UNIVERSITY OF CALIFORNIA

MAQ Management Plan Template

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MAQ Management Plan Template

Location: UC [*enter location*]
Date: January 1, 2027

Executive Summary

All new and existing UC [*enter location*] buildings shall comply with the Hazardous Materials Provisions of the California Fire Code (CFC). This plan outlines steps towards achieving and maintaining compliance with Maximum Allowable Quantities (MAQs).

Purpose

This plan describes procedures and controls for UC [*enter location*] buildings to ensure that the storage of hazardous chemicals (commonly referred to as “hazardous materials”) do not exceed applicable Maximum Allowable Quantities (MAQs) outlined in the Hazardous Materials Provisions of the California Fire Code (CFC) and the California Building Code (CBC). MAQs apply to the storage, use and handling of all hazardous materials. While these MAQs are not new, President Drake issued a mandate outlining measures to support UC campuses to obtain compliant storage of hazardous chemicals by 2030. This plan applies to new and existing buildings that store, use, and dispense hazardous materials.

This plan outlines the current status of MAQ Compliance at [*enter location*] location. Roles and Responsibilities for achieving and maintaining compliance are defined. MAQ Compliance Strategies are identified and a Training Plan for campus stakeholders is outlined. Corrective actions and a Funding Plan are clearly established. A Schedule with Milestones for achieving compliance by 2030 is identified as part of the Implementation Plan. Methods for Maintaining MAQ Compliance are clarified. Higher risk areas are identified and will be prioritized for corrective action.

Background

On December 15, 2023, President Drake issued a directive for all UC locations to implement the measures outlined in the MAQ Taskforce Report and Recommendations. The CFC is the primary regulation governing the safe storage and use of hazardous materials inside or outside of buildings. The hazardous materials provisions of the CFC establish the minimum requirements for providing a reasonable level of life safety and property protection from the hazards of fire, explosion, or dangerous conditions for building occupants and first responders. The CFC defines specific upper limits or Maximum Allowable Quantities for hazardous materials based on several determining factors. Some factors are based on properties of the hazardous material (e.g., physical state, hazard class), while other factors are based on storage methods and construction type (e.g., cabinet storage, fire sprinkler status, occupancy, floor level).

UC [*enter location*], with state owned and occupied buildings, is required to comply with the hazardous materials provisions of the CFC and CBC. The Designated Campus Fire Marshal has the authority to enforce these requirements on campus property.

Roles and Responsibilities

Designated Campus Fire Marshal

The Designated Campus Fire Marshal (DCFM) and their authorized representatives have the authority to enforce the CFC and CBC on all campus owned and occupied buildings. They are responsible for identifying control areas, laboratory suites, and other occupancies for all UC [*enter location*] buildings. They will collaborate with campus partners to identify areas where MAQs have been exceeded. DCFMs can advise users on appropriate solutions to achieving and maintaining MAQ compliance. Construction designers and project managers must consult with DCFMs in early phases of construction planning if hazardous materials will be stored or used in a new or existing building. DCFMs can provide guidance on acceptable designs for proposed building usage. Solutions for achieving MAQ compliance must be approved by the DCFM.

Chemical Inventory Owners (CIOs)/Faculty/Researchers

MAQ limits impact researchers and other users of hazardous materials. These limits differ based upon specific building attributes. Many buildings are designed so that aggregate MAQ limits are shared among groups on the same floor or building. In other spaces, individual labs may occupy a separate “control area” relative to neighboring laboratories.

Researchers are responsible for complying with all hazardous materials provisions of the CFC, including: maintaining an accurate chemical inventory for spaces controlled by the group; keeping all chemicals properly stored when not in use; and staying below MAQs for all hazard categories. In some cases, researchers will need to reduce chemical quantities to be compliant with the CFC. Operationally, this could mean lab cleanouts and removal of older chemicals; more frequent orders of common chemicals in smaller quantities (rather than bulk orders); sharing common chemicals within groups (rather than each researcher having their own container); and reliance on stock rooms or re-use facilities for some chemicals. EH&S and DCFMs can provide guidance on MAQ limits and potential solutions.

Construction, Design, and Planning

For all new projects (new building or tenant improvement project), Planners should inquire whether any hazardous materials will be stored in the new space. Labs, shops, storage facilities, buildings with generators, research support buildings, energy storage locations, and facilities supporting custodial or maintenance are some examples of spaces which may contain hazardous chemicals.

In the earliest planning phases, Construction Planners and Designers must discuss any planned chemical storage with the DCFM. DCFMs can provide guidance on the most appropriate type of

building and/or occupancy type for planned chemical usage. Hazardous Materials Inventory Statements (HMISs) will be required prior to submittal of new projects.

