TENANT IMPROVEMENT GUIDE

PROCEDURES, REGULATIONS AND PROVISIONS CONTROLLING
AIRPORT DESIGN AND CONSTRUCTION CONTRACTS
AND TENANT IMPROVEMENTS

AT

SAN FRANCISCO INTERNATIONAL AIRPORT

AIRPORT COMMISSION
CITY AND COUNTY OF SAN FRANCISCO

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April 1999
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PREFACE

It is the intent of the Tenant Improvement Guide to act as a basic reference for Airport Staff and their consultants, Airport Tenants and their consultants, and contractors, to plan, design, demolish, construct and install improvements within Airport property, including all rentable land and building space at San Francisco International Airport. Careful evaluation of the information furnished and close adherence to procedures, standards and regulations outlined in this document will greatly aid in expediting the processing and approval of each Airport professional service agreement, construction contract and tenant improvement proposal.

This document consists of eight basic parts, fully cross-referenced to afford access to all information related to each set of conditions or requirements.

PART I. GENERAL INFORMATION
Describing scope, definitions, authorities, and data resources.

PART II. IMPROVEMENT PROPOSAL REQUIREMENTS
Describing procedures and information related to process of project approval.

PART III. LANDSIDE SECTOR DEVELOPMENT
Describing provisions, regulations, and special requirements governing work within this designated Airport area.

PART IV. TERMINAL SECTOR DEVELOPMENT
Describing provisions, regulations, and special requirements governing work within this designated Airport area.

PART V. DESIGN AND MATERIALS STANDARDS
Describing codes, laws, orders, and detail requirements governing processes of planning and design.

PART VI. CONSTRUCTION REGULATIONS
Describing procedures and special requirements governing process of construction.

PART VII. STANDARD DETAIL DRAWINGS
Providing architectural and engineering design standard details.

PART VIII. SFIA CAD STANDARD
Describing format and layout, naming and organization, and requirements for CAD drawings.

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Effective April 20, 1999, the revised edition of the Tenant Improvement Guide supersedes and replaces the July 1, 1982 edition.
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PART VIII  SFIA CAD STANDARD
PART I

GENERAL INFORMATION
ARTICLE 101. SCOPE OF GUIDE

Procedures, regulations and provisions described herein pertain to all areas within Airport boundaries in which all Airport design and construction contracts, and tenant improvements are permitted. A permit shall be obtained before commencement of work.

Sec. 101.1 Application: As various Articles and Sections apply, this guide shall govern original construction, alterations, renovations, repairs, relocation, demolition, and environmental issues involving the following major divisions of work:

A. land fill, including finish grading and pavements

B. site utilities, including drainage, sewage, waste water, fuel power, industrial waste, lighting and communications

C. site development, including finish paving, and landscaping

D. buildings, including external and internal appurtenances

E. building services, including plumbing, heating, ventilation, air-conditioning, lighting, power, communications, and vertical and horizontal transportation systems

F. health and safety

G. stormwater pollution prevention.

Sec. 101.2 Interpretation: All questions relating to clarification of specific sections shall be directed to Deputy Airport Director & Chief Engineer, Facilities Operations and Maintenance, or his designee. Authority for final determination shall be Airport Director.
ARTICLE 102. DEFINITIONS

Wherever any of the following words are used in this Guide, they shall have meaning set forth herein:

Sec. 102.1 City: City and County of San Francisco, State of California.

Sec. 102.2 Airport: San Francisco International Airport, City and County of San Francisco, including all lands and facilities within boundaries depicted on Airport Map, Exhibit “A”.

Sec. 102.3 Sectors: Airport consists of three primary zones of activity, designated on Exhibit “A”, and described as follows:

A. Airfield Sector: All areas allocated to aircraft flight and taxiing activities, and under direct operating control of FAA and related governmental agencies. It includes runways, taxiways, clear zones, separation areas, and attendant drainage, electrical and electronic systems.

   NOTE: Tenant improvements within this Sector shall be limited to utility and utility related installations serving leased plot-sites and aircraft apron areas located in adjacent Sectors. Approval of work shall be granted only on an individual case basis, and at sole discretion of Director.

B. Landside Sector: All areas outside Airfield Sector allocated to Airport and private use, for rendering public and private services. It includes road and taxiway accesses, utility systems, Airport support facilities, Airport structures affording rentable building space, and plot sites for tenant facilities, such as aircraft maintenance, air cargo, fuel storage, aircraft parking, auto parking, and miscellaneous secondary air-oriented businesses.

C. Terminal Sector: All areas outside Airfield and Landside Sectors allocated to Airport and private use for rendering direct public services. It includes entrance road system and related plot sites for auto servicing, rental car, and other public accommodation facilities, terminal road system parking facilities, terminal transportation center, terminal buildings, boarding area structures, and related apron facilities.

D. Special Airport Tenants: Special consideration will be given to tenants lessees, and concessionaires who are in full control of their buildings, facilities, or premises relative to utilities, equipment installation, plant improvements, maintenance, etc., and provided any proposed construction, alteration, or modification work is wholly within said buildings, facilities, or premises which do not service the public or affect any other tenants.
Sec. 102.4 Plot Sites: All open land, defined by recorded metes and bounds, leased or leasable for exclusive tenant use and development.

Sec. 102.5 Building Space: All areas within buildings constructed and funded by Airport specifically designated as leased or leasable for tenant use and development.

Sec. 102.6 Master Plan: All improvements proposed within boundaries shall be implemented under guidelines of Airport Master Plan. Basis of this Plan shall be San Francisco International Airport Expansion Program, dated December 1972, and adopted by Airport Commission, Resolution No. 73-0100, dated May 1, 1973 and as it may be subsequently amended. Master Plan shall therefore comprise all Airport documents related to process of general and detail development of each program element.

Sec. 102.7 Airport Datum: Prior to 1987, Airport datum was referenced to elevation established at 0.69 feet above mean lower low water at Point San Bruno (U.S.C. & G.S. 1929). Effective July 1, 1987, the Airport effected a datum change to the national geodetic vertical datum of 1929 (NGVD 1929).

Sec. 102.8 Utility Service Applications:

A. Water - see Article 505
B. Natural Gas – see Article 506
C. Electricity - see Article 508
D. Telephone - Direct all inquiries to Information Technology and Telecommunications Department of the Airport Administration Division.
ARTICLE 103. CITY AGENCIES

Sec. 103.1 Arts Commission: Acting directly for City through its Civic Design Committee and properly authorized agents, is charged with, amongst other responsibilities, review and approval of all fixed above-grade improvements, including landscaping, buildings, bridges, elevated roads, fences, gates, lighting standards, signs and other exposed features, installed on lands that belong to the City.

Sec. 103.2 Planning Commission: Acting directly for City through its Department of City Planning and properly authorized agents, is charged with, amongst other responsibilities, Environmental Impact Statement approval for all improvements installed on lands that belong to the City.

Sec. 103.3 Airport Commission: Acting directly for City through properly authorized agents, is charged with, amongst other responsibilities, review and approval of all improvements installed within the Airport.

Sec. 103.4 Police Department, Airport (SFO) Bureau: Acting directly for the City through properly authorized agents, is charged with, amongst other responsibilities, review and approval of all improvements installed within the Airport for security and public safety.

Sec.103.5 Fire Department, Office of Airport Fire Marshal: Acting directly for the City through properly authorized agents, is charged with, amongst other responsibilities, review and approval of all improvements installed within the Airport for all fire and life safety issues.
ARTICLE 104. AIRPORT STAFF AND BRANCHES

Sec. 104.1 Staff Authorities:

A. **Airport Director:** Director of San Francisco International Airport, acting directly for Airport Commission or through properly authorized agents.

B. **Chief of Staff:** Acting directly for Airport Director, and in authority over major multi-divisional programs, and providing high level oversight for the Bureau of International Services.

C. **Chief Operating Officer:** Acting directly for Airport Director, and in authority over Administration, Airport Operations, Design and Construction, Facilities Operations and Maintenance, and Planning and Environmental Affairs.

D. **Deputy Airport Director, Administration:** Acting directly for Chief Operating Officer, and in authority over Construction Employment Monitoring, Employment and Community Partnerships, Human Resources, Information Technology and Telecommunications, SFO Medical Service and Reprographics.

E. **Deputy Airport Director, Airport Operations:** Acting directly for Chief Operating Officer, and in authority over Duty Managers, International Terminal Management, Landside Operations, Safety and Security, Operations Services, Offices of Airport Fire Marshal of the San Francisco Fire Department, Airport Bureau of the San Francisco Police Department.

F. **Deputy Airport Director, Design and Construction:** Acting directly for Chief Operating Officer, and in authority over design and construction of International Terminal Complex and Master Plan Support Facilities.

G. **Deputy Airport Director, Facilities Operations and Maintenance:** Acting directly for Chief Operating Officer, and in authority over Construction Services, Environmental Control, Maintenance, and Technical Services Branches.

H. **Deputy Airport Director, Planning and Environmental Affairs:** Acting directly for the Chief Operating Officer, and in authority over Planning and Environmental Affairs and Noise Abatement.

I. **Deputy Airport Director, Airfield Development:** Acting directly for Airport Director, and in authority over the design and construction of Runway Reconfiguration and other Airfield Support Facilities.
J. **Deputy Airport Director, Business and Finance:** Acting directly for Airport Director, and in authority over Accounting, Financial, Aviation Management, Concession Development and Management, Business Services, Garage Management and Facility Planning.

K. **Deputy Airport Director, Public Affairs:** Acting directly for Airport Director, and in authority over International Aviation Development, Community Affairs, Customer Service, Governmental Affairs, MBE/WBE Opportunity/Outreach and Master Plan Information Program.

L. **Director, San Francisco Airport Museum:** Acting directly for Airport Director, and in authority over Exhibitions, Museums and Cultural Exchange/Aviation Library and Archives.

M. **Deputy Airport Director, International Services:** Acting directly for Airport Director, and in authority over International Services.

**Sec. 104.2 Facilities Operations and Maintenance (FOM) Division:**

A. **Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section:** The Deputy Airport Director, FOM, designates the Manager of BICE as the Airport Building Official (Building Official). The Building Official is the officer or other designated authority charged with the administration and enforcement of the provisions of this document, the Uniform Building Code and other applicable laws and codes.

The Building Official shall have the power to render interpretations of this document and to adopt and enforce rules and supplemental regulations in order to clarify the application of its provisions. Such interpretations, rules and regulations shall be in conformance with the intent and purpose of this document, the Uniform Building Code and other applicable laws and codes.

The Building Official or his duly authorized representative, is charged with, amongst other responsibilities, to:

1. review and approve all Airport design and construction projects, and tenant improvement proposals

2. issue Airport Building Permits with regard to their conformity with Airport Master Plan, and Airport construction standards

3. inspect all demolition activities and construction installed within Airport boundaries and in conjunction with ongoing Airport projects
4. enforce compliance with various building codes in the following disciplines: building, electrical, mechanical and plumbing, and all applicable codes and regulations as described in Article 501 of this document.

5. enforce compliance with construction standards and regulations, and approved contract documents.

6. issue certificate of occupancy when the Building Official or his duly authorized representative finds no violations of the provisions of this document or the Uniform Building Code or other laws and codes that are enforced by BICE.

B. **Construction Services Branch, Construction Management Section:**
   Authorized to inspect all construction installed within Airport boundaries and in conjunction with ongoing Airport projects, and enforce compliance with construction regulations and approved contract documents.

C. **Environmental Control Branch:** Authorized to ensure compliance with all applicable environmental regulations, protection of human health and the environment, clean up and protection of the environment in the surrounding communities.

D. **Maintenance Branch:** Authorized to perform all general maintenance for the Airport within the parameters of their allocated resources.

E. **Technical Services Branch:** Authorized to perform and provide duties and services for architectural design, civil engineering, civil special projects, electrical engineering, engineering information systems, mechanical engineering and records library. Reviews and approves all construction documents for Airport contracts including Capital Improvement Projects, and facilities support projects, for their completeness and compliance with Airport standards and regulations.
ARTICLE 105. ENVIRONMENTAL IMPACT STATUS

All improvements proposed within Airport shall be subject to California Environmental Quality Act of 1970, as amended, and to City and County of San Francisco, Ordinance #134-73, amending San Francisco Administrative Code.

**Sec. 105.1 Status Determination:** Information submitted by tenant outlined under Article 203, and required for initiating all improvement proposals, shall be reviewed by Airport to determine environmental status. Review shall consist of evaluation of nature and scope of project with respect to applicable provisions of above noted laws and ordinances, and result in assignment of one of two following classifications:

A. “Excluded” or “Categorically Exempt” class, whereby project shall have status of not being within meaning of Act.

B. “Non-exempt” class, whereby project shall have status of being encompassed by provisions of Act, and require further evaluation beyond authority of Airport Commission.

**Sec. 105.2 Status Notification:** Status determination shall be furnished by Airport at completion of initiating submittal review, according to procedures outlined under Sec. 204.1, Paragraph C-1, herein.

A. For projects classified as “Excluded” or “Categorically Exempt”, proposal shall be so designated, and tenant notified that all requirements under Environmental Protection Act have been met. Copies of this notification shall accompany subsequent implementing submittal, as described under Sec. 204.2, Paragraph A.

B. For projects classified as “Non-exempt”, tenant shall be advised that further Airport processing shall be contingent upon receipt of approved Negative Declaration or Environmental Impact Report. Said documents shall be prepared in accordance with requirements of pertinent environmental regulations and City Ordinance and approval shall be secured from San Francisco Department of City Planning. Approved copies of appropriate statement shall accompany subsequent Implementing Submittal, as also described under Sec. 204.2, Paragraph A.
ARTICLE 106. SOURCE INFORMATION

Sec. 106.1 General: Source information for detail planning and design within Plot Sites and Building Spaces shall be obtained from Technical Services Branch. Access shall be given to records currently on file and any needed elaboration or refinement thereto shall be responsibility of tenant and his consultants.

Sec. 106.2 Plot Sites: Soils and survey data as well as documents relating to plot, road and utility layouts, shall be available as compiled in current files. “Airport Property Map”, No. RA 10554 shall serve as basic reference for ground lessees.

Sec. 106.3 Building Space: For existing facilities, space development and utility service data shall be available from respective construction documents on file at Technical Services Branch. For Airport facilities in the process of development, preliminary and/or final drawings and specifications shall be available to its prospective occupants.
PART II

PROPOSAL REQUIREMENTS
ARTICLE 201. GENERAL

This part includes informational and procedural requirements for securing approval of improvement proposals. All Airport design and construction contracts, and tenant improvements shall be subject to Airport review, and, depending on nature and scope of work, proposals shall contain varying types of information as required by Airport staff, and be approved by the authorities as outlined herein.
ARTICLE 202. REVIEW AUTHORITIES

All proposals are subject to review and approval by one or more of the following agencies and in order listed:

**Sec. 202.1 Airport Staff** Facilities Operations and Maintenance (FOM) including the Building Inspection and Code Enforcement (BICE) Section of the Construction Services Branch, Environmental Control and Technical Services Branches, Design Review Committee, Aviation Management and Concessions Development & Management Departments of the Business and Finance Division, Operations including Operations Services and Landside Operations, Offices of the Airport Fire Marshal, Police Department SFO Bureau, and other Airport Bureaus and Divisions as required.

**Sec. 202.2 Airport Commission**

**Sec. 202.3 Art Commission** (Including Civic Design Committee).

**Sec. 202.4 Board of Supervisors** (Relating to ground leases only).

**Sec. 202.5 Other Agencies** (Including FAA, BCDC, etc.).
ARTICLE 203. INFORMATION REQUIRED

The following information is required to initiate and implement review and approval procedures. Information shall be furnished in two successive steps: Initiating Step and Implementing Step.

Sec. 203.1 Initiating Step: Tenant’s submittal shall notify Airport of intent to perform work and describe general nature of Proposed work. It shall consist of following information, and be forwarded according to Procedures outlined under Sec. 204.1.

A. General Information: (for inclusion in transmittal letter)

1. Name, title, and telephone number of requesting Tenant and list of all licensed technical consultants.

2. Title of project and reason for proposal.

3. Brief description of work, including its relation to an effect on adjacent facilities (access, parking, etc.).

4. Estimated cost of construction.

5. Estimated construction start and completion dates.

   For work within Terminal-Sector that is to be performed in conjunction with Airport construction, advice as to needs for coordination procedures. For work within Landside Sector that is part of multi-phased project, advice as to scope and duration of over-all program.

