

MODESTO FIRE DEPARTMENT

Ventilation System Guidelines for Beauty/Nail Salons

Many years ago, due to a number of complaints about fumes, MFD began requiring ventilation systems in nail salons. At that time we used a California Fire Code (CFC) requirement for flammable vapors with fresh air intake near the floor. This system was specific to the “nail area” only. Since the adoption of the 2007 codes in 2008, the requirements have changed significantly and now apply to beauty shops as well as to nail salons and apply to the salon as a whole.

California Mechanical Code (CMC), Chapter 4 is devoted to the exhaust system requirements. There are several tables and formulas used to determine the required supply air rates in “breathing zones” (4-1), air distribution effectiveness (4-2 & 4-3) and to determine the exhaust air rates (4-4).

Exhaust

The required exhaust ventilation rate is .6 cfm/sq. ft. which comes from CMC Table 4-4 and should include all areas of the salon except separate office and accessory rooms that are completely partitioned off and with all openings, within the walls, having either doors or windows.

It appears that CMC 403.7 approves the use of any combination of outdoor air, re-circulated air and transfer air to be used as exhaust makeup air but does not allow the required exhausted air to being re-circulated.

Supply Air

Besides the exhaust ventilation there are specific outside air intake requirements. To determine those requirements use the formula below.

Breathing Zone (Vbz) – Outside airflow requirement is specific to the use of the space and is obtained by using the following equation (4-1). The factors used in the equation are found in Table 4-1.

$$\frac{Vbz = RpPz + RaAz}{Ez}$$

Rp = 20 - outdoor airflow rate required per person

Pz = 25 per/1000 sq. ft - zone population

Ra = .12 - outdoor air flow rate per square foot.

Az = zone floor area (square footage)

Ez = air distribution effectiveness (per Table 4-2)

If multiple zones are involved, additional calculations may be required. (See CMC 404.0) They could be several tenants sharing HVAC equipment.

The following are the proper steps to take regarding the ventilation for your business:

- Have a licensed contractor or mechanical engineer evaluate your current HVAC system for compliance with CMC Chapter 4 and prepare a set of submittal plans for you. They need to include system size, air intake flow rate, duct sizes, supply and return locations, other suites sharing the system and any other information that may be needed to evaluate the compliance.
- Apply for a building permit after you obtain these plans and include them with your submittal.