For those responsible for assigning spaces to new faculty or researchers, it is prudent to discuss the limitations of that space with EH&S or the DCFM prior to space assignments. For example, synthetic chemistry research or users of toxic gases will be severely restricted on upper floors of most buildings.

Deans/Department Chairs

Deans and Department Chairs, particularly for research areas conducting laboratory research, play a crucial role in supporting safe and compliant environments for faculty and researchers. These leaders should have a good understanding of the MAQ issue within their particular buildings. Deans and Departmental Chairs may need to facilitate communication among research groups within shared spaces and for heavy chemical users. They will collaborate closely with their Department Safety Coordinators and Building Managers.

For those responsible for assigning spaces to new faculty or researchers, it is prudent to discuss the limitations of that space with EH&S or the DCFM prior to space assignments. For example, synthetic chemistry research or users of toxic gases will be severely restricted on upper floors of most buildings.

Department Safety Coordinators (DSCs)/Building Managers

DSCs and Building Managers are intimately familiar with their building infrastructure and the chemical inventory owners occupying their buildings. They play a critical role in facilitating MAQ compliance. They may work closely with both the DCFM and CIOs to understand MAQ issues and convey overages to CIOs.

MAQs vary tremendously on building attributes such as sprinkler coverage, fire-resistant rated construction, and where hazardous materials are being stored and used. Upper floors (higher than 3rd story) are more challenging for occupants to evacuate during emergencies. These upper levels are also more difficult for first responders to access, therefore the MAQ limits are reduced on higher levels relative to the first floor.

For building managers responsible for assigning new faculty to spaces, it is prudent to discuss the limitations of that space with EH&S or the DCFM prior to space assignments. For example, synthetic chemistry research or users of toxic gases will be severely restricted on upper floors of most buildings.

Environmental Health and Safety (EH&S)

EH&S staff are responsible for managing chemical inventories for their site. EH&S often acts as the liaison between chemical users and regulatory agencies and the DDCFM, therefore they need to be familiar with the objectives of MAQ compliance and how they impact chemical users.

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Executive Responsible Official

The designated senior executive official is responsible for oversight and implementation of the MAQ Management Plan.

Facilities and Maintenance

Hazardous materials are commonly used for cleaning, landscaping, fleet operations, maintenance of athletic facilities, agriculture, and facilities operations. These are subject to MAQ limits. Facilities and Maintenance supervisors are required to keep accurate chemical inventories for all hazardous materials within their unit.

Facilities staff must work with project managers and DCFMs for buildings containing chemicals. Discussion and coordination for installations of the following must be reviewed by the DCFM: fire alarm and fire protection systems, ventilation systems (including hazardous exhaust systems, gas cabinets, fume hoods, building ventilation and exhaust serving labs and patient spaces), doors and wall penetrations for fire barriers and fire walls.

Vice Chancellors and Executives

Campus and Health Center leadership is ultimately responsible for assuring their location is compliant with MAQs. They must facilitate solutions and allocate funding, as needed, to achieve compliance within the timeframe.

MAQ Status Report

Hazardous Materials Inventory at UC location

All chemical containers at UC [*enter location*] have been reviewed and the inventory is considered substantially complete and accurate (at least 90%). Inventories are regularly updated using RSS Chemicals software. UC [*enter location*] has [enter Containers ID 447 (no facility), ID 448 (no facility group), ID 449 (campus), ID 450 (health)] number of containers of hazardous materials.

Facility Review

The DCFM or campus Certified Building Official has reviewed buildings at UC [*enter location*] to determine accurate building attributes. All relevant control areas, laboratory suites, or other occupancies have been defined and verified. This data is entered into RSS Chemicals and is considered substantially complete and accurate.

Total number of buildings at UC [*enter location*]: [ID 227 (no facility), ID 228 (no facility group), ID 229 (campus), ID 230 (health)]

Most common Occupancy type for buildings: [select most common occupancy type: ID 348-416, 565-587]

Number of High Rise buildings containing laboratories, clinical space, or hospitals: [Not from RSS, *Fire Marshal to review*]

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Number of buildings containing one or more Group L Occupancy laboratory suites: [ID 553 (no facility), ID 292 (no facility group), ID 293 (campus), ID 294 (health)]

Number of buildings containing one or more Group S Occupancies (Storage): [ID 556 (no facility), ID 301 (no facility group), ID 302 (campus), ID 303 (health)]

Total number of buildings containing High Hazard Group H Occupancies: [ID 551 (no facility), ID 286 (no facility group), ID 287 (campus), ID 288 (health)]

