hour noncombustible fire-resistive construction. Wall finish shall be without furring or concealed spaces.

(2) **FLOORS.** Floors shall be of at least 2-hour noncombustible fire-resistive construction. Where located over a basement, the floor shall be liquid and vapor-tight, except for the drainage system. The surface shall be of noncombustible and nonabsorbent material.

(3) **FLOOR OR ROOF/CEILING ASSEMBLY ABOVE.** The floor or roof/ceiling assembly above a dry cleaning room shall be of at least one hour noncombustible fire-resistive construction.

(4) **FIXTURES AND FURNITURE.** All fixtures such as, but not limited to, cabinets, lockers, shelves, racks, bins installed inside a dry cleaning or drying room shall be constructed of metal or other noncombustible materials.

(5) **DRYING ROOMS. (a)** Drying rooms shall conform to requirements for dry cleaning rooms.

(b) If under the same roof as dry cleaning rooms, drying rooms shall be separated by a 2-hour noncombustible fire-resistive partition.

(c) Every doorway to such drying room shall be protected with an approved 1½ hour rated fire door assembly.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.18 Drainage system. The dry cleaning room shall be provided with an emergency drainage system to direct solvent leakage to a safe location in accordance with the requirements of ch. Ind 8.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.19 Heating and ventilating. (1) **TYPE OF HEATING.** Heating shall be by steam or hot water only.

(2) **EQUIPMENT.** All boilers shall be built and installed in accordance with chs. ILHR 41-42.

(3) **ISOLATION OF HAZARD.** All boilers used in connection with dry cleaning plants shall be isolated from the rest of the building by at least a 2-hour fire-resistive rated enclosure.

(4) **AMOUNT OF VENTILATION.** Dry cleaning rooms or buildings shall have ventilation systems of sufficient capacity to exhaust 1 cubic foot per minute per square foot of floor area where the function of dry cleaning takes place.

(a) Such systems shall include a mechanical supply of tempered outside air and a positive exhaust. Tempered air may be transferred from other areas of the building provided the dry cleaning room remains negative in relation to the remainder of the building.

(b) Exhaust may be by mechanical means or by gravity through proper size vent ducts extending from the floor line through the roof of building and capped with siphon type ventilators located at least 2 feet above the high point of the roof.

(c) The ventilation system shall be capable of maintaining concentration levels of Class II solvents at or below 100 parts per million (ppm) time weighted average for an 8 hour exposure with a 125 ppm maximum concentration for short term exposure, not to exceed 20 minutes.

(5) **VENTILATING USING UNIT HEATERS.** (a) Where ventilation is provided through unit heaters, the air intake shall extend from the outside.

(b) There shall be no dampers of any kind in the outside air supply duct.

(c) Recirculation of air is permitted but only for air in excess of the amount needed to provide the change of air every 6 minutes.

(d) Recirculated air shall be drawn from at least 6 feet above the floor.

(6) **EQUIPMENT CONSTRUCTION.** The blades or running rings of exhaust fans shall be of nonferrous metal, and motors for fans shall not be installed in ducts.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.20 Exits. (1) **DRY CLEANING PLANTS.** Dry cleaning plants shall be provided with exits pursuant to ch. ILHR 54.

(2) **DRY CLEANING ROOMS.** Dry cleaning rooms shall have at least 2 exits. One exit shall lead directly to the outdoors.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.21 Storage and handling of solvents. (1) TANK CONSTRUCTION. All solvent storage tanks and piping systems shall be constructed and installed pursuant to ch. Ind 8.

(2) **EMERGENCY RELIEF VENTS.** Relief venting storage tanks and atmospheric treatment tanks installed above ground shall be provided with emergency relief venting to relieve excessive internal pressure which may be caused by exposure to fire.

(a) The total capacity of an emergency venting device, including the capacity of any normal vent, shall be not less than that specified from Table 15.21.

(b) The air flows specified in Table 15.21 may be multiplied by 0.3 for tanks installed in dry cleaning rooms protected by an automatic fire sprinkler system.

(c) The wetted area of a tank or container shall be calculated on the basis of 100% of the surface area of the tank.

Table 15.21
Wetted Area Versus Cubic Feet Free Air Per Hour
(14.7 psia and 60° F.)