6. Advice as to increase in Tenant and Airport personnel for operating new facility.

7. Advice as to possible effects on present lease agreement.

8. Estimated power, gas and water demand.
B. **Detail Information:**

1. Small-scale location plan. For projects within Terminal-Sector, the plan shall depict outline of work area within building involved, and include Lease Space Number. For projects involving Landside Sector lease plots, the plan shall depict area or work within site boundary, and include Plot Designation Number. Space and Plot numbers shall be obtained from Technical Services Branch.

2. Tenant shall provide a small-scale plan layout for projects involving new structures or additions to existing buildings. Anticipated overall height of structure shall be indicated.

3. Indicate probable modifications to lease arising from conditions in proposal.

**Section 203.2 Implementing Step:** Tenant’s submittal shall provide Airport with all particulars necessary and incidental for developing and installing work. The submittal shall consist of the following information commensurate with development stage and be forwarded according to the Procedures outlined under Sec. 204.2.

A. **General Information:** (for inclusion on Plan Checking Form)

1. Name, title and telephone number of requesting Tenant and list of all licensed technical consultants.

2. Title of project, Airport Contract Number or, Tenant Project-number as assigned by BICE.

3. Submittal stage noted as schematic, preliminary, or final.

4. Brief description of changes of scope in project relative to initiating submittal.

5. Updated construction cost estimate.

6. Update of construction start and completion dates.

B. **Detail Information:** All following reports, drawings, specifications, calculations, and schedules shall be completed to the degree commensurate with particular development stage outlined in Article 204 and shall include all information relative to compliance with applicable codes, and specific regulations outlined in Parts III through V. In general, each submittal shall include the following documents, as design development and divisions of work apply:
1. **Master Site Plan**, depicting short and long-range development planning within boundaries of individual Plot Site, in accordance with conditions set forth in Sec. 303.1.

2. **Plot Plan**, encompassing entire area of work within scope of individual proposal, shall depict all on-grade and site-utility improvements, including layout and details of roads, walks, bridges, gates, fences, retaining walls, curbs, parking areas, lighting and landscaping, as well as plan-forms of all major and minor structures. Depending on complexity of proposal, separate site-utility plan shall be included.

3. **General Drawings** (schematic, preliminary, construction), consisting of plans, sections, elevations, and details of all building components, shall include foundations, primary and secondary structural systems, exterior and interior enclosures, elements, and miscellaneous finish and equipment items.

4. **Electrical Drawings**, showing total connected loads in kilowatts and amperes, demand factors, points of connection to existing power sources, panel-board schedules, general routes of conduits and conductors, and verification of adequate capacity of distribution system and points of connection.

5. **Mechanical and Utility Drawings**: indicating estimated ultimate gas and water demand, heating and cooling load, electrical load, and sewage, industrial wastes, storm drainage flows, and points of connection.


7. **Structural Calculations**, including description of structural system selected for resisting lateral forces and foundation recommendations including calculations and soils investigation report as appropriate.

8. **CPM Schedule**, including updating procedures, for work of more than 45 days duration performed in conjunction with Airport work within Terminal Sector. It shall be in form compatible with Airport schedule, furnished per Sec. 204.1, Paragraph C-4.

9. **Rendering**, depicting general scope work shall be of size adequate for viewing from 20 feet. Requirement limited to new structures or building additions and to interior work exposed to public view within Airport structures in Terminal Sector. Adequate sketches or other descriptive information may be substituted when applicable.
10. **Energy Conservation Calculations** showing compliance with Title 24 of the California Code of Regulations.

11. Permit from San Mateo County, Department of Health Services when development is for the purpose of serving food or beverage.

12. Traffic plan coordination with Landside Operations and/or Airfield Operations Services depicting general layout and duration of interruption to transportation patterns.
ARTICLE 204. PROCEDURES

All proposals shall be submitted, reviewed and returned according to procedures outlined below.

Sec. 204.1 Initiating Step:

A. **Submittal:** Copies of information listed under Sec. 203.1 shall be transmitted under tenant company letterhead (consultant letter unacceptable) to Business and Finance Division, Department of Aviation Management or Department of Concession Development and Management, San Francisco International Airport, P.O. Box 8097, San Francisco, CA 94128, in accordance with following:

1. General Information (Sec. 203.1-A)

   ITEMS 1-7 ............................................... 3 copies

2. Detail Information (Sec. 203.1-B)

   ITEMS 1 & 2 ............................................. 3 copies
   ITEM 3 .................................................... 1 copy

B. **Review:** Proposal will be evaluated by Airport staff for consistency with short and long-range Airport Master Plan development by all Airport management divisions listed in Sec. 202.1, and on Environmental Impact by San Francisco Planning Commission.

C. **Response:** Upon completion of review, the Airport’s notes, comments, and recommendations to proceed or not to proceed with implementation will be furnished in writing by Business and Finance Division, Department of Aviation Management or Department of Concession Development and Management. In cases of advice to proceed, notification will contain or transmit following information:

1. Environmental Impact Evaluation, designating status of proposal and, as needed, advising of further requirements as described under Article 105.

2. Number of Implementing Submittal stages required under Sec. 204.2, below. Determination shall be based on size and complexity of proposal, and number of divisions of professional responsibility involved (see “EXCEPTION” following).
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Part II
Article 204

3. Number of Reviewing Agencies involved indicated under Articles 202 and 205, and advice of requirement to directly contact any non-Airport agencies listed under Sec. 202.5.

4. Airport C.P.M. construction schedule (for proposed work within Terminal Sector to be performed in conjunction with Airport work).

**EXCEPTION:** For work of minor nature, comprising relatively small additions or modifications to existing facilities, and costing less than $15,000.00, Initiating Submittal shall suffice to implement project. Such submittals shall be addressed to:

Airport Building Official
Building Inspection and Code Enforcement
Facilities Operation & Maintenance
San Francisco International Airport
P.O. Box 8097
San Francisco, CA 94128

and shall contain pertinent documents per Sec. 203.2. Approval and construction start-up procedures shall follow in accordance with Sec. 204.2, Paragraph C-3, and Sec. 204.3 respectively.

**Sec. 204.2 Implementing Step:**

A. **Submittal:** Copies of information listed under Sec. 203.2 shall be transmitted under tenant company letterhead (consultant letter unacceptable) to Building Official, Building Inspection and Code Enforcement (BICE), Facilities Operation and Maintenance, San Francisco International Airport, P.O. Box 8097, San Francisco, CA 94128, with a copy to the Business and Finance Division, Department of Aviation Management or Department of Concession Development and Management, S.F.I.A. Included with first submittal shall be approved copy of Environmental Impact Statement as required under Sec. 204.2, Paragraph C-1. Information shall be submitted in number of successive stages specified under Sec. 204.1, Paragraph C-2, and in accordance with following:

1. **Stage I (Schematic)**

   a) General Information (Sec. 203.2-A)
      Items 1-6 ........................................... 3 copies

   b) Detail Information (Sec. 203.2-B)
      Items 1-3 ........................................... 7 copies
BICE will assign Tenant Project Number (T-No.) as a permit application number and for review tracking purposes.

Note: Permit applicant shall not mistake the T-No. as a Permit Number.

2. Stage II (Preliminary)

a) General Information (Sec. 203.2-A)
   Items 1-6 .......................................... 3 copies

b) Detail Information (Sec. 203.2-B)
   Items 1-6 .......................................... 7 copies

3. Stage III (Final)

a) General Information (Sec. 203.2-A)
   Items 1-6 .......................................... 3 copies

b) Detail Information (Sec. 203.2-B)
   Items 1-6 .......................................... 7 copies
   plus one reproducible set of 1-5.
   Items 7-8 .......................................... 2 copies
   Item 9 .......................................... 1 copy
   Items 10-11 ......................................... 4 copies

B. Review: Documents will be evaluated on basis of conformity with all applicable sections of these regulations by BICE. As scope of proposal requires, this shall include review by Airports' consultants and various Federal, State, Regional, County, and City agencies. Failure of the review to identify non-compliance with any requirement shall not be an implied waiver of that requirement. Documents will then be forwarded successively to Airport Commission and Arts Commission for their respective approvals, as outlined under Article 205.

C. Cancellation of Application During Processing: BICE may hold in abeyance, or reject any application, plans or specifications filed which, in the opinion of the Building Official being the authority having jurisdiction, do not provide the necessary information in a clear and concise manner, as required by this document. During the processing of the application, any correction, additional information, plans or documents that are necessary to complete the processing, as determined by any of the reviewing agencies, shall be submitted within the following time limits:
The above time limits shall start when the applicant or the applicant’s representative has been notified by the reviewing agency that corrections are required. The time will run until all corrections have been satisfactorily made. In the event the corrections have not been made within 21 days before the end of the above time limit, the applicant will be notified by mail that the cancellation is pending. After such notice, an application, which exceeds the stated time period, shall be deemed cancelled without further action by the Airport and the information submitted may be destroyed.

D. Application for Building Permit: Upon receiving notification of project approval from the Building Official, the applicant shall proceed to apply for a separate Airport Building Permit.

E. Expiration of Building Permit:

1) EXPIRATION: Every permit issued under the provisions of this document, unless a written extension of time has been specifically approved by the Building Official, expires by limitation and becomes null and void when the time allowed is reached as stated below or if the building or work authorized by such permit is not started within 90 days from the date of such permit.

MAXIMUM TIME ALLOWED TO COMPLETE ALL WORK AUTHORIZED BY BUILDING PERMIT

<table>
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<tr>
<th>Valuation</th>
<th>Time Allowed</th>
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<tr>
<td>Under $5,000</td>
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<td>$5,001 to $25,000</td>
<td>6 months</td>
</tr>
<tr>
<td>$25,001 to $300,000</td>
<td>12 months</td>
</tr>
<tr>
<td>$300,001 to $1,000,000</td>
<td>24 months</td>
</tr>
<tr>
<td>$1,000,001 to $5,000,000</td>
<td>30 months</td>
</tr>
<tr>
<td>Over $5,000,000</td>
<td>36 months</td>
</tr>
</tbody>
</table>

2) EXTENSION: Any permittee holding an unexpired permit may apply for an extension of the time within which work may commence under that permit when the permittee is unable to complete the work within the time required by this section for good and satisfactory reasons. The
Building Official may extend the time for a period not exceeding 180 days on written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. No permit shall be extended more than once.

3) **SUSPENSION:** The Building Official, may, in writing, suspend or revoke a permit issued under the provisions of this code whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or any of the provisions of this document.

C. **Response:** Upon receipt of disapproval from any reviewing agency, originator will be notified of deficiency by BICE. Upon receipt of general approval, one set of documents shall be returned to originator with following information:

1. **Stage I Submittal** documents will bear appropriate correction notations, and BICE schematic approval stamp. Transmittal will advise of additional information requirements and recommended that next stage of design development be submitted for review.

2. **Stage II Submittal** documents will bear further corrective notations, and BICE preliminary approval stamp. Transmittal will recommend that next stage of development be submitted for review.

3. **Stage III Submittal** documents will bear final notations, and BICE final approval stamp. Transmittal will advise that construction may proceed and outline requirements for initiating construction.

**Sec. 204.3 Construction Start-Up:** Tenant shall notify BICE of intent to begin construction, and furnish name, contractor’s license number and address of contractor. Contractor will then be notified of date for Preconstruction Conference, wherein he will be required to complete Building Permit Application Form and receive instructions outlined under Article 601.

A. Contractor shall be properly licensed by State of California for the work involved.

B. Contractor shall keep one set of construction drawings and specifications bearing approval stamp of BICE, and one copy of Building Permit on job-site. They shall be available at all times for inspectors until final inspection is completed by BICE, and Letter of Completion and Acceptance is issued.
ARTICLE 205. AGENCY REVIEW SEQUENCING

In general, prior to authorization to proceed with the work, all submittals shall be reviewed successively by agencies listed under Article 202, according to conditions described below. To expedite procedures, tenant is therefore urged to allow sufficient time to offset possible delay caused by requirements for resubmittal or a conflict in agency review timing.

Sec. 205.1 Airport Staff: Review and approval procedures are conducted on a continuous basis. Design plans and renderings must first be presented to the Design Review Committee. Visual impact, color presentations and the overall design of the proposed project shall be subject to the approval by the Design Review Committee. Upon receiving approval from the Design Review Committee, final construction documents shall be fully developed and submitted to the FOM Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section for review and approval for permit issuance. Depending on complexity of proposal and number of agencies involved (Article 202), a minimum of three weeks shall be allowed for completing review of each submittal. Upon approval by BICE, documents will be transmitted to Airport Commission by Airport Director.

Sec. 205.2 Airport Commission: Generally, the Airport Commission meets bi-weekly on first and third Tuesdays at 9:00 a.m. in Room 400, San Francisco City Hall, No. 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102. Time and frequency may be subject to change. Verification of meeting date and time can be obtained from Airport Commission Secretary at San Francisco International Airport. Documents shall be in receipt of Commission Secretary one week prior to above date for inclusion on meeting agenda. Upon approval by Airport Commission, documents shall be transmitted to Art Commission by Airport Director, when approval is required.

Sec. 205.3 San Francisco Arts Commission: Generally, the Arts Commission meets on first Monday of every month at 3:15 p.m. in Conference Room, 165 Grove Street, San Francisco, CA 92102. Technical review of all submittals shall be conducted by Civic Design Committee two weeks prior at 1:30 p.m. in same premises. Meeting dates and time are subject to change and verification may be obtained by calling Art Commission Secretary at San Francisco City Hall. Documents shall be forwarded by Airport Commission to Art Commission. Deadline for inclusion on agenda is one week prior to above noted Civic Design Committee meeting review date. Upon approval of submittal, written notification of action shall be forwarded to Technical Services Branch by Art Commission Secretary.

A. It is responsibility of tenant and/or design representative to attend the Civic Design Committee meeting and make presentation. If a submitter is not in attendance when his plans are reviewed, such plans will be disapproved and resubmittal shall be required for action at a subsequent meeting.
B. All copies of submittal shall be retained by Arts Commission, except for renderings, which upon completion of Commission action, shall be available from Technical Services Branch.
ARTICLE 206. CONSULTANT REQUIREMENTS

All design documents that detail nature, extent, and quality of proposed work, shall be prepared, stamped, and signed by a licensed professional architect or engineer registered in the State of California. Engineers shall be licensed for particular specialty required. Structural calculations shall be stamped and signed on cover sheet by licensed civil or structural engineer with all pages numbered and checked. Mechanical calculations, reports, and other documentation required pursuant to the Energy Code shall be submitted to the Building Official for approval accompanying plans and specifications. The designer shall provide a statement on the drawings over his signature that the Energy Code has been reviewed and the design submitted conforms substantially with the Energy Code. At the time of request for final inspection for any project subject to the Energy Code, the permittee or his authorized agent shall deliver to the Building Official, a certificate of construction compliance with the Energy Code based on observation of construction compliance with the Energy Code based on observation of construction and signed by the owner, general building contractor, design architect, or design engineer. For projects that are primarily architectural in scope or require coordination of architectural work with planning, structural, mechanical and electrical work, shall be prepared only under direction of licensed architect. Drawings and specifications prepared by contractor or fabricators shall not be accepted unless they are supplemental to those prepared by a licensed professional and bear his stamp of approval.

Sec. 206.1 Summary of Costs: Architect or engineer shall, for each tenant contract, submit an itemized summary of construction costs to the Building Official. In addition, architect or engineer shall submit a summary of costs for non-insurable items, said costs shall be deducted from total construction costs to determine replacement value of facility or improvement for fire insurance purposes. Summary shall be signed by architect or engineer, notarized, submitted to engineer at time of completion of construction.

Sec. 206.2 As-Built Drawings and Environmental Data: Architect, engineer or consultant, shall for each Airport contract or tenant improvement project, furnish Airport complete set of signed and dated as-built drawings on reproducible tracings. Descriptive and maintenance literature will be furnished for all mechanical and electrical equipment to be maintained by Airport. Material shall be submitted within 30 days of completion of construction.