H-occupancy type	Number of rooms or areas at location
Group H-1	ID 569 (no facility), ID 360 (no facility group), ID 361 (campus), ID 362 (health)
Group H-2	ID 570 (no facility), ID 363 (no facility group), ID 364 (campus), ID 365 (health)
Group H-3	ID 574 (no facility), ID 375 (no facility group), ID 376 (campus), ID 377 (health)
Group H-4	ID 576 (no facility), ID 381 (no facility group), ID 382 (campus), ID 383 (health)
Group H-5	ID 577 (no facility), ID 384 (no facility group), ID 385 (campus), ID 386 (health)
Group H-2/H-4	ID 573 (no facility), ID 372 (no facility group), ID 373 (campus), ID 374 (health)
Group H-3/H-4	ID 575 (no facility), ID 378 (no facility group), ID 379 (campus), ID 380 (health)
Other:	

Number of buildings with automatic fire sprinkler coverage throughout: [ID 219 (no facility), ID 220 (no facility group), ID 221 (campus), ID 222 (health)]

Buildings with CFC prohibited substances: [ID 785 (no facility), ID 786 (no facility group), ID 787 (campus), ID 788 (health)]

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Metrics on MAQ Status for buildings with chemicals

Description	Total number	Number exceeding MAQs	Percent non-compliant
Buildings containing chemicals	ID 215 (no facility), ID 216 (no facility group), ID 217 (campus,) ID 218 (health)	ID 655 (no facility), ID 656 (no facility group), ID 657 (campus), ID 658 (health)	ID 823 (no facility), ID 824 (no facility group), ID 825 (campus), ID 826 (health)
Control areas/Lab suites	ID 211 (no facility), ID 212 (no facility group), ID 213 (campus) ID 214 (health)	ID 789 (no facility), ID 791 (no facility group), ID 793 (campus) ID 794 (health)	ID 803 (no facility), ID 804 (no facility group), ID 805 (campus) ID 806 (health)
Hazard categories*	ID 627 (no facility), ID 628 (no facility group), ID 629 (campus), ID 630 (health)	ID 609 (no facility), ID 610 (no facility group), ID 611 (campus), ID 612 (health)	ID 817 (no facility), ID 819 (no facility group), ID 820 (campus), ID 821 (health)
Significant overages**	ID 613 (no facility), ID 614 (no facility group), ID 615 (campus), ID 616 (health)	N/A	ID 635 (no facility), ID 636 (no facility group), ID 637 (campus), ID 638 (health)

Hazard categories in indoor control areas: 80 (all hazard classes from CFC Tables 5003.1.1(1-2) except for combustible dusts, fibers and inert gases)

Hazard categories in outdoor control areas: 65 (all hazard classes from CFC Tables 5003.1.1(3-4 and Table 5704.4.4.2, except for inert gases)

*Hazard categories = number of indoor control areas x individual hazard categories per indoor control area + number of outdoor control areas x individual hazards categories per outdoor control area

**Significant overages are instances where MAQs are exceeded by more than 200%

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Buildings that exceed MAQs

Building name	Primary Department	Number of control areas that exceed MAQs	Total number of hazard categories that exceed MAQs

Progress to Date

Location [*enter location*] has been working towards MAQ Compliance for the past [*enter years*] years. Some of the previous improvements include:

- Outline efforts and resources deployed to ensure accurate chemical inventories to date;
- Describe efforts and resources used to identify and validate control areas and other building attributes;
- Highlight [*enter total*] number of problematic buildings which were initially identified as non-compliant; and
- Describe improvement projects that successfully reduced MAQ overages

MAQ Compliance Strategies

Common solutions are outlined in the document entitled MAQ Compliance Strategies. The MAQ Taskforce Report also includes a comprehensive Toolbox of Solutions in Appendix C, which can complement these approaches.

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Training Plan

Campus stakeholders must receive training on the importance of Fire Code MAQ Compliance.

Training developed and implemented by specific locations can include:

- Publication of an MAQ resources website
- Online training (could include general overview of concepts, information designed for target audiences)
- Seminars
- Town halls
- Use of guidance documents on how to view chemical inventories (RSS Chemicals)
- Implementation of administrative controls
- Provide and/or Require project design guidelines
- Lab safety inspections
- Webinars (e.g., applying approved storage, fire resistance rated assemblies)

Corrective Actions and Funding Plan

High priority fixes – Describe method for prioritizing fixes. Some options may include:

- Target high hazard chemicals (e.g., pyrophorics or explosives in unsprinklered buildings)
- Focus efforts on heavy chemical use areas
- Identify chemical storage gaps
- Target significant overages (>2x MAQ)

Describe plan for purchasing approved storage cabinets

Staffing support (examples):

- **Fire Prevention** – funding for xx full time position(s) to analyze control areas, review MAQs, inspect high hazard areas, create MAQ reports, provide guidance on methods for achieving MAQ compliance
- **EH&S** – outline responsibilities and funding model to support EH&S for regular Inspections of labs and Reconciliation efforts (verifying chemical inventories are accurate). If EH&S will not be conducting regular reconciliations, outline how this will be accomplished to maintain accurate inventories.
- **Training** – Development, Implementation, and Distribution of training required by all affected stakeholders

Hazardous Waste removal – outline costs and funding allocated.