Sq. Ft.	CFH	Sq. Ft.	CFH	Sq. Ft.	CFH
20	21,100	70	73,700	120	126,000
30	31,600	80	84,200	140	147,000
40	42,100	90	94,800	160	168,000
50	52,700	100	105,000	180	190,000
60	63,200			200	211,000

Note: Interpolate for intermediate values.

(d) Atmospheric tanks shall be limited to pressures not exceeding 2.5 psig under emergency venting conditions.

(e) In no case shall a vent be less than 1¼ inch pipe size. The vent of a tank installed inside a building shall terminate outside the building.

(f) An inside storage or treatment tank shall be equipped with a gaging device designed and installed so that solvent or vapors will not be discharged into the building during normal service. A gage glass or sight glass, which, when broken, will permit the escape of solvent from the tank, shall not be used.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.22 Storage and treatment tank requirements. (1) LOCATION. Solvent storage tanks shall be located underground or outside above-ground.

(a) *Exception:* Aboveground treatment and storage tanks, excluding filters and stills, inside dry cleaning plants or dry cleaning rooms, shall not exceed a capacity of 1,500 gallons each and the aggregate capacity permitted in an unenclosed area shall not exceed 3,000 gallons. Capacities in excess of 3,000 gallons shall be installed pursuant to ch. Ind 8.

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(2) **FILL PIPE.** An inside storage tank shall be provided with a fill pipe terminating outside the building.

(3) **PROXIMITY TO EQUIPMENT.** Aboveground inside storage tanks shall be located as close as practicable to the dry cleaning unit or units to which they are connected.

(4) **TREATMENT TANK USE.** Treatment tanks shall not be used for the storage of new or distilled solvents.

(5) **PRESSURIZED TREATMENT TANKS.** Treatment tanks subject to greater than atmospheric pressures shall be designed for a working pressure not less than 15 psig and shall be equipped with pressure relief device which will prevent the pressure in the tank from rising more than 10% above the working pressure of the tank. The relief device shall be not smaller than ¾ inch pipe size and shall discharge into an underground tank or aboveground base tank of a drycleaning unit without a shutoff valve in the line.

Note: The department will accept tanks which conform to the requirements of chs. ILHR 41-42.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.23 Filters. (1) **PRESSURE FILTERS.** Filters operating above atmospheric pressure shall be:

- (a) Approved pressure filters,
- (b) Constructed to withstand a pressure of 5 times the maximum allowable working pressure without bursting, or
- (c) Constructed to withstand a pressure of 2½ times the maximum allowable working pressure without yielding.

(2) **PRESSURE GAGE.** Pressure type filters shall be equipped with a reliable pressure gage which shall be regularly checked for accuracy. Filters shall not be operated at pressures exceeding that recommended by the manufacturers.

(3) **AIR BLEEDING VALVE AND LINE.** Pressure filters shall be provided with an air bleeding valve and line connected to discharge into the washer or into the storage tank vent line. The air bleeding lines shall not discharge into the room.

(4) **PRESSURE RELIEF DEVICE.** Filters shall be equipped with pressure relief devices which will prevent the pressure within the filter from rising more than 10% above the working pressure of the filter. The relief device shall be not smaller than ¾ inch pipe size and shall discharge into an underground tank or aboveground base tank of a dry cleaning unit without a shutoff valve in the line.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.24 Piping, pumps and solvent coolers. (1) **PIPING.** (a) Except as provided in par. (b), the aboveground transfer of solvent between any tank or equipment shall be through closed circuits of iron or steel piping.

- (b) *Exception.* 1. Brass or bronze valves or fittings may be used.

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2. Flexible hoses suitable for the solvent may be used as required for low pressure connections not to exceed 5 psig to vibrating or other than stationary equipment.

(c) Low melting point materials, such as aluminum, copper and brass, or materials which soften on fire exposure, such as plastics, or nonductile material, such as cast iron, may be used underground for all flammable and combustible liquids within the pressure and temperature limits.

(2) FLOW SIGHTGLASSES. Flow sightglasses, which would permit the escape of flammable liquids upon breaking, shall be of a type not damaged by heat and shall be protected against physical damage.

(3) SERVICE PUMPS. Service pumps shall be provided to remove sludge from underground tanks. The suction pipe shall be carried to the tank bottom and the pump shall discharge to a suitable container. In no case shall the discharge be into a sewer.