In addition to reproducible tracings, architect, engineer or consultant shall submit as-builts drawings and/or environmental data in the following format as applicable:

A. Electronic Files: As-built drawings in the latest release version of AutoCAD and/or Softdesk, in accordance with the requirements specified in Part VIII SFIA CAD Standard.
B. **Electronic Deliverables of Environmental Data:**

1. Chemistry data in either a DBF or comma delimited ASCII format and a map showing sampling points.

2. Monitoring well data in any electronic format convenient to the consultant and a map showing all water level measurement.
ARTICLE 207. SPECIAL ACCOMMODATIONS

Provisions shall be made to accommodate proposed Tenant Improvements within or adjacent to Airport Building projects that are still in design stage of development, up to completion of preliminary working drawings. No changes during final working drawings will be made except at expense of tenant, and at discretion of Airport.

**Sec. 207.1 Limits:** In general, accommodations shall be limited to following divisions of work:

A. Block-outs for exterior pavement installations.
B. Pits and other formed depressions required in interior grade slabs.
C. Block-outs for interior above-grade slabs penetrations.
D. Drainage and soil line runs and stub-ups in interior grade slabs.
E. Adjustments to interior partition openings, and utility service locations.
F. Capped water service from meter location to periphery of tenant space including that for fire protection if required.
G. Capped hot and cold ducts or water pipes at periphery of tenant space.

**Sec. 207.2 Conditions:** Accommodations shall be made provided Tenant makes full compensation for any additional Airport construction costs incurred, furnishes all information required under Article 204.1, Subtitle 'EXCEPTION.'
PART III

LANDSIDE SECTOR DEVELOPMENT
ARTICLE 301. GENERAL

This Part includes site and facility provisions and planning regulations relative to all Airport design and construction contracts, and Tenant improvements proposed for Landside Sector, as designated on Airport Map, Exhibit-A. Information and design requirements outlined herein shall serve to insure that high degree of overall visual as well as functional continuity shall be developed and maintained in development of sites and structures.
ARTICLE 302. PLOT-SITE PROVISIONS

Airport installations serving Plot-Sites in the Landside Sector shall include following:

Sec. 302.1 Access: Paved and graded two-lane access roads shall be provided at vicinity of each site, including street and identification signing, required road lighting, and traffic control devices. Clearance for turn-out alignments shall be afforded as local conditions permit. For plot sites adjacent to Airfield Sector, clearance for taxiway extension pavements shall also be afforded as governmental and Airport field-operation regulations permit.

Sec. 302.2 Grade-Work Installation: Compacted fill installed to minimum elevation of 6 feet above Airport datum.

Sec. 302.3 Utility Installation: The extension of drainage, sewage, water, power, industrial waste and telephone service shall be accomplished by tenant.

A. Drainage - mains for storm water shall have capacity for surface area served.

B. Sewage - sanitary mains shall be of 6-inch minimum size.

C. Water - mains shall be sized as required at approximately 100-130 p.s.i.

D. Power - source, as determined by site location and specific lease agreement, shall be in form of underground conduit, manhole and feeder cable, or switch-gear terminal.

E. Telephone - source, as determined per above, shall be in form of underground conduit or manhole.

F. Industrial Waste - mains for pre-treated industrial waste shall have capacity for area served.
ARTICLE 303. PLOT-SITE REGULATIONS

Improvements to Plot Sites within the Landside Sector shall be governed by following planning requirements as well as Design and Materials Standards under Part V and Construction Regulations under Part VI.

Sec. 303.1 Master Site Plan: All leased plot sites in the Landside Sector shall be developed within guidelines of tenant master site plan, which, in turn, shall conform to Airport Master Plan for the Landside Sector. Said plan shall be prepared by individual leaseholder according to professional planning practices and specific provisions noted herein. It shall show both existing and proposed structural and open space improvements, including applicable portions of adjacent properties, roads and taxiways that provide access to or impose limitations on site.

A. Open Space Development: Spaces generated between structures and other improvements shall be developed with complete landscaping. Nature and scope of such improvements shall be commensurate with use of particular area and shall serve as integrating element between areas of mixed use both within site and between those contiguous therewith. Landscaping shall conform to requirements of Sec. 303.2.

B. Building Placement: Design, location and orientation of major structures shall be governed by consideration of function, all their external aspects, including massing proportions, weather and light exposure, vehicular and pedestrian accesses and open space allocations. Minor structures shall be placed so as to integrate overall setting of larger elements and their attendant open spaces.

C. Submittal: Master plan shall be included as part of first improvements project submitted for approval after effective date of this regulation. All subsequent submittals shall be accompanied by an updated copy of plan whereon scope of particular improvement and manner of its integration into master site plan is clearly defined.

D. Exception: For sites of limited size in which present development of proposed improvement encompasses entire area, a plot plan as described below may serve as master plan. It shall contain all elements noted above, and be updated for inclusion with all document submittals.

Sec. 303.2 Site Improvements: Work shall be depicted on Plot Plan and laid out according to professional site planning practice. Installation shall conform to following general guidelines and noted regulations:
A. **On-grade Work:** All flat work, with exception of vehicular surfaces, shall be of concrete. Walking surfaces shall be textured for slip resistance, sloped for drainage and protected from sharp grade changes. Roads and parking areas shall be properly conformed for drainage to catch basins. Curbs shall be of formed concrete. Road and parking striping shall conform to AASHTO Standards. All pavements shall be designed and installed according to Sec. 503 herein. Temporary trenches shall include steel plating. Such plating shall be welded together to prevent displacement and with smooth transitions between edges of plating and surfaces of existing pavement.

B. **Landscaping:** Interior as well as peripheral planting shall be required along with other amenities of open space development. Proposal of landscaping should be reviewed and approved before start of work to ascertain standards, including types of plants, in accordance with Airport Master Landscaping Plan. Planting shall be installed and maintained according to Standards under Section 511.

1. Unpaved slopes shall be erosion protected with suitable ground cover.

2. Landscape planting shall be required along all chainlink fencing which border a public throughway and installed at reasonable density and variety commensurate with landscaping standards and where appropriate for aesthetic reasons considering the tenant's proposed use of the land and where the physical environment is compatible to support plant life.

C. **Fences:** The use of chain-link fencing in the immediate vicinity of buildings shall be restricted. Such fencing shall be permitted only in cases of obvious security needs, and where location and conditions preclude reasonable alternatives. Following guidelines shall be used in designing chain-link fencing where it is permitted in conjunction with buildings:

1. Consideration shall be given to incorporation of materials which match or complement adjacent building.

2. Slatted mesh fillers or other wire disguising devices shall be used where required by Technical Services Branch.

3. Pedestrian and vehicular gateways to Airport roads and right-of-ways shall be given special treatment.

D. **Utility Work:** Power, water, fuel, sewage and industrial waste drainage work shall be installed and connected according to Design and Materials Standards under Part V and Construction Regulations under Part VI.
E. **Signing**: All signs shall conform to standards set forth under Sec. 303.3 below.

F. **Illumination**: Exterior lighting installations will be approved on the basis of visual and electronic compatibility with Airport operations.

**Sec. 303.3 Building Improvements**: All structures on leased plots within the Landside Sector shall be installed according to following general guidelines and specific regulations:

A. **Setbacks**: Setbacks shall be 20 feet from Airport boundary lines, ten feet from common lease-line, and 25 feet from lease-line bounding taxiways. Major or minor axis of buildings shall be parallel to road fronting property line where conditions described under Sec. 303.1B do not apply.

B. **Height Restrictions**: Overall building heights, including roof-top equipment and enclosures, shall not exceed limits set forth in FAA Technical Standard Order TSO-N18, AC150/5335-1A together with the subsequent changes, and FAA Regulations Volume XI Part 77, whichever is more restrictive.

C. **Fire Zone**: All Airport properties are classified as Fire Zone 3.

D. **General Design**: Roof slope shall not exceed 1:12 pitch. All sloping roofs shall have gables and eaves, with overhangs related to scale of building as well as to aspects of light control and weather protection.

E. **Foundations**: Airport soils conditions, as described under Sec. 502.3, require special foundation provisions, as follows:

1. **Foundation Ties**: Building footings and pile caps shall be completely interconnected in two directions approximately at right angles to each other. Each such interconnecting member shall be capable of transmitting by both tension and compression at least 10 percent of the total vertical load carried by the heavier of the footings connected. Minimum cross size of each such member, if of reinforced concrete, shall be 12 inches by 12 inches with minimum reinforcement of one percent with one-fourth inch ties at not more than 12 inches on centers. Where interconnecting the members are of structural steel they shall be encased in concrete. Reinforced concrete slabs may be used in lieu of interconnecting tie members, provided slab thickness is not less than 6 inches and not less than one forty-eighth of clear distances between connected footing.
2. **Slab Floorings:** Slabs used as footing, interconnecting ties shall be reinforced with no less than one-tenth square inch of steel per foot of slab in both longitudinal and transverse direction. Bottom of such slabs shall not be more than 12 inches above tops of at least 80 percent of piers or footings. All piers or footings shall be tied to slab in such manner as to be restrained in all horizontal direction.

F. **Building:** Construction shall be limited to types I, IIFR, II-1 HR., and II-N buildings as defined in U.B.C., and installed in accordance with Design and Materials Standards under Part V and Construction Regulations under Part VI herein. No other types of construction shall be permitted.

G. **Utility Services:** All mechanical, electrical, plumbing and communication systems shall be installed according to Design and Materials Standards under Part V and Construction Regulations under Part VI.

H. **Building Appurtenances:** All items of equipment attached to or protruding from wall and roof surfaces of any building, or located separately but immediately adjacent thereto, shall be visually integrated into over-all building design.

   1. Where such features constitute an obvious extension of functions expressed otherwise in main building form, they shall be designed and detailed to enhance this form.

   2. Where they are of secondary nature, they shall be completely screened from all viewpoints with materials compatible to building in both scale and finish.

I. **Signs:**

   1. **Exterior Signs**

      Proprietary signs for identification purposes shall be mounted on building walls only. Free standing directional signs for roads and walks shall be permitted within lease-lines. Such signs shall conform to setback regulations noted for buildings under Par. A above, and shall be limited in height to twelve (12) feet.

      a. Size, proportion, materials, construction, and illumination shall be subject to Airport approval on individual basis. Elaborate multi-colored, moving or flashing signs with exposed lamps are prohibited.

      b. Regulations governing construction project signs shall be as set forth under Part VI.
2. **Ticket Counter Back-Wall**

Proprietary signs for identification purposes shall comply with the following standards and requirements for back walls at ticket counters to provide uniformity while still allowing for unique logo identification of the individual carrier.

a. **Placement**

- Back wall sign board must begin 56 inches from the floor.
- Back wall sign board must not exceed 30 inches in height.
- Placement of signs must emphasize horizontal composition.
- Background surface finishes must extend to the extremities of wall in leased or assigned space.
- Shall be subject to the approval by the Design Review Committee.

b. **Letters**

- Individual, raised letters are preferred.
- The body of the lettering must not exceed 12 inches in height.
- Acronym letters (used without name of carrier) may exceed 12 inches in height.
- Initial letters may exceed 12 inches.
- Must be proportionate to the body of lettering.
- Subject to design approval.
- May be individually mounted, directly on back wall or on an approved panel.
- Shall be subject to the approval by the Design Review Committee.

c. **Graphics**

- Must represent the carrier’s logo (for this purpose, the logo is identification that always appears with the airline’s name or instead of the airline’s name).
- Must not exceed the 30 inches in height.
- Must be proportionate to entire wall.
- Shall be subject to the approval by the Design Review Committee.
d. **Panels**

- All panels must be of sturdy construction with finished edges.
- Non-illuminated.
- Flat design.
- Not greater in depth than 2 inches.
- Shall be subject to the approval by the Design Review Committee.

e. **Back Wall Color**

- Back wall colors must be neutral.
- Shall be subject to the approval by the Design Review Committee.

f. **Flight Information Display (FID) Screens (incorporated into back wall)**

- Must not exceed 30 inches in height.
- Must be in an approved frame.
- Frame color must be neutral to backwall color.
- Shall be subject to the approval by the Design Review Committee.

g. **Code Share Signs**

- May be mounted on back wall.
- Must be color coordinated with back wall.
- Must be 30 inches in height.
- Placed on wall in accordance with placement standards above.
- Partner airlines placed in order of flight activity at this airport.
- Shall be subject to the approval by the Design Review Committee.

h. **Arrival/Departure Boards**

- Must be color coordinated with back wall.
- Must be 30 inches in height.
- Placed on wall in accordance with placement standards above.
- Shall be subject to the approval by the Design Review Committee.
i. **Multiple Counter Back Walls**

- Carriers occupying more than eight consecutive counter positions may treat the entire back wall in accordance with the above standards.
- The maximum number of signs is one per four check-in positions.
- Shall be subject to the approval by the Design Review Committee

j. **General**

- No additional signs may be posted or adhered to the back wall.
ARTICLE 304. BUILDING-SPACE PROVISIONS

Airport owned buildings affording rentable enclosed space in the Landside Sector shall be limited to cargo and maintenance type structures, and include following:

**Sec. 304.1 Building Shell**: Consisting of finished building enclosure together with foundations, grade slab, building frame, structural floors, walls, and roof deck, and finished roofing, exterior walls, fenestration and doors.

A. Cargo Doors - manual type, adaptable to power.

B. Man Doors - two per rentable space.

**Sec. 304.2 Exterior Installations**: Consisting of features affording access and services related to interior space use.

A. **Vehicular side**: Generally shall include ramps, loading docks, parking, walks, stairs, weather covers, area and peripheral building lighting, landscaping and fire protection.

B. **Aircraft side**: Generally shall include apron pavements, parking pads, apron and peripheral building lighting, provisions for power and water, and fire protection.

**Sec. 304.3 Interior Installations**: Consisting of Airport space, reserved for Airport use, and Rentable Space allocated for tenant use and improvement. Copies of construction and lease drawings of particular facility involved, shall be obtainable from Technical Services Branch.

A. **Airport Space** - developed to house building utility sources, including heating, power and communications, gas, water, and drainage.

B. **Rentable Space** - developed for tenant occupancy, and provided with following finishes and services. Reference shall be made to Special Accommodations, Article 207, for provisions to accommodate certain tenant installations.

1. **Finish Materials**:
   
a. **Flooring** - densified concrete with wood float finish.

   b. **Walls** - exposed structure, painted, leasehold dividing partitions, finished and painted.

   c. **Ceilings** - exposed structure, painted
2. **Utility Services:**

   a. **H.V.A.C.** - none provided. Electric energy source available per Section 305.3A. Airport Space.

   b. **Lighting** - none provided.

   c. **Power** - space in load center for tenant installation of service disconnect. Airport provides metering. Tenant installs service conduit and conductors into rentable space.

   d. **Plumbing (sanitary)** - one capped 4” soil line stubbed through grade slab, and one 3/4 inch capped domestic cold water line at exterior wall per each rentable areas. (See Article 207 for special accommodations at grade slabs).

   e. **Plumbing (industrial)** - none provided. Tenant shall connect to existing system designated by Airport.

   f. **Gas** - none provided. (Refer to Sec. 506.4 for gas service).

   g. **Fire Protection** - none provided. Tenant shall connect to existing system.
ARTICLE 305. BUILDING SPACE REGULATIONS

Improvements to Airport building space within the Landside Sector shall be governed by all following planning requirements as well as Standards and Regulations under Parts V and VI.

**Sec. 305.1 Building Shell:** No work shall be permitted that modifies exterior of building shell except under conditions specifically described in Sec. 305.2.

**Sec. 305.2 Exterior Improvements:** Work external to building shall be permitted but limited to following:

A. Improvements for accommodating vehicular and/or aircraft operations directly related to internal building functions.

B. Building equipment installation external locations. Said installations shall be permitted on individual-case approval basis.

**Sec. 305.3 Interior Improvements:** All areas shall be classified into two divisions identified respectively as Airport Space, developed for exclusive Airport use, and Rentable Space, provided for tenant use and improvement. Copies of contract drawings, depicting space allocations within particular facility involved, shall be obtainable from Technical Services Branch.

A. **Airport Space:** No work shall be permitted. Access for installing utility service runs and connections shall be permitted within Airport spaces housing heat, power, gas, water, and other building utility sources.