Identify buildings that would benefit from building improvement construction projects. Examples:

- Add or improve sprinkler coverage

- Repair or renovate existing fire barriers or fire walls (and openings) that are non-compliant
- Create additional control areas by constructing fire barriers or fire walls
- Convert fire partitions to fire barriers to add additional control areas
- Initiate major construction renovation to convert Group B occupancies to Group H or Group L occupancies. Provide funding plan for construction.
- Initiate major construction renovation to add Group H rooms to high chemical use areas

Implementation of MAQ Compliance Measures – Schedule and Milestones

1. **Name of Building 1:** *(example text in italics: Building X)*

   Narrative: *Building X is a fully sprinklered 4-story building of type IA construction. It consists of 4 control areas (CA1, CA2, CA3, CA4). It is primarily Group B occupancy with one classroom (Group A-3) space. The primary department occupying Building X is Biology and most of the space consists of laboratories.*

Hazard Category (+ control area)	Approach					
	Estimated date of completion	Reduce Quantities	Approved storage	Move chemicals	Building upgrades	Other:
Flammable liquids, Class I (CA1)	*March 2027*	*YES*	*YES*			
Toxic liquids (CA1)	*May 2027*	*YES*	*YES*			
Flammable gases (CA1)	*March 2027*	*YES*		*YES*	*YES: construct gas cages outside*	

Flammable liquids, Class I (CA2)	*March 2027*	*YES*	*YES*			
Highly toxic liquids (CA2)	*May 2027*	*YES*	*YES*			

2. Name of Building 2

Narrative:

Hazard Category (+ control area)	Approach					
	Estimated date of completion	**Reduce Quantities**	**Approved storage**	**Move chemicals**	**Building upgrades**	**Other:**
Flammable liquids, Class I (CA1)	*March 2027*	*YES*	*YES*			
Toxic liquids (CA1)	*May 2027*	*YES*	*YES*			
Flammable gases (CA1)	*March 2027*	*YES*		*YES*	*YES: construct gas cages outside*	
Flammable liquids, Class I (CA2)	*March 2027*	*YES*	*YES*			

Highly toxic liquids (CA2)	*May 2027*	*YES*	*YES*			

3. **Name of Building 3**

   Narrative:

Hazard Category (+ control area)	Approach					
	Estimated date of completion	**Reduce Quantities**	**Approved storage**	**Move chemicals**	**Building upgrades**	**Other:**

Document improvements based on above approaches.

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Maintaining MAQ Compliance – Review and Enforcement

Chemical Inventory

Option 1: EH&S will perform reconciliation of all chemical containers at UC [*enter location*] on an (annual) basis. This ensures that trained personnel review all chemical inventories for accuracy.

Option 2: Chemical Inventory Owners (CIOs) are required to maintain an accurate chemical inventory in RSS Chemicals. Training shall be provided so that all CIOs or Departments develop a protocol where all members are trained to delete outgoing chemicals and add new chemicals when ordered. Users will review their chemical inventory prior to ordering any new chemicals to minimize duplicate chemicals. While it is reasonable to have two containers of the same chemical (one in use and the other as a replacement), CIOs should avoid stockpiling multiple containers of the same chemical.

Chemical Location

In addition to maintaining accurate chemical inventories, CIOs are required to indicate the correct location (building and room) for chemicals. If a chemical is moved from one location to another, this must be updated within RSS Chemicals. The rooms and buildings are assigned by the CFM to the appropriate control area or laboratory suite.

Chemical Storage

Ideally, all chemicals will be stored at the end of the day within approved storage cabinets or other appropriate storage. Experimental protocols include returning chemical containers to their approved storage location after experiments are completed, particularly for high hazard chemicals which are required to be in approved storage.

Inspections and Audits

Annual Inspection – Lab Safety Program

Lab Inspectors will perform annual inspections of all laboratories at UC [*enter location*]. While they are not explicitly looking for MAQ violations, they will note general housekeeping, chemical storage, and chemical inventory accuracy.

Annual Audit – Fire Prevention

Fire Prevention will perform an annual review of campus buildings. CIOs in any control area/laboratory suite that exceeds MAQs will be notified if they have chemicals contributing to the overage. A violation escalation process will begin upon sharing the HMIS report with the CIO and the DSC.

Violation Escalation Process

Example strategy: When MAQs have been exceeded, the DCFM (or EH&S) will notify DSCs of the overage. DSCs will facilitate coordination among CIOs and the DCFM to discuss options for

achieving compliance. Describe timeframe for achieving compliance. Describe method for escalating issues when CIOs are non-cooperative.