(4) SOLVENT PUMPS. All pumps handling solvent shall be designed for use with flammable liquids. Pumps of the positive displacement type shall be fitted with a relief valve or bypass, set so as to prevent pressures in excess of the working pressure of the system.

(5) SOLVENT COOLERS. When a continuous solvent flow circulation is maintained by means of a circulating pump, solvent coolers shall be provided to maintain a solvent temperature not exceeding 90° F. Visual and audible alarm devices shall be provided to warn the operator when the solvent temperature exceeds 90° F.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.25 Drycleaning units, stills, drying cabinets or tumblers. All Class II dry cleaning equipment shall comply with the following requirements:

(1) LEAKAGE. All solvent-handling equipment and dry cleaning units and components shall be constructed to prevent solvent leakage.

(2) PROTECTION AND FOUNDATION. Dry cleaning units shall be constructed to prevent distortion of their components and to prevent objectionable vibration while the machines are in normal operation. The units shall be securely attached to the floor or to special foundations to minimize transmission of vibration to surrounding areas.

(3) DOORS. Dry cleaning units shall be provided with doors or covers that prevent solvent from splashing on the floor. The door shall be interlocked to prevent rotating of the cylinder or basket while the doors are open, or to prevent opening of the doors while the cylinder is rotating.

(a) *Exception:* The interlock shall permit moving (e.g., "inching") the cylinder at slow speed.

(4) BRAKES. Units shall be equipped with brakes or other means to stop the machine. Brakes shall be designed to avoid creation of sparks or excessive heat. If dry cleaning units are equipped with automatic controls, a manual push button to stop the machine shall be provided in front of the unit.

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(5) **OVERFLOW PROTECTION.** Dry cleaning units shall be provided with a device that will shut off the solvent inlet supply to the machine in the event the solvent level in the machine reaches the bottom of the trunnion shaft. An overflow means below the maximum level and connected to an underground tank by a pipe at least one size larger than the inlet solvent pipe to the machine and without shut-off valve shall satisfy this requirement.

(6) **TRAPS.** Individual button or lint traps shall be provided with dry cleaning units, located between the machine drain and the storage tank.

(7) **PROTECTION FROM SOLVENT.** The solvent inlet pipe into a dry cleaning unit shall be arranged to deflect the solvent stream away from the door opening.

(8) **CYLINDER CLEARANCE.** Dry cleaning units shall be constructed with sufficient clearance between the cylinder or basket and the outer casing to prevent striking or rubbing of parts of the rotating cylinder against the outer casing.

(9) **NAMEPLATES.** Dry cleaning units shall be furnished with nameplates indicating the following:

(a) Minimum allowable solvent flash point;

(b) Maximum allowable cylinder speed;

(c) Warnings that the unit shall not be operated with a solvent having a flash point less than that stated, or to be operated in excess of such cylinder speed; and

(d) Warnings that the door shall not be opened until the cylinder has come to a complete standstill.

(10) **STILLS.** In addition to the general requirements specified in subs. (1) to (9), stills shall comply with the following requirements:

(a) Steam or hot water only shall be used as the source of heat. If steam is used, a pressure regulating valve shall be installed in the steam supply line to the still;

(b) Stills shall be liquid tight and gas tight. Stills shall be designed for operation on the vacuum principle;

(c) If a relief valve is provided, it shall be equipped with a vent line extending to the outside;

(d) A check valve shall be installed in the steam line between the boiler and the still;

(e) Each still shall be provided with a combination vacuum and pressure gage; and

(f) Each still shall be equipped with an automatic valve to maintain the solvent level in the still at the proper height.

(11) **DRYING TUMBLERS AND DRYING CABINETS.** In addition to the general requirements specified in subs. (1) to (9), drying tumblers and drying cabinets shall comply with the following requirements:

(a) Drying tumblers shall be securely anchored to the foundations;

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(b) Drying tumblers shall be provided with self-closing explosion hatches having an area equal to at least one-third square foot for each 30 cubic feet of cylinder volume. Hatches shall be arranged to open away from the operator;

(c) Drying tumblers and drying cabinets shall be ventilated to the outside air by pipes or ducts connected to an exhaust fan of a capacity to remove all dust, vapors, or lint generated by the process. Such discharge pipes or ducts shall be carried to a height of not less than 6 feet above the roof, and shall be provided with cleanout facilities;