B. **Rentable Space:** All work shall conform to Standards and Regulations under Parts V and VI.

1. Internal construction shall be self-supporting and impose no vertical or lateral loads on building shell, unless specifically authorized by the Building Official.
PART IV

TERMINAL SECTOR DEVELOPMENT
ARTICLE 401. GENERAL

This Part includes site and facility provisions and planning regulations relative to all Airport design and construction contracts, and Tenant improvements proposed for Terminal Sector, as designated on Airport Map, Exhibit-A. Information and design requirements outlined herein shall serve to insure that highest quality exterior and interior environment shall be developed and maintained for all facilities used in rendering of direct public services.
ARTICLE 402. PLOT SITE PROVISIONS

Airport installations serving Plot Sites in the Terminal Sector shall include following:

**Sec. 402.1 Access:** Paved, graded and curbed roads shall be provided at vicinity of each site, including traffic installations noted under Sec. 302.1. Clearance for turn-out alignments shall be afforded as local road, lane, and traffic conditions permit.

**Sec. 402.2 Grade-work, Illumination, Landscaping Installations:** Graded and compacted fill and/or asphalt paving shall be installed at Airport Datum plus 10 feet (approx.). Area lighting will be provided by high-mast luminaries, and peripheral landscape development will be included within Airport areas.

**Sec. 402.3 Utility Installations:** Power, and telephone service shall be extended to within 50 feet property line, with capacities equal to provisions under Sec. 302.3. Tenant shall connect to existing services for water, storm, sanitary, and industrial wastes.
ARTICLE 403. PLOT SITE REGULATIONS

Improvements to Plot Sites within the Terminal Sector shall be governed by following planning requirements as well as Design and Materials Standards under Part V and Construction Regulations under Part VI.

Sec. 403.1 Master Site Plan: Tenant Plot Plan, per Sec. 303.2, shall serve as Master Site Plan.

Sec. 403.2 Site Improvements: Work shall be developed and installed according to conditions and guidelines set forth under Article 303 and in conformity with Terminal Expansion Project Construction documents.

A. On-Grade Work: Pavements, curbs, roads, and parking area layouts shall conform to Terminal Sector Master Plan. Alignments and intersections with adjacent Airport property shall be evaluated on individual basis. Refer to Sec. 303.2.

B. Landscaping: Planting, including ground cover, shrubs and trees, shall conform in both species and density to Terminal Sector Landscape Plan, on file at Technical Services Branch.

C. Fences: Chain-link fences shall not be permitted in this Sector except where required for security purposes.

D. Illumination: Free-standing standards and luminaries shall be permitted on individual case approval basis. Building-mounted fixtures shall be confined to highlighting specific features such as entrances, covered walks or stairs.

E. Utility Services: Power, communications, water, fuel, sewage, industrial waste and drainage shall be installed and connected according to Design and Materials Standards under Part V and Construction Regulations under Part VI.

F. Signing: Both proprietary and directional signs shall be installed within lease-lines, with form and text and location approved on individual basis.

Sec. 403.3 Building Improvements: All structures in this Sector shall be installed according to following general provisions and detail regulations:

A. Building Placement: Orientation and alignments shall be subject to direct Airport control.
B. **General Design:** Exposed detailing, overall scale, horizontal and vertical modulation, finishes, color and other external aspects shall be visually compatible with adjacent Airport structures, and subject to direct Airport design control through the Design Review Committee.

C. **Foundations:** Refer to Sec. 303, 3-E.

D. **Building:** Structures shall be limited to types I, IIFR, II-1 HR, and II-N buildings as defined in U.B.C., and installed in accordance with Design and Materials Standards under Part V and Construction Regulations under VI. No other types of construction shall be permitted.

E. **Utility Services:** All mechanical, electrical, plumbing and communications systems shall be installed according to Design and Materials Standards under Part V and Construction Regulations under Part VI.
ARTICLE 404. BUILDING SPACE PROVISIONS

Airport buildings affording rentable enclosed space in the Terminal Sector shall include following:

**Section 404.1 Building Shell**: Finished building enclosure, together with foundations, basement, utility and equipment tunnels, stairs, access ramps, building frame, structural floors, walls, and roof deck, and finished rooking, exterior walls, fenestration and doors.

**Sec. 404.2 Exterior Installations**: Features affording access and services related to interior space use.

A. **Vehicular Side** Shall include vehicular ramps, roads and curbs, pedestrian walks, ramps, ADA compliant accessible curb ramps, bridges, weather covers and lighting, audio public address, and related provisions for airport curbside services.

B. **Apron Side** Shall include taxiways, apron pavements, parking pads, service roads (B-30, loading), loading docks, storm drainage, fire protection and following utility services:

1. **Apron lighting**: Average maintained lighting level of 0.5 foot-candle shall extend out to 200 feet from building periphery with uniformity ratio range within 4 to 1 (average to minimum) and providing 2.0 foot candles, average vertical, 100 feet from building periphery.

2. **Power**: One 2-inch empty conduit extended from pullbox of metering cabinet in electric room to building periphery for each aircraft ground power unit 100 KW or less, and 2-inch empty conduit extended from pullbox of metering cabinet in electric room to building periphery for each boarding bridge location (no provisions shall be made for alternate positions).

3. **Communications**: One 1-inch empty conduit extended from nearest telephone terminal to periphery of building for each boarding bridge location.

4. **Plumbing**: One capped 3/4 inch domestic cold water line (or larger as required) extended from tenant meter to periphery of building for each boarding bridge location.

5. **In-Apron Fueling**: None provided.

**Sec. 404.3 Interior Installations**: Airport Space reserved for Public and Airport use, and Rentable Space allocated for Tenant use and improvements.
A. **Airport Space:** Developed for public and service occupancy, and fully provided with interior finish materials and surfaces, as well as all finish fixtures and accessories necessary for complete illumination, heating, air-conditioning, power, plumbing and communications services.

1. **Public Space:** Reserved for general circulation, including aisles, passages, concourses, and stairs, and for public convenience, including lounges, toilets, seating and nurseries. Space shall be served with following special provisions:

   a. **People Movers,** including elevators, escalators, moving walks and ramps, and intra-facility People Mover Systems.

   b. **Graphics,** including identification and directional signing, tenant changeable message sign and luminous ticket counter fascias.

   c. **Communications,** including audio and visual public address, public (pay) telephones, courtesy telephones, and synchronized clocks.

2. **Service Space:** Reserved for rendering general public and tenant services outlined as follows:

   a. **General Service,** including police, fire protection, first aid, communications, telephone, lost and found, information, public address.

   b. **Special Services,** including FAA and Weather Bureau Facilities, air passenger security, and international passenger clearance (Immigration, Public Health, Customs and Agriculture Inspection).

   c. **Building Services,** including electrical, mechanical, telephone, public address, and communications rooms, chases and shafts.

B. **Rentable Space:** Developed for airline and concessionaire occupancy, and provided with varying levels of finish and service in accordance with three category classifications as described below. Reference shall be made to Special Accommodations, Article 207, for provisions to accommodate certain tenant installations:

1. **Category I (Finished Exposed):** Areas that require full public exposure along all or most of their peripheries, and share common visual and physical environment with Airport Space. Included are terminal building baggage claim areas at first floors, and ticketing holdroom areas at second floors. It
also comprises holdrooms in boarding area buildings. Extent of provisions shall equal that furnished for public space, and include the following:

a. **Finish Materials** (fully provided):

1. Flooring - carpet.
2. Walls - precast concrete, aluminum framed glazed wall-fronts, painted gypsum plaster.
3. Ceilings - painted gypsum plaster, acoustic tile with integral light fixture system.

**Note:** No counters are provided.  
(See Standard Details under Article 512).

b. **Utility Services** (non-metered, distributed):

1. **H.V.A.C.** - It shall be the tenant’s individual responsibility to ascertain the amount and extent of heating, cooling and ventilation capacity provided in the tenant’s leasehold area(s).  
The Airport will provide the tenant such information and data as it has available regarding the H.V.A.C. system. Any additional heating, cooling and ventilation requirements beyond the capacity provided by the Airport shall be provided by the tenant at its sole expense. Refer to Sec. 507.1

2. **Lighting** - at floor of open circulation areas (concourses, walkways, pedestrian bridges and tunnels) shall be maintained at 10 foot candles. At floor of lobby areas, public waiting lounges, airline holding rooms and along moving walks, it shall be maintained at 20 foot candles. At baggage claim devices, it shall be maintained at 40 foot candles within the immediate task area at the top of the baggage claim device. At ticket and check-in counters, it shall be maintained at 60 foot candles within the immediate task areas at countertop. All footcandle levels are average with maximum and minimum levels not more than 1/6 above or below average level.  
Emergency lighting shall be provided in open circulation areas, lobby areas, public waiting lounges, airline holding rooms and near baggage claim areas, ticket and check in counters.

3. **Power** - duplex convenience outlets, at 120V, 1,60 Hz, shall be provided on each column at 24 foot centers on walls. Power to airline ticket counters, check-in counters and agents' desks shall be obtained from tenant metered service. Power to
concessionaire counters, service desks, and other loads not exceeding 180 volt-amperes shall be obtained from convenience outlets provided in area. If convenience outlets do not occur within concessionaire lease space, tenant shall be permitted to extend receptacle circuit to leases space.

4. **Communications** - One 1-inch empty conduit shall be extended from nearest telephone terminal to periphery of each concessionaire leased space.

5. **Plumbing** - none provided.

6. **Fire Protection** - installed as recommended by Airport Fire Marshal and specific code requirements under Article 510.

c. **Airline Ticket Counter Back-Wall**

Proprietary signs for identification purposes shall comply with the following standards and requirements for back walls at ticket counters to provide uniformity while still allowing for unique logo identification of the individual carrier.

1. **Placement**
   
   • Back wall sign board must begin 56 inches from the floor.
   • Back wall sign board must not exceed 30 inches in height.
   • Placement of signs must emphasize horizontal composition.
   • Background surface finishes must extend to the extremities of wall in leased or assigned space.
   • Shall be subject to the approval by the Design Review Committee.

2. **Letters**
   
   • Individual, raised letters are preferred.
   • The body of the lettering must not exceed 12 inches in height.
   • Acronym letters (used without name of carrier) may exceed 12 inches in height.
   • Initial letters may exceed 12 inches.
   • Must be proportionate to the body of lettering.
   • Subject to design approval.
• May be individually mounted, directly on back wall or on an approved panel.
• Shall be subject to the approval by the Design Review Committee.

3. **Graphics**

• Must represent the carrier’s logo (for this purpose, the logo is identification that always appears with the airline’s name or instead of the airline’s name).
• Must not exceed the 30 inches in height.
• Must be proportionate to entire wall.
• Shall be subject to the approval by the Design Review Committee.

4. **Panels**

• All panels must be of sturdy construction with finished edges.
• Non-illuminated.
• Flat design.
• Not greater in depth than 2 inches.
• Shall be subject to the approval by the Design Review Committee.

5. **Back Wall Color**

• Back wall colors must be neutral.
• Shall be subject to the approval by the Design Review Committee.

6. **Flight Information Display (FID) Screens (incorporated into back wall)**

• Must not exceed 30 inches in height.
• Must be in an approved frame.
• Frame color must be neutral to backwall color.
• Shall be subject to the approval by the Design Review Committee.
7. **Code Share Signs**

- May be mounted on back wall.
- Must be color coordinated with back wall.
- Must be 30 inches in height.
- Placed on wall in accordance with placement standards above.
- Partner airlines placed in order of flight activity at this airport.
- Shall be subject to the approval by the Design Review Committee

8. **Arrival/Departure Boards**

- Must be color coordinated with back wall.
- Must be 30 inches in height.
- Placed on wall in accordance with placement standards above.
- Shall be subject to the approval by the Design Review Committee

9. **Multiple Counter Back Walls**

- Carriers occupying more than eight consecutive counter positions may treat the entire back wall in accordance with the above standards.
- The maximum number of signs is one per four check-in positions.
- Shall be subject to the approval by the Design Review Committee

10. **General**

- No additional signs may be posted or adhered to the back wall.

2. **Category II (Unfinished Enclosed):** Areas that are contiguous with Airport Space, and require isolation therefrom. Full height leasehold dividing partitions shall be provided at perimeter of each space. Where they bound Airport Spaces, partitions shall be finished on Airport side, and where they bound adjacent leaseholds, open stud frame. Included are terminal building baggage claim back-up areas at first floor, and ticketing back-up areas at second. It also comprises miscellaneous-use areas at mezzanine of both
central and boarding area buildings. Extent of provisions shall include following:

a. **Finish Materials:** (Rough-finish only)

1. **Flooring** - concrete.

2. **Walls** - formed concrete, gypsum plaster (unpainted), and/or exposed metal studs at leasehold separations. Minimum of one full-size man-door shall be provided per each enclosed leasehold.

3. **Ceilings** - exposed concrete, cement plaster (unpainted), and/or fire-proofed steel frame and decking.

b. **Utility Services** - (Metered, non-distributed)

1. **H.V.A.C.** It shall be the tenant’s individual responsibility to ascertain the amount and extent of heating, cooling and ventilation capacity provided in the tenant’s leasehold area(s). Airport will provide the tenant such information and data as it has available regarding the H.V.A.C. system. Any additional heating, cooling and ventilation requirements beyond the capacity provided by the Airport shall be provided by the tenant at its sole expense. Refer to Sec. 507.1

2. **Lighting** - none provided. Airport emergency lighting circuits shall be available for emergency lighting use through tenant installed transfer relay, up to 0.1 watt per sq.ft.

3. **Power** - in areas with centralized metering, electric service conduit and conductors shall be extended to periphery of leased space. In areas where meter is located within lease space, electric service conduit and conductors shall be extended to service equipment location. Service shall be sized to provide a maximum capacity of lighting load allowed by California Building Standards (Title 24) plus two watts per square foot power load. Electric service capacity in excess of this amount shall be provided by tenant at its sole expense.

4. **Communications** - empty conduit shall be extended from nearest telephone terminal to periphery of space, sized as follows:
Telephone conduits:

<table>
<thead>
<tr>
<th>Area of Space</th>
<th>Conduit Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4,000 sq.ft.</td>
<td>1-1/2”</td>
</tr>
<tr>
<td>4,001 - 8,000</td>
<td>2”</td>
</tr>
<tr>
<td>8,001 – 10,000</td>
<td>2-1/2”</td>
</tr>
<tr>
<td>10,001 – 12,000</td>
<td>3”</td>
</tr>
</tbody>
</table>

5. **Water** - capped 3/4-inch domestic cold water service (or larger as required) shall be provided at the periphery of leased spaced. Metering shall be provided by tenant at locations approved by the Airport.

6. **Soil and Waste** - one capped 4” soil line shall be stubbed in within periphery of space. (See Article 207 for special accommodations at grade slabs).


c. **Interior Signs:** Proprietary signs for identification purposes shall be mounted on the back wall behind the ticket counters. These signs shall comply with all of the following requirements:

1. **Placement**
   - Back wall signs must begin 56 inches from the floor.
   - Back wall signs must not exceed 30 inches in height.
   - Placement of signs must emphasize horizontal composition.
   - Background surface finishes must extend to the extremities of wall in leased or assigned space.

2. **Letters**
   - Individual, raised letters are preferred.
   - The body of the lettering must not exceed 12 inches in height.
   - Acronym letters (used without name of carrier) may exceed 12 inches in height.
   - Design greater than 12 inches in height require Design Review approval.
   - Initial letters may exceed 12 inches.
• Must be proportionate to the body of lettering.
• Subject to design approval.
• May be individually mounted, an approved panel.

3. **Graphics**

• Must represent the carrier’s logo (for this purpose, the logo is identification that always appears with the airline’s name or instead of the airline’s name).
• Must not exceed the 30 inches in height.
• Must be proportionate to entire wall; subject to design review.

4. **Panels**

• Call out quality and construction parameters of panel back walls (TBD).
• Non-illuminated.
• Flat design.
• Not greater in depth than 2 inches.

5. **Back Wall Color**

• Back wall paint or wall covering will be neutral in color and must be selected from a palette of colors (TBD).

6. **Flight Information Display (FID) Screens (incorporated into back wall)**

• Must not exceed 30 inches in height.
• Must be in an approved frame in a prescribed color (TBD).

7. **Code Share Signs**

• May be mounted on back wall.
• Must be color coordinated with back wall.
• Must be 30 inches in height.
• Placed on wall in accordance with placement standards above.
• Partner airlines placed in order of flight activity at this airport.
8. **Arrival/Departure Boards**
   - Must be color coordinated with back wall.
   - Must be 30 inches in height.
   - Placed on wall in accordance with placement standards above.

9. **Multiple Counter Back Walls**
   - Carriers occupying more than eight consecutive counter positions may treat the entire back wall in accordance with the above standards and subject to Design Review.
   - The maximum number of signs is one per four check-in positions.

