
LAB FUME HOOD DUCT MANIFOLD REQUIREMENTS

Disciplines: Fire and Life Safety**History:** Revised 07/08/18
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PURPOSE: This Interpretation of Regulations (IR) describes the options acceptable to Division of the State Architect (DSA) for lab fume hood duct manifolding.

BACKGROUND: Some school science buildings are designed with multiple areas each containing multiple fume hoods. The issue of manifolding (combining exhaust streams into fewer ducts) fume hood units can be further compounded when there are multiple elevations or stories and/or hazardous materials involved.

1. BASIC DESIGN REQUIREMENTS:

1.1 DSA will accept submittals that conform to the requirements of Title 24, Part 4: California Mechanical Code (CMC), Sections 505 through 506.

1.1.1 Ducts conveying flammable vapors, fumes, or dust out of the building:

The CMC requires that exhaust ducts go directly to the exterior without passing through any other space, unless the use of a rated shaft, continuous to the exterior, is provided.

1.1.2 Separate and distinct systems:

Fume hood exhaust ducts may not be manifolded together, unless they are within the same space, and compatible by-products are being exhausted. See Section 2 of this IR for an exception to this requirement regarding incompatible materials.

1.1.3 Recirculation not permitted:

Fume hood exhausts combined with general exhaust provides the potential for direct communication of by-products from the fume hoods which can then be circulated throughout the building. Therefore, environmental (general) exhaust air must not be connected by any manifold to any fume hood exhaust system, nor be allowed the potential to recirculate fume hood exhausts into occupied spaces.

2. OPTION:

2.1 DSA will accept, as an option to meeting the requirements of Sections 1.1.1 and/or 1.1.2 above, submittals conforming to the design option described below. Compliance with the CMC requirements described in Section 1.1.3 above is still mandatory.

2.2 Manifolding of fume hood exhausts shall be allowed when a written report prepared by either an industrial hygienist or chemical engineer verifies that the hazardous materials are compatible and the exhaust concentration from both the room and fume hoods shall not exceed 25% of the lower flammable limit (LFL) per CMC 505.

2.3 A copy of the Hazardous Materials Inventory Statement (HMIS) shall be given to the local fire authority.

REFERENCES:

California Code of Regulations (CCR) Title 24, Part 4: California Mechanical Code (CMC)
Chapter 5, Section 505.0

This IR is intended for use by DSA staff and by design professionals to promote statewide consistency for review and approval of plans and specifications as well as construction oversight of projects within the jurisdiction of DSA, which includes State of California public schools (K–12), community colleges and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

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