(d) The fan shall be housed and interlocked to insure operation while the drying tumbler is in use. The fan, blades, or running rings shall be constructed of nonferrous metal. In no case shall the fan motor be mounted within the ventilating duct;

(e) Steam or hot water only shall be used to obtain the necessary temperatures in the drying tumblers or cabinet; and

(f) The requirements of pars. (a) to (e) may be satisfied by the utilization of approved solvent reclaiming drying tumblers.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.26 Scouring, brushing and spotting. (1) **GENERAL.** All scouring, brushing and spotting or prespotting shall be conducted with nonflammable solvents or with Class II or Class III liquids or solvents.

(a) *Exception:* Class I solvents may be used if stored in approved safety cans of not more than one gallon capacity.

(2) **LIMITATIONS OF USE.** Articles, which cannot be washed in the usual washing machines, may be cleaned on scouring or brushing tables or in scrubbing tubs provided the total amount of solvent used in such open containers shall not exceed 3 gallons.

(3) **BRUSHING OR PRESPOTTING TABLE.** The brushing or prespotting table on which articles are soaked in solvent, shall have a liquid tight top with a curb on all sides not less than one inch high. The top of the table shall be pitched so as to ensure thorough draining to a drain having a minimum diameter of 1½ inches connected to a container especially provided and marked for that purpose.

(4) **SCRUBBING TUBS.** Scrubbing tubs shall be secured to the floor and shall be provided with permanent trapped drains at least 1½ inches in diameter to a suitable container especially provided and marked for that purpose.

(5) **GROUNDING.** Metal scrubbing tubs and metal tops of spotting tables shall be grounded.

(6) **LOCATION FOR VENTILATION.** The scouring or brushing table or scrubbing tub shall be so located as to ensure disposal of solvent vapor through the ventilating system.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.27 Operating requirements. (1) **MANUFACTURER'S OPERATING INSTRUCTIONS.** Machines shall be operated in accordance with operating instructions furnished by the machinery manufacturer.

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(2) **INSTRUCTION OF EMPLOYEES.** All employes shall be instructed as to the hazards involved in their departments, in the work they perform and the location of switches to cut off the flow of solvents.

(3) **CHECKING OF MATERIALS.** All materials to be dry cleaned shall be searched outside the dry cleaning room and all foreign materials, especially matches and metallic substances, removed.

(4) **LOADING AND UNLOADING.** In removing materials from the washer, provisions shall be made for minimizing the dripping of solvent on the floor. When materials are transferred from a washer to a drain tub, a nonferrous metal drip apron shall be placed so as to rest on the drain tub and the cylinder of the washer.

(5) **LINT AND REFUSE TRAPS.** The lint and refuse shall be removed from all lint traps and disposed of safely.

(6) **MAINTENANCE AND OPERATION.** (a) Maintenance and operating practices shall be adhered to which will prevent leakage or accidental escape of solvent and the accumulation of lint.

(b) Flammable or combustible liquids shall not be used for cleaning floors.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.28 Fire suppression. (1) **DRY CLEANING UNITS AND WASHERS AND EXTRACTORS.** Dry cleaning units, washer-extractor, shall be provided with an automatic carbon dioxide extinguishing system installed and maintained pursuant to NFPA No. 12-1977 - Standard for Carbon Dioxide Extinguishing Systems or by a manual steam jet not less than ¾ inch with a continuously available steam supply at a pressure of not less than 15 psig.

(2) **DRYING TUMBLER.** Each drying tumbler shall be provided with an approved carbon dioxide or steam injection extinguishing system arranged to operate automatically in case of fire in the tumbler.

(3) **INSPECTION.** Periodic inspection of all valves and piping of extinguishing systems shall be made to insure operation.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

SUBCHAPTER 5 CLASS III PLANTS

ILHR 15.29 Application. Only flammable solvents having flash points at or above 140° F., but less than 200° F. (Class IIIA) or having flash points at or above 200° F. (Class IIIB) shall be utilized in Class III dry cleaning plants.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.30 Location. (1) **PROHIBITED LOCATIONS.** Plants shall not be established in a building occupied as a place of public assembly or as living quarters other than for the owner or operator of the business.