10. **General**
    - No additional signs may be posted or adhered to the back wall.

3. **Category III (Unfinished Covered):** Areas isolated from airport space by intervening areas of floors, which require direct access to aprons or apron service roads. Full-height leasehold dividing partitions shall be provided per Category II space. Walls at exterior building line shall not be provided. Included are baggage handling and apron service areas at basement and first floors of terminal, as well as apron level areas under boarding area buildings.

Extent of provisions shall include following:

a. **Finish Materials:** (Rough-finish only)
   1. **Flooring** - concrete, asphaltic paving shall be provided at apron level of Connectors.
   2. **Walls** - formed concrete, plaster (Unpainted), exposed metal studs at leasehold separations. Painted plywood walls shall be provided at exterior of all spaces contiguous with aprons and/or apron service roads. (See “close-up” requirements under Sec. 405.3, Category III Space, and Standard Details under Article 512 for replacement with permanent exterior walls).
   3. **Ceilings** - fire-proofed deck.
b. **Utility Services:** (Metered, non-distributed)

1. **H.V.A.C.** It shall be the tenant’s individual responsibility to ascertain the amount and extent of heating, cooling and ventilation capacity provided in the tenant’s leasehold area(s). Airport will provide the tenant such information and data as it has available regarding the H.V.A.C. system. Any additional heating, cooling and ventilation requirements beyond the capacity provided by the Airport shall be provided by the tenant at its sole expense. Refer to Sec. 507.1

2. **Ventilation** (basement areas only) - capacity shall meet Uniform Building Code requirements for I.C. vehicles.

3. **Lighting** - (per Category II)

4. **Power** - (per Category II)

5. **Communications** - (per Category II)

6. **Water** - (per Category II). Line shall be connected to tenant meter.

7. **Soil and Waste** - (per Category II). Grade slab-line and stub-up provisions shall also apply as per Item (6) under Category II.

8. **Fire Protection** - (per Category II), except in basement areas, sprinklers shall be provided and meet Uniform Building Code and NFPA 13 noted occupancy.
ARTICLE 405. BUILDING SPACE REGULATIONS

Improvements to Airport building space within the Terminal Sector shall be governed by all following planning requirements as well as Design and Materials Standards under Part V and Construction Regulations under Part VI.

Sec. 405.1 Building Shell: No work shall be permitted that modifies exterior of building shall except under conditions specifically described in following Sec. 405.2.

Sec. 405.2 Exterior Improvements: Work external to building shall be permitted on aircraft apron side only. Said work shall be limited to improvements directly related to passenger, baggage, and cargo handling functions, and to provisions for handling and servicing aircraft.

A. Equipment Connections: Ramp equipment such as aircraft boarding bridges shall be approved on individual basis.

B. Utility Connections: Electrical, plumbing, and mechanical equipment runs shall interface with building shall only at walls enclosing Leasable Space, and where said space is restricted from public access.

C. Miscellaneous Attachments: Vertical or horizontal pipe and duct runs shall not be permitted along any exterior surfaces. Aircraft gate signs, Guidance equipment, antennas, clocks, CCTV monitors, changeable message signing and special lighting shall be permitted on individual case approval basis.

D. In-apron Fueling: Excavation, backfill and paving for lines and pits shall conform to Regulations under Part VI.

Sec. 405.3 Interior Improvements: All areas shall be classified into Airport Space and Rentable Space divisions as noted under Sec. 404.3.

A. Airport Space: No work of either temporary or permanent nature shall be permitted, except for connection to and extension of utilities, communications and baggage traces.

B. Rentable Space: All rentable areas shall be classified as Finished Exposed, Unfinished Enclosed, and Unfinished Covered categories as noted under Sec. 403.3, Paragraph B, above, and shall be respectively subject to following requirements:

1. Category I (Finished Exposed): All fixed assets such as counters, free-standing partitions, railings, graphics, and signing, shall be installed
according to standard Details under Article 512. Fixtures and equipment shall be installed according to applicable Sections under Part V.

a. **Close-up Work** - Space completely finished by Airport, therefore, work limited to above noted features not requiring close-up finishing.

b. **Utility Connections** - Work shall be limited to power and communication services, and installed according to regulations under Article 508.

2. **Category II (Unfinished Enclosed):** All openings, including doors, window walls, sidelights and toplights, made in demising partitions common with or exposed to Airport Space shall be installed according to standard Details under Article 512. Fixed assets such as partitions and attached fixtures and furnishings shall be installed according to applicable Sections under Part V.

   a. **Close-up Work** - prior to occupancy, periphery of space involved shall be enclosed in manner that completely isolates and insulates it from adjacent habitable, equipment, and furred areas. Walls, ceilings, and furring shall be installed per Standard Details.

   b. **Utility Connections** - selection and installation of equipment for distributing building services within lease area shall be specifically regulated to insure integrity of overall Terminal utility systems. H.V.A.C., electrical, plumbing, and communications, risers, drops, panels and stub-ins shall be closed-in at inner face of ceiling, walls, and furring with back framing and surfacing per Standard Details. All connections and extensions shall be made according to Standards under Part V.

3. **Category III (Unfinished Covered):** All exterior walls and wall openings shall be installed according to Standard Details, under Article 512. In cases where spaces are required to be open to weather, interior walls and ceilings shall be closed-up with cement plaster, and primed for moisture protection. Where space is required to be closed to weather, permanent precast wall units shall be manufactured and installed according to Standard Details. In both cases, when work is completed, existing temporary exterior plywood walls, described in Sec. 404.3 (Category III Space), shall be carefully dismantled and returned to Airport.

   a. **Close-up Work** - per Category II

   b. **Utility Connections** - per Category II
ARTICLE 406. TELEVISION MONITORS IN UNLEASED AREAS

The installation of Television Monitors in unleased areas shall be governed by all the following requirements as well as Design and Materials Standards under Part V and Construction Regulations under Part VI.

Sec. 406.1 Conditions - No installation of television monitors shall be permitted in unleased Airport Space except under conditions specifically described as follows:

A. No television monitors will be installed without prior approval of location and design by the Airport, which approval and design shall not be unreasonably withheld.

1. Airlines will not place advertising on cabinetry (except on screen side only), 1-inch high letters, matching Airport's lettering style stating airline's name with approved logo).

2. Primary tenant with subleased gates may be required by Airport to provide access to use of Television Monitors by sub-lessee in order to reduce the number of such units.

   a. In newly constructed or remodeled terminals, T.V. monitors shall be installed in batteries (grouping) and in pre-approved locations. If technically feasible, each grouping will be centrally connected, with each carrier having input to all units.

   b. Total cost of units shall be borne by the airlines.

3. Airlines will remove or relocate the monitor(s) at the written request of the Airport and bear all expense including repair of floor, ceiling and wall finishes.

4. Airlines shall bear all cost for installations, maintenance and repair of such unit(s).
PART V

DESIGN AND MATERIALS STANDARDS
ARTICLE 501. GENERAL

This Part shall include all codes, laws, orders and special requirements governing details of design and quality of materials for all components of Airport design and construction contracts, Tenant improvement in Landside and Terminal sectors. All work, involving various design and construction disciplines outlined herein, shall be depicted and described on drawings and specifications according to these Standards, and shall be installed according to approved copies of these documents. A permit shall be obtained before commencement of work.

Sec. 501.1 Codes, Laws and Orders: In addition to special conditions set forth in Parts III and IV of this document, and Articles 502 through 515 of this Part, all plans, specifications, calculations and methods of construction shall meet requirements of following published codes, laws, and orders. In cases of dual application, higher standard shall prevail.

A. Uniform Building Code.
B. California Code of Regulations, Title 24, State Building Standards.
C. National Electrical Code.
D. Uniform Plumbing Code.
E. Uniform Mechanical Code.
G. Rules for Overhead Electrical Line Construction, Gen. Order No. 95 of P.U.C.
H. All applicable laws and regulations of State of California and Federal agencies.
I. All applicable local laws and ordinances.
J. National Fire Codes.
K. American Society of Heating, Refrigerating and Air Conditioning Engineer's Standards and Handbooks.
L. Safety and Health Regulations for Construction of U.S. Dept. of Labor, OSHA and California OSHA.
M. Rules and Orders issued by Airport Commission.
N. All applicable laws and regulations and standards of FAA, including airfield security requirements.
O. Further, in addition to above, all construction shall be done in conformance with rules, regulations, and requirements established by the Airport relating to the safety and convenience of the public, to the safeguarding and protection of Airport property, and to Airport operations.

P. California Energy Conservation - Title 24 of California Code of Regulations.
Q. San Francisco Fire Code.
R. California Code of Regulations - Title 19.
S. California Code of Regulations - Title 17.
T. Americans with Disabilities Act.
U. Uniform Fire Code.
V. Sheet Metal and Air Conditioning Contractors National Association.

**Note:** Wherever reference is made to these codes, laws and orders, reference shall be construed to mean said regulations that are in effect on the day plans are submitted to Airport for approval. However, nothing herein shall prevent completion of plans and construction of buildings for which an architect or engineer holds a contract for preparation of plans and specifications, which plans are substantially completed at time of revision of above regulations may occur, provided such plans and specifications would have conformed to Code in effect prior to such revision. Notification of such situations addressed to the Deputy Airport Director and Chief Engineer, Facilities Operation and Maintenance (FOM), or his designee must be filed in writing within 30 days after regulation revision. Notification shall be accompanied by one set of plans indicating that drawings are at least 50 percent complete. Decision of Deputy Airport Director and Chief Engineer, Facilities Operation and Maintenance, or his designee, as to sufficiency and status of plans under this section shall be final.

**Sec. 501.2 Abbreviations:** Titles of certain organization, technical terms, and reference standards included in this Part shall be abbreviated as follows:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AABC</td>
<td>Associated Air Balance Council</td>
</tr>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>ARI</td>
<td>American Refrigeration Institute</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigeration and Air-Conditioning Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>CBR</td>
<td>California Bearing Ratio</td>
</tr>
<tr>
<td>CCR</td>
<td>California Code of Regulations, Section T-20-1451 through T-20-1542 of Title 24</td>
</tr>
<tr>
<td>ETL</td>
<td>Electrical Testing Laboratory</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>IAPMO</td>
<td>International Association of Plumbing and Mechanical Officials</td>
</tr>
<tr>
<td>ICBO</td>
<td>International Conference of Building Officials</td>
</tr>
<tr>
<td>IPCEA</td>
<td>Insulated Power Cable Engineers Association</td>
</tr>
<tr>
<td>NACE</td>
<td>National Association of Corrosion Engineers</td>
</tr>
<tr>
<td>NEC</td>
<td>National Electrical Code</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
</tbody>
</table>

Design Criteria for the Airport

General: The Airport, under the direction of the Airport Director, may participate in an Emergency Operation subsequent to a natural disaster, thus functioning in the capacity of an essential facility.

Scope: Design building for the Occupancy Category designated by Title 24 of the California Code of Regulation with the following exception. The Airport, a Special Occupancy Group designated by the Code, is to be designed as if it were an essential facility for seismic design only. The intent is to limit potential damage and disruption to the Airport after a seismic event by designing to a more stringent category than is required by the Code. Refer to the design requirements of Structural Engineering and Design Provisions of the Uniform Building Code.

For window walls located on the aircraft parking apron and facing the airfield, the following requirements shall apply. Windows containing gaskets, mullions and similarly small panels shall be capable of withstanding an ultimate load of 65 pounds per square foot positive pressure and 35 pounds per square foot negative pressure. The manufacturer of the fenestration should furnish tests to demonstrate the stated capacity. These loads only apply to the window system or similarly small panels. Lateral loads to the building frame are as specified in the Uniform Building Code.
Sec. 501.4 Bracing Systems:

A. Ceiling Bracing Systems shall be designed by a licensed structural engineer registered in the State of California. In lieu of this, the tenant may opt to adopt the details established by Technical Services Branch. Refer to Part VII, drawing numbers AA 8.1 through AA8.7 inclusive, and AA8.11 except that for ceiling plenum spaces greater than 12’-0” in height, a structural engineer shall be responsible for the design.

B. Non Bearing Partition Bracing Systems shall be designed by a licensed structural engineer registered in the State of California. In lieu of this, the tenant may opt to adopt the applicable details established by Technical Services Branch. Refer to Part VII, drawing number AA 8.8.

C. HVAC Bracing Systems for duct work, piping, and mechanical equipment shall be designed by a licensed structural engineer registered by the State of California. In lieu of this, the tenant may opt to adopt the details established by Technical Services Branch or SMACNA Seismic Restraint Manual: Guidelines for Mechanical Systems which meets CBC, Title 24, Part 2 and OSPHD standards. Refer to Part VII, drawing numbers AA8.8 and AA8.9.

D. Bracing Systems for fire protection piping, automatic sprinkler mains and branch lines shall be designed by a licensed structural engineer registered by the State of California. In lieu of this, the tenant may opt to adopt details established by Technical Services Branch or NFPA Publication 13. Refer to Part VII, drawing number AA 8.10.

Sec. 501.5 Seismic Separations or Expansion Joints: All floor, wall, and ceiling finishes shall be properly designed to permit horizontal movements in any direction at least equal to the joint dimension. Likewise, all utilities crossing the joints shall also accommodate these movements.

Sec. 501.6 Pile Driving: Pile driving records and certifications shall be transmitted to the Technical Services Branch upon completion of that phase or as directed by the Deputy Airport Director, FOM, or his designee.

Sec. 501.7 Storage Racks: Storage racks, 6'-0” or more in height shall be seismically braced to prevent overturning.

Sec. 501.8 Construction Drawings: Any questionable aspect of construction, not specifically detailed in the approved drawings, shall be submitted to the Deputy Airport Director, FOM, or his designee, with sufficient information for review and approval.
Sec. 501.9 Code Compliance: When renovation of an area is valued at $100,000 or more, the entire area involved shall be brought up to all applicable building and Airport codes.

Sec. 501.10 Code Non-Compliance: All work installed without approval, or not in compliance with the code and deemed to be hazard, shall be brought up to applicable building and Airport codes upon a directive from the Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section.

Sec. 501.11 Construction Safety: All construction shall be conducted in a manner complying with all safety codes and regulations. All welding shall be shielded from public view. Refer to Part VI CONSTRUCTION REGULATIONS Article 601 GENERAL Section 601.4 Construction Safety Requirement.

Sec. 501.12 Annual Safety Inspections: All facilities are subject to scheduled annual safety inspection by an inspection team comprised of a Fire Inspector, Building Inspector, Electrical Inspector, Plumbing Inspector, HVAC Mechanical Inspector, Maintenance Representative for Airport maintained facilities and a Tenant Representative for their respective areas of responsibility.

Sec. 501.13 Passenger Loading Bridges: Passenger loading bridges are classified as a structure and shall meet all safety standards adopted by the Airport Commission. Aircraft Loading Bridges require certification under NFPA 417 Standards, latest edition. However, pending receipt of certification, compliance with Aircraft Operations Bulletins (79-26-AOB) and (79-30-AOB) is required. Also Refer to Sec. 508.12E.

Sec. 501.14 Airport Operations Bulletins: Airport Operations Bulletins are available from Operations Duty Supervisor to the permit applicant or contractor upon request.

Sec. 501.15 Procedure for Utility Facilities, Systems and Equipment Shutdown:

A. Application: This procedure applies to all utility (storm drains, industrial waste drainage, sanitary sewers, water, plumbing, gas, fuel, heating, ventilating and air conditioning) facilities, systems and equipment within Airport property and building spaces including those leased and operated by tenants. For electrical facilities shutdown, refer to Sec. 508.16 Procedure for (Electrical) Shutdown.

B. Purpose: Purpose of this procedure is primarily to protect safety of all workers involved and the general public, and secondarily to coordinate construction work so that service interruptions to operation of the Airport and their tenants will be held to an absolute minimum.
C. **Responsibilities:** It will be the duty of all Airport tenants and responsible agents to comply with this procedure and to inform all other agents, architects, engineers, contractors, and employees of this procedure.

D. **Requirements:** All service interruptions shall be subject to the following requirements:

1. Inquiry and preliminary scheduling of major utility systems and equipment shutdowns shall be made fifteen (15) working days before submitting Request for Utility Shutdown Form.

2. Permission for minor shutdown must be obtained on appropriate Request for Utility Shutdown Form three (3) working days before shutdown is required.