(2) **SEPARATION FROM OTHER OCCUPANCIES.** Where located in the same building with other occupancies, or where operations incidental to or in connection with the dry cleaning business, such as, but not limited to, laundering, drying, pressing and ironing, are carried on in the same

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building, the dry cleaning operations shall be isolated in a room having at least a 2-hour fire resistive rating or the dry cleaning operation shall be separated from the other occupancy by a occupancy separation having at least a 2-hour fire resistive rating.

(3) FLOOR OF OPERATION. Dry cleaning operations shall be restricted to the lowest floor of a building, but shall not be carried on in any basement.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.31 Construction. (1) CLASS IIIA PLANTS. Class IIIA dry cleaning plants shall meet the requirements specified in subch. 4 for Class II plants.

(a) Class IIIA dry cleaning plants located in a building with other occupancies shall be separated vertically and horizontally from such occupancies by fire resistive construction having at least a 2-hour rating. All openings in such separations shall be protected by approved 1½ hour rated fire door assemblies.

(b) In Class IIIA dry cleaning plants located in buildings with no other occupancies, the dry cleaning room shall be separated from the rest of the plant by fire resistive construction having at least a 2-hour rating. All openings in such separations shall be protected by approved 1½ hour rated fire door assemblies.

1. 'Exception.' The fire rated separation need not be provided in buildings completely protected by an approved automatic sprinkler system.

(2) CLASS IIIB. Class IIIB plants located in a building with other occupancies shall be separated vertically and horizontally from such other occupancies by fire restive construction having at least a 2-hour rating. All openings in such separation shall be protected by approved 1½ hour rated fire door assemblies.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.32 Heating and ventilating. Class III dry cleaning establishments shall meet the requirements specified in s. ILHR 15.19 for Class II plants.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.33 Storage tanks. Storage tanks shall meet the requirements in s. ILHR 15.22 and the requirements specified in this section.

(1) CLASS IIIA. In dry cleaning plants located in buildings with other occupancies or without sprinklers, each aboveground tank shall have a capacity of not more than 330 gallons, and the total solvent capacity of such plant, including inside aboveground and underground storage tanks, shall not exceed 1,320 gallons.

(2) CLASS IIIB. The capacity of any inside aboveground tank shall not exceed 1,500 gallons, and the aggregate capacity of all inside aboveground storage and treatment tanks in an unenclosed area shall not exceed 3,000 gallons. Capacities in excess of 3,000 gallons shall be installed in accordance with the provisions of ch. Ind 8.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.34 Equipment. All machinery and equipment shall comply with the requirements specified in s. ILHR 15.24.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.35 Heating of class IIIB liquids. Class IIIB liquids shall not be heated to a temperature in excess of 30° F. below their flash point.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

**SUBCHAPTER 6
CLASS IV PLANTS**

ILHR 15.36 Scope. Class IV plants are dry cleaning plants utilizing nonflammable solvents.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.37 Location. (1) PROHIBITED LOCATION. Class IV dry cleaning plants shall not be located in basement areas.

(2) OTHER OCCUPANCIES. Class IV dry cleaning plants and systems where the dry cleaning is not conducted by the public or in coin-operated type equipment may be located in buildings with or without other occupancies.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.38 Solvents. Class IV solvents only shall be used in drying cleaning machines or systems designed for such solvents. Such machines and systems shall be designed for the solvents used.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.39 Heating. (1) COMBUSTION AIR. Air for combustion for gas- and oil-fired devices shall come through ducts from a source of air outside the building when such devices are located in the dry cleaning room.

(2) SOURCES OF IGNITION. Apparatus with open flames or with exposed electric heating elements shall not be placed within 20 feet of any Class IV equipment, unless such apparatus is located in a separate enclosed room or cabinet which is independently ventilated to prevent the air from the dry cleaning system from being drawn towards the apparatus.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.40 Ventilation. (1) GENERAL. Class IV plants shall be provided with ventilation to maintain an average solvent concentration anywhere within the plant as follows:

<u>Solvent</u>	<u>Concentration</u>
Fluorocarbon 113 (Trichlorotrifluoroethane)	1000 ppm
Perchloroethylene	100 ppm time weighted average for an 8 hour exposure with a 150 ppm maximum concentration for short term exposure, not to exceed 20 minutes.

(2) EMERGENCY VENTILATION. Manually operated emergency ventilation for spills or leaks shall be installed to provide 12 air changes per hour

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within 15 feet of Class IV equipment. The switch for this ventilation equipment shall be readily accessible and clearly identified.