3. Tenant or responsible agent shall obtain Request for Utility Shutdown Form from the Airport Code Inspector of the appropriate discipline, or from BICE. Tenant or responsible agent shall fill out first portion of form giving information of area affected, date, time and duration of shutdown, and shall, when necessary, attach an 8-1/2” by 11” sketch with detail information for clarification of work to be done.

4. Airport Code Inspector shall review and initial the form, return a copy to tenant or agent and transmit remaining copies to Maintenance Superintendent.

5. Maintenance Superintendent or Airport Code Inspector shall contact Airport Operations and obtain necessary clearances and approvals.

6. Maintenance Superintendent shall review the request, make changes in the request for shutdown that are deemed necessary, approve it and perform the appropriate shutdown. Tenant or agent shall sign for receipt of clearance.

7. Should request be disapproved, Maintenance Superintendent shall state reasons for disapproval on the form and return the request to Airport Code Inspector. Airport Code Inspector and tenant or agent shall each retain one copy of disapproved request for record. Resubmitted requests shall be made on new forms.

8. Upon completion of work described on the request, tenant or agent shall sign the form and transmit copies to Maintenance Superintendent for restoration of service.
9. Each stage of a series of shutdowns shall be requested on a separate form. Restoration of service shall be recorded on same the form as request for shutdown. Repetitive or consecutive shutdowns must be requested on a day-to-day basis with a separate form required for each shutdown.

10. All shutdown operations of existing utility systems and equipment, except that under exclusive control of a single tenant, shall be performed by or under supervision of Airport personnel.

11. Times and durations of shutdowns will be set by Airport. Work may have to be performed at any time, day or night, including weekends, and shall be done at no expense to Airport.

12. Work may be terminated before completion and service temporarily restored at any time as directed the Airport Code Inspector of the appropriate discipline at no expense to Airport.

13. Tenants and responsible agents shall follow approved work phasing sequence and other specific directives of the Airport Code Inspector of the appropriate discipline.

E. **Acknowledgment:** Written acknowledgment of this procedure and all requirements herein shall be made by tenant for operational shutdowns and by general and subcontractors for construction shutdowns.
ARTICLE 502. IMPORTED FILL

Installation of imported dry fill within Plot Sites, shall conform to the requirements under Articles 303 and 403 of this document. A permit shall be obtained before commencement of work, which may be part of the general tenant permit request.

Sec. 502.1 Character of Material: Material shall be predominantly of granular nature consisting of soil or combination of soil and rock, and shall be uniformly graded from coarse to fine with maximum dimension of any single piece not to exceed 4\text{-}\frac{3}{8} inches. All imported fill shall be free from any hazardous substance. Refer to Sec. 514.1C.8 and 9. Tenants shall provide proof of origin and/or laboratory analytical data indicating the absence of hazardous and/or toxic substances as required by the Airport.

A. Material shall have California Bearing Ratio of not less than 20 at 0.1 inch penetration when compacted to 95% of maximum density at optimum moisture content.

B. Specimens shall be soaked for four days, molded at optimum moisture content and compacted in accordance with AASHTO Designation T-180, Method D.

C. Maximum density and optimum moisture content shall be determined in accordance with requirements of AASHTO Designation T-180, Method D.

D. Maximum size of coarse material in mold shall be 3/4 inch, with over 3/4 inch removed and replaced with equal portion of material between No. 4 sieve and 3/4 inch sieve.

E. Surcharge weight for CBR test shall be 25 pounds, and expansion of specimens shall not be more than 2%.

F. That portion of fill material passing No. 4 sieve shall have Liquid Limit of not more than 35 and Plasticity Index of not more than 8 as determined in accordance with AASHTO Methods T89, T90, and T91.

Sec. 502.2 Compaction: Material shall be placed in layers not exceeding 8 inches loose depth, and shall be compacted to 90% of maximum density at optimum moisture content as determined by AASHTO Designation T-180, Method D.

Sec. 502.3 Soil Conditions: For foundations, allowable soil pressure on engineered fill, in absence of soils report, shall be as follows:

A. Dead Load Only 1500 lbs./sq.ft.

B. Dead plus Live Load 2000 lbs./sq.ft.
C. Dead plus Live plus Short-time Lateral 2667 lbs./sq.ft.

NOTE: Refer to Sec. 303.3-D for Foundation Tie and Slab Requirements.

Sec. 502.4 Dust Control: Suitable dust palliative shall be applied to final surface of fill at direction of Technical Services Branch. Determination shall be based on planned duration of subsequent fill exposure to weather. Dust control shall be rigidly enforced during construction.

Sec. 502.5 Grades: Technical Services Branch shall, at its discretion, establish final elevation of imported fill grades.

Sec. 502.6 Selected Dry Fill Material

A. Material shall be predominantly of a granular nature, consisting of soil or combination of soil and aggregate, meeting the requirements set forth in these specifications.

B. Soils which are made of clay or which contain large amounts of organic matter, debris, or aggregate which disintegrates easily, or soils with properties of plastic soil, will not be accepted.

C. The material shall be well graded from coarse to fine with the maximum dimension of any single piece not to exceed three (3) inches. All interstices between large pieces shall be completely filled with smaller pieces and fine particles. Oversized material will not be permitted.

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>35-100</td>
</tr>
<tr>
<td>No. 30</td>
<td>20-100</td>
</tr>
</tbody>
</table>

D. CBR Test: The material shall have a California Bearing Ratio of not less than 20 at 0.1 inch penetration when compacted to 95% of its maximum density of optimum moisture content. Surcharge weight for CBR test shall be 25 pounds.

E. Expansion of the material shall not be more than 2%.

F. Material passing No. 4 sieve shall have a liquid limit of not more than 35 and a plasticity index of not more than eight.
G. Materials to be used shall be free from any hazardous and/or toxic substances. Prior to delivery of the materials, tenants or responsible agents shall provide to Technical Services Branch, proof of origin, name and location of source and/or laboratory analytical data indicating the absence of hazardous and/or toxic substances in a report prepared by a certified laboratory.
ARTICLE 503. PAVEMENTS

Installation of concrete and asphaltic pavement at all areas within and adjacent to Plot Sites, shall conform to the requirements under Articles 303 and 403 of this document. A permit shall be obtained before commencement of work, which may be part of the general tenant permit request.

Sec. 503.1 Design: Each pavement structural section shall be designed to support the heaviest load that it may be expected to carry. Asphaltic pavement for aircraft loading or parking shall be treated or covered with protective surface coatings for resistance to jet fuels, oil and gasoline drippings. All designs with details shall be submitted to SFIA FOM Division for review and approval, through the permit review and approval process.

Sec. 503.2 Materials: Pavement constituents shall be as follows:

A. Concrete pavement consists of Portland Cement Concrete placed over cement treated base, crushed aggregate base, stabilized soil or any combination thereof, or placed directly on subgrade, as approved by Technical Services Branch, through the permit review and approval process.

B. Asphaltic pavement consists of bituminous binder and surface courses placed over cement treated base, crushed aggregate base, stabilized soil, any combination thereof, or placed directly on subgrade, as approved by Technical Services Branch, through the permit review and approval process.

C. All test results and certifications shall be forwarded to Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section.

D. Roadway pavement (H-20 loading design):

\[
\begin{align*}
\text{AC} & \quad \text{Shall meet Caltrans Standard Specifications requirements} \\
\text{CTB} & \quad = \quad 95\% \text{ compaction} \\
\text{AB} & \quad = \quad 90\% \text{ compaction} \\
\text{Subgrade: Top 12”} & \quad = \quad 95\% \text{ compaction} \\
\text{Below} & \quad = \quad 90\% \text{ compaction}
\end{align*}
\]

E. AOA Taxiways and aircraft apron pavement shall meet latest FAA Advisory Circular standards and requirements.

\[
\begin{align*}
\text{AC} & \quad = \quad 98\% \text{ compaction} \\
\text{CTB} & \quad = \quad 98\% \text{ compaction}
\end{align*}
\]
AB = 95% compaction
Subgrade: Top 12” = 95% compaction
Below = 90% compaction

F. Slurry fill of utility pipes: 3” and greater in size for all pipelines and any remaining utilities left in place, that will not be affected and/or removed by new construction.

G. Portions of existing pavement that have been damaged or removed, shall be replaced, at a minimum, by an equivalent pavement section. All designs with details shall be submitted to SFIA FOM Division for review and approval, through the permit review and approval process.

Sec. 503.3 Grades: Technical Services Branch shall, at its discretion establish final elevation of pavement surfaces.

Sec. 503.4 Building Slabs on Grade: Minimum thickness shall be 5 inches. Minimum reinforcement (grade 60 rebars or welded wire fabric) shall be 0.0014 times the gross area of the slab. For slabs used as slab footings or interconnecting ties, refer to Sec.303.3-E.

A. Construction Joints: Concrete pours are limited to 8,100 square feet maximum. Length of pour is limited to 90 feet in each direction. Locate construction joints as shown in drawing numbers AA8.12 and AA 8.13, Part VII.

B. Contraction or Control Joints: Joints shall be spaced at 15’-0” o.c. maximum intervals and shall be formed with one of the following types as shown in Part VII, drawing number AA8.15.

1. Hand-tooled contraction joint formed while concrete is still fresh. Snap a string line at each joint to help make joints straight. If floor is subjected to hard-wheel traffic, fill joint with epoxy resins (shore D hardness of 50 and 6% elongation) after slab is between 3 to 6 months old.

2. Saw-cut joints may be formed by cutting with a power saw. This operation shall be done as soon as possible without raveling concrete and before shrinkage cracks appear, generally when concrete is between 4 and 12 hours old.

3. Wood divider strips may be used for driveways, sidewalks and patios only (no hard-wheel or vehicular traffic). Spacing of joints shall not exceed 10’-0” o.c. each way.
C. Isolation Joints: Joints at columns shall be formed with ½” thick asphalt impregnated preformed strips, full depth of slab. Refer to Part VII, drawing number AA8.14.
ARTICLE 504. STORM, INDUSTRIAL AND SEWAGE SYSTEMS

Installation of exterior storm drains, industrial waste, and waste line work within the Airport, shall conform to the requirements under Articles 303 and 403 of this document. All interior storm drains, industrial waste, and waste line work shall be in compliance with the latest edition of the Uniform Plumbing Code by the International Association of Plumbing and Mechanical Officials. A permit shall be obtained before commencement of work.

Sec. 504.1 Design: Drainage systems shall be designed to dispose of all surface water which falls within designated area, based on design storm water runoff specified by Technical Services Branch. Prior to submittal of design plans, a drainage report to include evaluation of runoff, existing and proposed flow patterns, time of concentration, land usage, soil types, design storm, existing and proposed facilities, hydraulic calculations, and profiles of design water surface shall be submitted to Technical Services Branch, Civil Engineering Section for review and approval. Drainage systems shall be designed to prevent oil, grease and any undesirable fluids from entering drainage mains, and comply with Airport fluid discharge regulations under Sec. 504.8. Sewage systems shall be designed to dispose of sanitary sewage. Industrial waste shall not be included in any manner in the sewage system. (Refer to Section 504.8).

Sec. 504.2 Materials:

A. Vitrified clay pipe shall meet requirements of ASTM Designation C200.

B. Reinforced concrete pipe shall meet requirements of ASTM Designation C76, Class III, IV or V depending on the location, depth below finished grade and loading it is subject to.

C. Concrete for pipe cradles or encasement shall meet requirements of Class B Portland Cement Concrete of Section 90 of Caltrans Standard Specifications.

D. The use of plastic piping is not permitted except as approved by the Building Official for industrial waste system where corrosive fluid is unsuitable for metal piping.

E. Cast iron pipe and fittings, service weight, coal tar coated, joints shall be gasket, flanged, or mechanical suitable for underground use and the required service. Use stainless steel fasteners for underground application.

F. Ductile iron pipe Class 50, ANSI, A21.11, ANSI A21.51. Joints shall be gasket, mechanical, or flanged suitable for underground use and the required services. All fittings shall meet the requirements of ANSI A21.10. Use stainless steel fasteners for underground application.
G. Steel pipe cement mortar lined and coated and wrapped. Steel pipe shall conform to ASTM 283. Cement mortar lining shall meet requirements of AWWAC205. Coal tar enamel coating and wrapping shall meet the requirements of AWWAC203. Pipe joints shall be gasket, flanged or welded type suitable for underground use and the operating pressure and services.

Sec. 504.3 Service Connections: Connections at service points described under Sec. 302.2, and runs to and within said sites shall be responsibility of tenant, who shall install all pipes and necessary appurtenances. If dissimilar metals are connected at mains, provision shall be made to prevent galvanic action with required cathodic protection installed. An insulation joint shall be installed at tie-in to any Airport mains.

Sec. 504.4 Pipe Joints: All sewage pipe joints shall be watertight and of such design as to remain sealed after possible settlement.

Sec. 504.5 Flexible Connections: Connections shall be provided to accommodate minimum differential settlement of 12 inches and accompanying lateral movement for pipes entering or leaving building, and at other transition conditions where differential settlement may occur.

Sec. 504.6 Diversion Facilities: When sewer lines are being connected to existing lines in operation, temporary diversion facilities shall be provided as required to hold to a minimum interference with operation of these lines. At least two weeks prior written notice shall be given to Technical Services Branch. Temporary facilities shall be removed upon completion of work.

Sec. 504.7 Inspection: Prior to backfill or cover-up and final approval of any pipe installation, a thorough inspection shall be made of entire installation. Any indication of defects in material or workmanship, or obstruction to flow in pipe system, shall be further investigated and corrected as necessary.

Sec. 504.8 Sewage and Industrial Waste: Tenants shall comply in all respects with “Rules and Regulations issued by Airport Commission, adopted October 17, 1972” governing fluid discharge. Said rules and regulations shall be made part of these standards as fully set forth herein. Sampling manholes shall be constructed per Item 1.7.7 of these Regulations. Tenant sewers shall not discharge directly into Airport sewer force main.

A. Copies of above regulations shall be obtainable from Technical Services Branch.

B. Sanitary and industrial wastes standards and regulations are subject to change and revision by Commission as necessary to comply with current directives and regulations of State Regional Water Quality Control Board.
C. Tenant shall comply in all respects with the following governing waste discharge:

**DEFINITIONS**

1. “**BOD**” means the biochemical oxygen demand of sewage or polluted water. It is the amount of oxygen required for the biological decomposition of dissolved organic solids to occur under aerobic conditions under a standardized time and temperature.

2. “**Composite sample**” means a waste effluent sample composed of individual grab samples collected at hourly intervals for a period of 24 hours and mixed in direct proportion varying not more than plus or minus 5 percent to instantaneous flow rate corresponding to each grab sample. An alternative to the 24-hour sample shall be the six (6) hour composite sample.

3. “**Garbage**” means solid waste from the preparation, cooking and dispensing of food.

4. “**Grab sample**” means a waste effluent sample or sediment sample collected from a specific location at a specific time.

5. “**pH**” means the logarithm of the reciprocal of the hydrogen-ion concentration in grams per liter of solution.

6. “**Properly shredded garbage**” means the waste from the preparation, cooking and dispensing of food, excluding all plastics, that has been shredded to such that no particle is greater than 1/2 inch in dimension and shall be carried freely under the flow conditions normally prevailing in the Airport sanitary sewage system.

7. “**Sanitary Sewage**” means the water carried waste from toilets, lavatories, kitchen sinks, slop sinks, laundry facilities, airplane holding tanks, etc. and as used herein excludes industrial waste and stormwater.

8. “**Stormwater**” means the liquid flowing in the storm drains during or following a period of rainfall and resulting therefrom.

9. “**Industrial Waste**” any substances, as distinct from sanitary sewage, including but not limited to liquid, solid, gaseous, and radioactive substances resulting from any operation of whatever nature that is discharged.
10. “Director” means the Airport Director for the Airport Commission, City and County of San Francisco, San Francisco International Airport, or his duly authorized representative.

D. Separation of Waste Discharge

1. Sanitary sewage only shall be discharged into the sanitary system. No industrial waste or stormwater shall be discharged or connected to any sanitary sewer, nor shall any tank, bucket, or other container containing oil or industrial waste be emptied into any toilet, sink, sump, or other receptacle connected to the sanitary sewers or the storm water drainage system. Containers of industrial waste must be located to avoid spillage and to prevent the industrial waste from entering other systems. No industrial waste of any kind shall be dumped into the ground or sewers within the geographic boundaries of the San Francisco International Airport nor shall it be allowed to flow into San Francisco Bay.

2. Industrial waste in such concentrations that the resultant discharge will meet the requirements specified in Items C and D shall only be discharged to the industrial waste system. No sanitary sewage, kitchen waste, or putrescible organic waste shall be discharged to the storm sewers.

3. Concentrated industrial waste or oil shall not be discharged to any system but shall be collected in approved tanks or sumps and periodically removed from the Airport. On request, the tenant shall submit monthly disposal reports to the Airport Director and such reports shall include time and date, amount of waste removed, by whom, and where disposed.

4. Only storm water runoff shall be discharged to the Airport’s storm water drainage system. Any discharge of non-storm water into the storm water drainage system is prohibited unless approved in writing by Technical Services Branch.

E. Substances Excluded from Sanitary Sewers, Industrial Waste Sewers, and Storm Drainage System

Except as hereinafter provided, no tenant shall discharge or cause to be discharged to any sanitary sewer, industrial waste sewer, or storm drain of the Airport any of the following:

1. Any liquid or vapor having a temperature higher than 120 °F.
2. Any water or waste containing more than 120 mg/L of fat, oil or grease from food preparation.

3. Any waste containing gasoline, benzene, naphtha, fuel oil, oleum, jet fuel, or other flammable, hazardous, or explosive liquid, solid, or gas except as allowed in item F below.

4. Any garbage that has not been properly shredded.

5. Any ashes, cinders, sand, mud, straw, shavings, metals, glass, rag, rugs, feathers, tar, plastic, wood, paunch, manure, or any other solid or viscous substances capable of obstructing or interfering with the proper operation of the system.

6. Any waters or waste having a pH lower than 5.0 or higher than 9.0.

7. Any waters or waste containing a toxic or poisonous substance, in sufficient quantity to injure or interfere with the sewage or industrial waste treatment plant processes, to constitute a hazard to humans or animals, or to create any hazard in the plant effluence or the receiving water of the Bay.

8. Any noxious, or malodorous gas, or substance in a quantity capable of creating a public nuisance.

9. Any waste containing measurable and harmful amounts of radioactive substance.

F. Substances Excluded from Storm Water Drainage System

No substances other than storm runoff shall be discharged to the Storm Water Drainage System except as allowed in the Airport’s Storm Water Pollution Prevention Plan.

G. Limiting Concentration of Certain Constituents of Industrial Waste in Water and Waste Discharged

The waste waters discharged by any tenant to any part of the Airport system shall not exceed the concentrations listed below for the following constituents, but not necessarily limited only to them:

<table>
<thead>
<tr>
<th>REQUIRED PARAMETER</th>
<th>REQUIRED LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPH(G), TPH(D), TPH(J), TPH(K)</td>
<td>50 ppm (no free product)</td>
</tr>
<tr>
<td>TPH(Motor Oil) or Oil and Grease</td>
<td>case-by-case</td>
</tr>
<tr>
<td>BTEX compounds</td>
<td>0.5 ppm</td>
</tr>
</tbody>
</table>
Chlorinated Organic compounds,
  Volatiles or semi-volatiles  0.5 ppm
Combined BTEX and chlorinated
  Organic Compounds  1 ppm
Metals
  Arsenic  0.2 mg/L
  Bio-stimulants  To be prescribed
  Cadmium  0.03 mg/L
  Total Chromium  0.11 mg/L
  Copper  0.037 mg/L
  Cyanide  0.01 mg/L
  Iron  0.053 mg/L
  Lead  0.001 mg/L
  Mercury  0.065 mg/L
  Silver  0.023 mg/L
  Phenols  0.5 mg/L
  Zinc  0.58 mg/L
  Settleable Matter  0.5 ml/L/hr
  MBAS  4.5 mg/L

All heavy metals limit will be same as the Airport's NPDES permit issued by Regional Water Quality Control Board.

Analytical method used must have the detection sensitivity to match the required limit of parameter being analyzed.

Toxicity - survival of test fish in 96-hour bio-assays of undiluted waste water using a 24-hour composite sample, 90% minimum. The above values apply to composite samples of the waste water collected at hourly intervals over a period of not less than six (6) hours.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/L</td>
<td>milligrams per liter</td>
</tr>
<tr>
<td>ml/L/hr</td>
<td>milliliters per liter per hour</td>
</tr>
</tbody>
</table>

The maximum allowable concentrations of these and other toxic or potentially toxic, substances are subject to change by the Airport as necessary to comply with the directives and regulations of the State Regional Water Quality Control Board.
G. Pretreatment Facilities

In case the sewage and industrial waste discharged by the tenant does not meet the requirements of Items D, E and F, the offending constituents (waste) shall be removed from the Airport by the tenant by other approved means; or if permitted by the Airport Director, the tenant may install pretreatment facilities at his own expense. The design and construction of such facilities shall be subject to the approval of the Airport Director. Approval of the Airport Director shall not relieve the tenant from complying with the requirements of Items D, E and F. Such facilities, if installed, shall be operated at not less than 90% of their design efficiency, nor less than 90% of design flow capacity, and shall be subject to the inspection of the Airport Director or his duly appointed representative at all times. Upon request, the tenant shall prepare and submit monthly reports to the Airport Director concerning the operation of said facilities. This report shall include any malfunctions of shutdowns of the facilities and the remedial measures undertaken by the tenant.

H. Grease, Oil and Sand Interceptors

1. If the liquid waste discharged by any tenant contains oil, and grease in excess of the amount set forth in Items D, E and F, or any flammable substance, or sand, that tenant shall provide one or more interceptors of a type approved by the Director on his industrial waste drains before connecting to the Airport's system. If excess oil and grease is due to soluble oil not separable by gravity treatment, special treatment facilities shall be installed as required in Item G.

2. The design and construction of oil and grease separators and treatment facilities shall be subject to the approval of the Airport Director. Such facilities shall be maintained in continuous efficient operation at all times, and shall be subject to the inspections of the Airport Director, or his representative at any time. Upon request, each tenant shall submit monthly reports to the Airport Director covering the date and the separators. Such reports shall include date and time of inspection, quantity of oil in the separator, amount of oil in the effluent by visual inspection and/or analytical testing, as required by the Technical Services Branch, date and time of removal of oil and sediment, amount removed, by whom and where deposited.

I. Taking of Samples from Tenant’s Sewers or Storm Drains

Samples shall be taken at the most distant downstream manhole on each tenant's sewers or storm drain, or at the first downstream manhole on the Airport sewers or storm drainage systems as directed by the Airport Director, provided such manhole exists on a sewer or drain receiving only the waste from the individual tenant.
1. If no such manhole exists but installation of such manhole is possible without major rebuilding of the drainage system, the Airport Director may require such installation at the tenant's expense.

2. If no such manhole exists and until such time as one may be built, samples may be taken of the waste from the manhole on the Airport system just upstream and downstream of the tenant's service connections. Samples will be taken first at the upstream manhole and then as soon thereafter as is practicable at the downstream manhole. Any increase in concentration of the waste shall be attributed to the discharge from the tenant's connection.

3. Access to the sampling manholes shall be provided to the Airport staff at all times.

J. Testing Standards and Self-Monitoring Program

1. All measurements, sample collection, storage, and analysis of the characteristics of the water and waste to which reference is made in these regulations shall be determined in accordance with the latest edition of “Standard Methods for the Examination of Water and Waste Water,” prepared, and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, and other methods as approved by the Executive Officer of the California Regional Water Quality Control Boards. All samples shall be taken at the inspection facility or manhole stipulation in Item I.

2. Water and waste analysis shall be performed by a laboratory certified for these analyses by the State Department of Public Health. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his laboratory and sign all reports of such work submitted to the Airport Director.

3. All tenants, when required, shall prepare a self-monitoring program and submit such program to the Airport Director. The program shall outline the tenants' proposed action or steps to be taken as to frequency of sampling, analyses of waste-water samples and location of sampling points.

K. Violations

The Airport Director will inform tenants of the results of all analyses of the tenant's effluent taken by the Airport, and will state in what respect, if any, the results indicate non-compliance with these regulations.
In case the discharged waste does not comply with these regulations, the tenant shall; notify the Airport Director in writing within thirty (30) days, of the steps proposed to be undertaken to achieve compliance.

Remedial steps to be undertaken by tenants under such circumstances may include one or more of the following:

1. Removal of the waste containing the offending constituents from the Airport by tank truck.

2. Improvements or changes in operating procedures to eliminate or reduce the waste to acceptable limits of the offending constituents.

3. More frequent cleaning, proper maintenance, or better operation of existing facilities such as oil separators, etc.

4. The installation of pretreatment works which may consist of any one of the following:
   a. Neutralization of acids and alkalis.
   b. Chemical treatment, flocculation, and sedimentation or flotation for the removal of heavy metals, oils, and cyanide.
   c. Storage tanks for equalizing the volume and concentration of the waste and discharging the waste at a uniform rate throughout 24 hours of the day. Such facilities may, subject to approval, provide for limited dilution of the waste with water. Dilution of waste with water is in violation of RWQCB/Cal EPA regulations.

In case of non-cooperation or intentional neglect, the Airport Director will direct the tenant in writing to take any one of the above steps to remove the violation as he considers appropriate, and will give the tenant a reasonable length of time, not less than ten (10) nor more than thirty (30 days), to achieve compliance.

If the tenant does not take action as directed and the violation continues, the Airport Director may, at his option:

a. Enter upon tenant's property and construct such works as may be necessary, at the tenant's sole expense, or in case such works exist and are not properly operated, he may take over the operation of such facilities and the tenant shall pay all costs for personnel, labor, materials, and services required, including overhead.
b. Install a stop gate or stopper in the tenant's sewer or drain connection where such waste enters the Airport sewerage or drainage system, and shut off the flow of the offending waste until the tenant agrees to take the necessary steps to eliminate the violation.

c. Certify the tenant to the Regional Water Quality Control Board for legal action. In addition, a discharger shall be liable in civil damages to the Airport for any expense, loses or damages to the Airport's sewer system, drainage system, treatment facilities, or treatment process, and for any fines and other costs imposed on the Airport under Section 13350 of the California Water Code or pursuant to Section 5650 of the California Fish and Game Code, as a result of said discharge.

L. Accidental Discharge

1. Dischargers shall notify the Airport immediately and in the most expeditious manner when accidental discharges of wastes in violation of these regulations occur so that countermeasures may be taken to minimize damage to the sewer system, treatment plant, treatment processes and the receiving waters. Such notification will not relieve dischargers of liability for any expense, loss or damage to the sewer system, treatment plant, or treatment process, or for any fines and other costs imposed on the Airport on account thereof under Section 13350 of the California Water Code or for violation of Section 5650 of the California Fish and Game Code.

2. In the event of accidental discharge in violation of this ordinance, discharger shall furnish the Airport, within 15 days of the date of occurrence, a detailed written statement describing the causes of the accidental discharge and the measures being taken to prevent future occurrences.

3. In order that employees of dischargers be more fully informed of Airport requirements, copies of these regulations shall be permanently posted on bulletin boards of dischargers together with such other industrial waste information and notices which may be furnished by the Airport from time to time directed toward more effective water pollution control.

4. Sewer connections within the discharger's plumbing or drainage system shall be appropriately labeled to warn operating personnel against discharge of any substance in violation of this ordinance.
M. Penalties

Any discharger, purposely violating the above waste discharge requirements, shall be guilty of violating his lease agreement and shall be subject to being denied use of the Airport to conduct his business.

Sec. 504.9 Excavation and Backfill: Refer to Article 608 of Construction Regulations.
ARTICLE 505. WATER SYSTEM

Installation of water supply work at all areas within and adjacent to Plot Sites and Building Spaces, shall conform to the requirements under Articles 303, 305, 403, and 405 of this document. A permit shall be obtained before commencement of work.

Sec. 505.1 Design: Plans and specifications shall indicate complete piping layout including detail of tapping of main, meter and valve boxes, concrete anchors, flexible joints, etc.

A. Present and ultimate water demand shall be indicated on plans.

B. Pressure gauges located upstream and downstream of meter and securable bypass around meter shall be installed to facilitate annual testing and maintenance.

C. Meter and valve box shall be of precast or reinforced concrete poured in place complete with access door panels, each not to exceed 50 lbs., concrete floor with adequate drainage and sized adequately for servicing. Each box over 4 feet deep shall be provided with fixed ladder for access.

Sec. 505.2 Materials:

A. Steel pipe shall meet requirements of ASTM Designation A139. Joints for steel pipe may be welded, screwed, flanged or mechanical type to suit field conditions and as approved by the Building Official. Underground steel pipe 4-inch and larger shall be cement lined and coated or with approved tape wrap and cement mortar lining.

1. Cement for pipe lining and coating shall be Type II Portland cement meeting requirements of ASTM Designation C150. Sand for mortar lining and coating of pipe shall meet requirements for find aggregate as set forth in ASTM Designation C33.

2. Lining and coating shall be tested for conformity with ASTM Designation C39, and shall develop strength of not less than 4,000 pounds per square inch at 28 days.

3. Mortar reinforcing wire shall meet requirements of ASTM Designation A82.

B. Ductile iron pipe shall be Class 350, centrifugally cast, and meet Federal Specification WW-P-421a, Type I or ANSI Specification A 21.51. Joints shall be rubber-gasket push-on type, mechanical or flanged. Fittings shall be ductile iron and meet ANSI A21.10 and A21.11 requirements.
1. Pipe and fittings shall have cement mortar lining meeting requirements of ANSI Specification A 21.4. After mortar lining has been placed, apply bituminous material, to which sufficient oil has been added to make smooth and tenacious coating to both inside and outside surfaces of pipe.

2. All joints, within 10 feet of bends or within 20 feet of end of pipe shall be restrained from pulling open. For mechanical joints, use retainer glands; for gasket joints, use special retainer. In addition, concrete thrust blocks shall be required at pipe bends, fittings and deadends.

C. Steel plates and sheets used for fabricating appurtenances and fittings shall meet requirements of ASTM Designation A245 Grade B. Structural steel shapes, bolts, nuts and washers shall meet requirements of ASTM Designation A245 Grade B. Structural steel shapes, bolts, nuts and washers shall meet requirements of ASTM Designation A7 or A36.

1. Steel castings shall meet requirements of ASTM Designation A27.

2. Steel forgings for pipe flanges shall meet requirements of ASA Specifications B16.5, 150-lb.

D. The use of plastic piping is not permitted except as noted hereinafter for irrigation system.

E. For pipe size 4” and less, copper pipe, type K, ASTM Standard B-88 is permissible. For underground application, pipe tape wrap is required. Pipe joint shall meet the potable water regulations.

**Sec. 505.3 Service Connection:** Connections to Airport service and fire mains at Plot Sites, and to domestic service at Rentable Space shall be responsibility of Tenant. Installation shall be compatible with Airport system. Cross-connections shall comply with Title 17 of the California Code of Regulations. Only backflow preventers listed by the USC Foundation for Cross-connection Control and Hydraulic Research shall be acceptable for cross-connection installations. For any connection involving dissimilar metals, provisions to prevent galvanic action shall be incorporated. An insulation joint shall be installed at tie-in to Airport mains.

All underground pipes shall have corrosion protection and meet the requirements of NACE RP-1069 Control of External Corrosion on Underground or Submerged Metallic Piping Systems and U.S. Department of Transportation (DOT) Regulations.
All new backflow prevention devices shall be field tested by a backflow prevention tester certified with San Mateo County Health Department after final installation. A copy of field testing report shall be submitted to Airport's Water Service Inspector and Plumbing Inspector for approval.

The owner shall inspect, test and affix a San Mateo County tag on all backflow prevention devices within their premises at least once a year and copy of test result form shall be submitted to Airport's Water Service Inspector for record keeping. Any device found to be defective shall be repaired, overhauled, or replaced immediately at owner's expense. If a device is found to be defective, the Plumbing Inspector shall be notified. The Plumbing Inspector shall decide what type of device will be used for replacement.

Records of tests, repairs, and replacement shall be kept and made available to the local health department.

**Sec. 505.4 Water Metering:** Tenant shall make application for the permanent water meter installation and pay all required fees to the San Francisco International Airport.

A. The Airport's Water Service Inspector will review the tenant's fixture count calculations, which must be provided to the Technical Services Branch for all domestic services and will size the service in accordance with the Airport's standards. The tenant's contractor shall install the service complete including the metering device which shall be furnished by the Airport Water Service Inspector. The Airport will provide all meters.