(3) **EXHAUST OUTLET LOCATION.** The exhaust ventilation outlets shall be located not closer than 25 feet from any openings in other occupancies.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.41 Piping and pumps. (1) **GENERAL.** The transfer or circulation of solvent shall be through closed circuit pipes.

(2) **MATERIAL TYPE AND STRENGTH.** Pipes, tubings, valves and sight-glasses shall be of materials suitable for use with the solvent and shall be tested for minimum pressure of 50% in excess of the maximum operating pressure.

(3) **SIGHTGLASSES.** Flow and level sightglasses shall be protected against physical damage.

(4) **PUMPS.** (a) All pumps shall be designed for the solvent being used and provided with seals proven to be leakproof in solvent operation.

(b) Positive displacement pumps for solvent service shall be fitted with relief valves or bypasses set to prevent pressure in excess of the working pressure of the system.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.42 Dry cleaning units, filters, stills and reclaiming tumblers. All Class IV dry cleaning equipment shall comply with the following requirements:

(1) **LEAKAGE.** All solvent-handling equipment and components shall be constructed to prevent leakage;

(2) **CORROSION.** Solvent storage and treatment tanks and all interior steel surfaces, which corrode when exposed during ordinary operation to solvent and to air alternately, shall be protected against corrosion;

(a) *Exception.* Pumps, filters, or any closed containers which ordinarily are completely filled with solvent, or steam coils or chests immersed in solvent or which ordinarily do not tend to corrode, may be constructed of carbon steel or equivalent without corrosion protection.

(3) **EXHAUST VENTILATION DUCTS.** Exhaust ventilation ducts from equipment shall be sealed, taped or soldered, and the discharge shall extend above the roof line unless leading directly into a solvent recovery system;

(4) **DRY CLEANING UNITS.** In addition to the requirements specified in ss. ILHR 15.24 and 15.40, dry cleaning units shall comply with either of the following requirements:

(a) Dry cleaning units shall be provided with an automatically activated exhaust ventilation system to maintain a minimum of 100 fpm air velocity through the loading door, whenever the door is open, or

(b) An external ventilation shroud immediately outside the loading door may be used provided the airflow capacity in CFM is not less than 100 times the area in square feet of the door opening.

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(c) *Exception.* The requirements of par. (a) or (b) shall not apply to dry cleaning units using fluorocarbon 113 (trichlorotrifluoroethane) provided that the operator is not exposed to an average solvent concentration during loading and unloading in excess of 1000 ppm;

(5) **FILTERS.** In addition to the requirements in s. ILHR 15.23, filters shall comply with the requirements of subs. (1) to (4); and

(6) **STILLS.** In addition to the requirements in s. ILHR 15.25 and subs. (1) to (4), stills shall comply with the following requirements:

(a) Atmospheric solvent stills shall be constructed to prevent hot solvent vapor from escaping into the room, when operated under normal conditions and at rated capacity.

(b) Stills shall be equipped with solvent aftercoolers to lower the distilled solvent temperature to less than 100° F. before returning the solvent to the dry cleaning system.

(c) Water separators shall be provided on stills to reduce the amount of water entrapped with the distilled solvent.

(d) Stills shall be equipped with a thermostatically controlled valve on the inlet steam line. Such valve shall be automatically closed when the temperature of the cooling water level the condensor exceeds: for perchlorethylene 160° F., and for fluorocarbon 113 (trichlorotrifluoroethane) 95° F.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.43 Operating requirements. (1) **MANUFACTURER'S OPERATING INSTRUCTIONS.** Machines shall be operated in accordance with operating instructions furnished by the machinery manufacturer.

(2) **INSTRUCTION OF EMPLOYEES.** All employes shall be thoroughly instructed as to the hazards involved in their departments and in the work they perform.

(3) **SAFETY CANS.** Flammable or combustible liquids used for spotting operations shall be stored in approved safety cans of not more than one gallon capacity with an aggregate amount not exceeding 4 gallons per work station.

(4) **MAINTENANCE.** Proper maintenance and operating practices for the entire dry cleaning plant which will prevent leakage of solvent and the accumulation of lint shall be utilized.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

SUBCHAPTER 7 CLASS V COIN-OPERATED SELF-SERVICE DRY CLEANING STORES

ILHR 15.44 Scope. Class V dry cleaning plants consist of coin-operated self-service dry cleaning stores in which the dry cleaning is conducted by the public.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

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ILHR 15.45 Fire protection. Special fire prevention regulations for the control of the solvents are not required. Only solvents approved for Class IV dry cleaning plants shall be used in the dry cleaning machines.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.46 Ventilation. (1) **AIR FLOW.** Class V stores shall be provided with a minimum air flow rate away from the customer areas as specified in Table 15.46.

Table 15.46
Rate of Ventilation

<u>Number of Dry Cleaning Units</u>	<u>Air Flow Per Unit - cfm</u>
1-3	250
4-8	200
9-16	150
17 or more	100

(2) **EXHAUST.** (a) Exhaust ventilation shall be provided continuously while the store is open for business.

(b) The exhaust fan shall be interlocked so that the dry cleaning units cannot be operated unless the fan is in operation.

(c) A supply of make-up air equal to or greater than the total volume of air exhausted shall be provided for the customer area.

(3) **VENTILATION FAN.** A ventilation fan shall be installed in the service area to be used in case of a solvent leak. The combined capacity of the ventilation required in sub. (1) and this fan shall be not less than 500 cfm per dry cleaning machine.

(4) **COMBUSTION AIR.** Air for combustion for gas- and oil-fired devices shall be provided through ducts from a source of air outside the building when such devices are located in the dry cleaning room.

(5) **EXHAUST OUTLETS.** The exhaust ventilation outlets shall be located not closer than 25 feet from any openings in other occupancies.

(6) **CONCENTRATION LIMITS.** The limits for concentration of solvent vapor shall not exceed the following levels: for perchlorethylene - 100 ppm; for fluorocarbon 113 (trichlorotrifluoroethane)-1,000 ppm.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.47 Pumps and piping. All pumps and piping shall be installed in accordance with the requirements under subch. 6 for Class IV plants.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.48 Dry cleaning units, filters and still. All dry cleaning units, filters and stills shall meet the requirements specified under subch. 6 for Class IV plants.

(1) **EQUIPMENT LOCATION AND ORIENTATION.** Only the front or customer side of the dry cleaning unit shall be exposed in the customer area. The working or maintenance portion of the units shall be separated in a service area by a partition. Access doors to the service area shall be kept locked.

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(2) **EXHAUST SYSTEMS.** Dry cleaning units shall be provided with an automatically activated exhaust ventilation system to maintain a minimum of 100 fpm air velocity through the loading door whenever the door is open.

(a) *Exception:* This requirement shall not apply to dry cleaning units using fluorocarbon 113 (trichlorotrifluoroethane) provided that the operator is not exposed to an average solvent concentration during loading and unloading in excess of 1000 ppm.

(3) **SPILLAGE CONTAINMENT.** The floor near the base of the unit or a metal pan around the unit shall be provided which will hold the volume of liquid equal to the maximum quantity of solvent in the unit or the floor area around the base of the unit shall be diked and fitted with an opening and piping to transfer the liquid to a storage tank located on a lower level than that of the unit. The storage tank shall have an excess capacity equal to the solvent capacity of the equipment.

(4) **FILTER RESIDUE.** Filter residue and other residues containing solvent shall be handled and disposed of in covered metal containers.

(5) **STILLS.** Stills shall be constructed so as to prevent hot solvent vapor from escaping into the room.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.

ILHR 15.49 Operation. (1) **OPERATING INSTRUCTIONS.** Operating instructions for customer use shall be posted in a conspicuous location near the unit.

(2) **EQUIPMENT INTERLOCK.** An interlock system shall be provided to prevent the loading door of the unit from being opened during the entire dry cleaning cycle.

(3) **EXCESS SOLVENT.** The dry cleaning unit shall be designed so that no significant amount of solvent is left in the cleaned garments at the end of the drying cycle.

(4) **MAINTENANCE.** Proper maintenance of the dry cleaning units shall be provided daily to prevent solvent leakage and lint accumulation.

(5) **SPOTTING OPERATIONS.** Spotting operations using flammable or combustible liquids shall be prohibited.

(6) **CLEANLINESS.** Customer areas shall be kept clean.

History: Cr. Register, November, 1981, No. 311, eff. 12-1-81.