B. The Airport's Water Service Inspector will estimate the cost of meters and installation at the time the bidder contacts the Technical Services Branch. Verification of the firm costs will be issued when the tenant, or representative, determines and submits the fixture count to the Technical Services Branch. This information shall be sent directly to:

   Branch Manager, FOM-Technical Services  
   San Francisco International Airport  
   P.O. Box 8097  
   San Francisco, CA 94128.

C. Meters will only be installed after the system has been tested and approved as attested to by a meter installation approval tag affixed to the meter location piping by the Airport Plumbing Inspector.

D. Tenant shall furnish and install meter boxes. Meter boxes shall be provided with permanent ladders for depths exceeding four (4) feet and with removable sectional covers of less than 50 pounds each.
E. The Plumbing Inspector requires a prior notice of one (1) week before the desired installation date for meters up to two (2) inches in size and two (2) weeks notice for meters over two (2) inches in size.

F. Application for a temporary non-standard hydrant meter shall be made to the Water Service Inspector. This procedure requires deposit for the current cost of the meter. The meter deposit is refundable when the meter is returned less the cost required to repair or replace damaged parts.

G. All fire services are to be installed by the tenants' contractor complete, including approved type double check detector check and by-pass meter assembly. Contact the Airport's Plumbing Inspector - on approved check valve and bypass assemblies. No large water meters will be required on any fire main service.

H. Meters must be installed in a location that provides easy access for reading and any other purpose the Airport may deem necessary.

**Sec. 505.5 Scheduling:** Connections to Airport water mains shall be made only at such times as Airport determines necessary and proper to minimize service disruptions. Said times may include nights, and Saturday and Sundays.

A. Shutdown period of existing lines for dry connections shall not exceed maximum of 8 hours unless approved in writing by Plumbing Inspector, 3 working days in advance. Major shutdowns shall require 2 weeks notice in advance.

B. Work shall be continuous, with sufficient number of persons employed to complete work within time limit approved by Plumbing Inspector.

C. Operation of valves on existing lines shall be done by Airport personnel only. Pump down of water in main shall be done by tenant.

**Sec. 505.6 Excavation and Backfill:** See Sec. 609 and 610 of Construction Regulations.

**Sec. 505.7 Flushing and Disinfecting:** All new water mains shall be thoroughly flushed and disinfected in accordance with AWWA C-651 Standard for Disinfecting Water Main or in a manner approved by the Airport Plumbing Inspector. When disinfecting water mains, caution shall be exercised to insure that a strong concentration of chlorine does not enter the service line. Submit a copy of certificate of test to Airport Plumbing Inspector for approval.
ARTICLE 506. PLUMBING

Installation of sanitary, air and natural gas systems within and adjacent to Building Spaces, shall conform to the requirements under Articles 305 and 405 of this document. For water requirements, refer to Article 505; for industrial waste requirements, refer to Sec. 504.8. A permit shall be obtained before commencement of work.

Sec. 506.1 Design: All data such as ultimate water and gas service demand, sanitary and storm shall be indicated on plans submitted for approval.

Sec. 506.2 Service Connections: For sanitary and storm sewer, refer to Sec. 504.3; for water systems, refer to Sec. 505.3 and 505.4.


Sec. 506.4 Natural Gas Metering: Each tenant shall be responsible for application to PG&E for gas service and furnishing and installation of said service.

Sec. 506.5 Flexible Connections: Suitable flexible connections shall be provided to accommodate a minimum of 12-inches of differential settlement and accompanying lateral movement for all pipes entering or leaving buildings and at other transition conditions where differential settlement may occur.

Sec. 506.6 Grease and Oil Separators: This section applies to kitchen and other sanitary waste not included under “Industrial Wastes” specified under Sec. 504.8.

A. Grease, fats and oils in waste water from kitchen sinks, dishwashers, floor drains or other fixtures, shall be collected and intercepted with grease or oil separator acceptable to Technical Services Branch as to type and location prior to entering Airport sanitary sewer system.

B. Location of grease or oil separator shall be such that hot grease, fat or oils, shall have adequate time to cool and separate out before waste water enters Airport system. Separators shall be easily accessible for proper cleaning.

Sec. 506.7 Sand Traps: Sand or dirt from plumbing fixtures or floor drains shall be connected and disposed of by means of sand traps prior to flow entering Airport system. Design capacity and accessibility shall be subject to Technical Services Branch approval.
Sec. 506.8 Excavation and Backfill: See Sec. 609 and Sec. 610 of Construction Regulations.

Sec. 506.9 Plumbing Installation:

A. No powder actuated fasteners will be permitted.

B. All interior piping shall be supported independently from structure. Support of piping from other piping or utilities will not be permitted.

C. All interior piping shall be installed parallel and perpendicular to building lines where possible and braced against lateral or horizontal movement.

D. All underground water mains shall be installed at a minimum of 36-inches below grade.

E. All sanitary waste lines shall be installed at a minimum of 12-inches below crossing or nearby water lines and meet the California Department of Health Services criteria for the separation of water mains and sanitary sewers.

F. All metal components such as tie-rods, nuts, and bolts, flanges, and plumbing specialties for underground piping shall be stainless steel.

G. All accessible piping being abandoned shall be removed from the structure.

H. Openings as a result of pipe removal shall be restored to the original condition and/or to the satisfaction of the Engineer.

I. All new penetrations through existing walls and floors shall be nearly core drilled to minimal oversize without undue spalling.

J. All piping containing materials deemed hazardous to health shall be color code identified and labeled.

K. Piping penetration through concrete, which is subject to moisture shall be installed in sleeves to exclude moisture from contact of piping.

L. Provide standoff brackets for installation of piping in wet areas.

M. Provide identification tags for all valves in terminal areas.

N. Provide water hammer arresters or air chambers at all fixtures.

O. All branch lines off of water supply lines shall be provided with isolation valves.

P. All valves shall have brass tags with chains and numbers.

Q. All piping shall be identified with approved labeling spaced every 50 feet.
R. All roof leaders shall connect to underground storm drainage system.

S. All piping shall be seismically braced per SMACNA. and NFPA.

T. All above-ground piping exposed to weather shall be galvanized or with approved corrosion protection coating or wrapping.

**Sec. 506.10 Gas Piping Installation:**


B. All underground gas piping shall be installed at a minimum of 18-inches below grade.

C. All underground piping shall have approved type, machine applied protective coatings and conform to recognized standards.

D. All gas equipment shall be AGA listed.

**Sec. 506.11 Fuel Oil Piping:** Fiberglass piping is not permitted outside of tenant lease areas and inside tenant lease areas where Airport utilities are located in these areas. Use approved metallic piping.
ARTICLE 507. MECHANICAL

Installation of heating, ventilating, air conditioning (HVAC), miscellaneous heat-producing appliances within applicable Building Spaces and other tenant leased airport facilities described, shall conform to the requirements under Articles 305 and 405 of this document. A permit shall be obtained before commencement of work.

Sec. 507.1 Design: All data such as ultimate heating and cooling, water, gas and power demand shall be indicated on plans submitted for approval.

In addition to the requirements of Sections 203.2 and 206, the designer shall submit with the plans and specifications all appropriate completed calculations and data required for determination of compliance with the California State Energy Code, Title 24.

It shall be the tenant’s individual responsibility to ascertain the amount and extent of heating, cooling, and ventilation capacity provided in the tenant’s leasehold area(s). Airport will provide the tenant such information and data as it has available regarding the HVAC system. Any additional heating, cooling and ventilation requirements beyond the capacity provided by the Airport shall be provided by the tenant at its sole expense.

Design criteria and work performance shall include:

A. All branch heat and cooling piping shall be equipped with valves for isolating that portion of the system.

B. All heat and cooling piping shall be identified where visible and at 50 feet on center.

C. Any repairs to the piping shall be done to the satisfaction of the Building Official.

D. All added piping shall be flush cleaned and tested prior to connecting into the system.

E. Operating instructions, maintenance manuals, and parts lists shall be furnished to the Airport Facilities Operations and Maintenance, Deputy Airport Director, as a formal transmittal identifying contents thereof, for all equipment and components subject to maintenance by the Airport.

F. All condensate drainage from equipment with pipe trap may discharge into the plumbing system.
G. Any other design or detailed information to aid in clarification of applicable code compliance.

H. All mechanical systems shall be designed to maintain adequate access to existing equipment and shall not create interference with the operations of existing equipment.

I. The design of HVAC systems and their component parts shall operate without objectionable noise or vibration within occupied space. Noise level shall not be above the recommended Noise Criterion (NC) or Room Criterion (RC) curves of the ASHRAE Standard.

J. For connections to existing Airport HVAC systems, tenant shall be permitted to install smoke control components and fire alarm systems that are compatible to those of Airport’s Energy Management and Control Systems and Fire Alarm Systems.

**Sec. 507.2 Service Connection:** This section applies to Terminal Sector building space only, and refers to conditions set forth under Sec. 405.3. Connections with Airport heating (if available) and chilled air supply ducts, temperature-control air source, and heating and chilled water source shall be responsibility of tenant. The materials used, design and method of installation shall be consistent and compatible with the existing airport systems. Detail information relating to said system in specific area of building involved shall be obtainable from Technical Services Branch.

A. Service interruption shall be permitted only with approval of HVAC Mechanical Inspector. Such approval shall be obtained ten working days in advance of start of work.

B. Work within tenant area down stream of primary hook-up shall be permitted without prior notification.

C. All pressure testing on HVAC mechanical piping and ductwork shall be performed in the presence of the HVAC Mechanical Inspector.

**Sec. 507.3 Codes and Orders:** All work under this section shall meet the requirements of all applicable safety orders of the State of California, California Code of Regulations Title 24, California OSHA, California Environmental Quality Act. Department of Public Health of the County of San Mateo, Uniform Building Code, Uniform Mechanical Code, National Fire Code, ASHRAE Guide, OSHA regulations and all other requirements specified herein.
A. Requirements and prohibited materials, equipment and installation standards prescribed in this Article and other Articles of Part V. Duct work construction shall be recommended by “Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning Systems,” as published by Sheet Metal and Air Conditioning Contractors National Association Incorporated, latest edition, and other applicable codes and standards.


B. In case of conflicts between above Codes or Standards, most stringent requirement governs. Conflict resolution shall be determined by the Building Official whose decision is final.

Sec. 507.4 Filters: This requirement is intended for terminal sector buildings, or building located close to areas where exhaust from aircraft main, or auxiliary power engines may enter building air systems or other areas where nuisance, or noxious odors may be present. In areas not furnished with primary hearing, cooling, or ventilating air service, all air systems shall be provided with prefilters and carbon filters. Capacity shall meet above noted code requirements for removing dust, fumes, mists, vapors, and gases from air supply.

Installation of all filters shall comply with all applicable codes including the National Fire Codes and Uniform Mechanical Code.

Sec. 507.5 Flexible Connections: Connections shall be hard drawn copper and provided to accommodate minimum differential settlement of 12-inches and accompanying lateral movement for pipes and ductwork entering or leaving buildings and at other transition conditions where differential settlement or expansion may occur.

Sec. 507.6 Expansion Joints: Joints shall be provided to accommodate temperature changes in accordance with best engineering practices.
Sec. 507.7 HVAC Mechanical Piping and Ductwork:

A. All interior piping and ductwork shall be installed parallel and perpendicular to building lines where possible and braced against lateral and horizontal movement.

B. Powder Actuated fasteners are not permitted without the written approval of the Building Official.

C. All interior piping and ductwork shall be supported independently from structure. Support of piping and ductwork from other piping, ductwork or utility will not be permitted.

D. All accessible piping and ductwork being abandoned shall be removed from the structure.

E. Opening as a result of pipe removal shall be restored to the original condition and/or to the satisfaction of the Building Official.

F. All new penetration through existing walls and floors shall be neatly core drilled and to minimize oversize and spalling.

G. All ductwork seams shall be sealed to SMACNA HVAC Air Duct Leakage Test Manual Seal Class A. Any new installation of ductwork that is part of a smoke control system shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practice. Measure leakage shall not exceed 5% of design flow.

H. All pneumatic temperature control main and branch lines shall be hard drawn copper and have isolating valves at the supply connection. Exemptions for non-terminal facilities may be requested in writing to the Building Official. If the temperature control lines are part of a smoke removal system, it shall be pressure tested for leaks.

I. Upon completion of the work and before final acceptance, an air balance test report by a certified and independent air balancing firm shall be submitted to the Engineer of Record for review and approval, then to the Building Official for final approval.

Sec. 507.8 Special Airport Standards:

A. All equipment shall be listed. Air handlers shall be certified for performance by nationally recognized testing agency.
B. No fiberglass ductwork shall be permitted. All ductwork shall be steel, aluminum, stainless steel or metallic alloys suitable for intended use. Other materials may be used in corrosive environments.

C. Flexible ductwork shall be wire type with factory installed collars. Minimum standard length 3’6” is preferred to 7’0” maximum standard length. 7’0” is acceptable if structural obstacles. Field altered flexible duct is prohibited.

Exception C1: Installation shall be free of tight bends or kinks. Supported with one and a half inch (1-1/2 inch) minimum hanger strap; and shall be used for connection to diffusers and registers or for terminal boxes when rated for appropriate duct pressure classification, field alteration for this use is acceptable.

D. Ductwork drops to ceiling diffusers or registers when greater than 6’ in length shall have independent hanger supports to structure above and elbows shall be strapped for continuity. Lateral bracing for drops greater than 6’0” shall be required.

   1. All duct branches shall have volume dampers.

E. Ductwork hangers shall be galvanized metal strap or minimum 3/8” diameter steel rod trapeze arrangement per “SMACNA” standards.

   1. Ductwork may not be hung or braced with wire.

F. All ductwork shall be seismically braced, regardless of size, for lateral, longitudinal and uplift movement. The minimum bracing material shall be 2”x 2,” 16 gauge galv. steel angle, deburred to remove sharp edges from shearing. Subsequent bracing requirements shall be per “SMACNA Seismic Restraint Guidelines” latest version with a seismic hazard level A and a connection level 3. Connection points for bracing devices may require detailed engineering calculations. “SMACNA” seismic requirements may be waived by submitting for review and approval the engineering designs and calculations prepared, signed and stamped by a California licensed professional engineer or a nationally approved generic bracing system, i.e. Unistrut-Beeline, NUSIG (AEIC Edition).

   1. The use of aircraft cables for seismic restraint for ductwork is prohibited.

   a. For equipment that requires noise and vibration isolation, a nationally approved seismic restraint system which may consist of aircraft cables, is permitted only if proper cable displacement angles are met as required by SMACNA or other nationally recognized standards.
2. All mechanical equipment, HVAC units, fans, coils, terminal VAV and mixing boxes etc. shall be supported with a minimum 3/8” diameter steel rods; and seismically braced, four ways and for uplift. Detailed drawing of equipment installation and seismic restraint methods shall be submitted with project drawings to Construction Services Branch, Building Inspection and Code Enforcement Section.

G. All floor mounted mechanical equipment shall be placed on a concrete or airport approved housekeeping pad, minimum 4-inch thick.

1. All roof-mounted mechanical equipment shall be hidden from view within parapets or non-combustible enclosure with suitable height to prevent viewing.

2. All mechanical or electrical equipment shall be protected from physical damage, i.e. bollards, barriers, etc.

3. All mechanical equipment shall have adequate access and space or an opening large enough to replace equipment and to service all components, air filters, valves, controls, etc. per Uniform Mechanical Code.

4. Upon completion of the project, and before acceptance or issuance of a “Certificate of Occupancy”, an air and water balance and components test report shall be submitted by a reputable and independent air testing and balancing firm certified by AABC, NEBBS, or other nationally recognized organization. Independent for the purpose of this Section shall mean a third party with no obligation to the mechanical engineer or contractor performing the work. The test and balance report shall be certified as accurate and complete by the testing and balancing firm and recorded on report forms conforming to the recommended in AABC National Standard or SMACNA Standard and shall be submitted to the Building Official for review.

5. All new mechanical systems installations shall not interfere with existing equipment, access to control and access to maintenance.

H. All ductwork shall be run parallel and perpendicular to building lines and level. Wye to 45° angles is preferred change direction method to enhance air-flows. Point-to-point wyes are prohibited.

I. Submit proof to the Building Official that all required instruments for testing and balance of air and hydronic systems have been calibrated within a period of six months and verified for accuracy prior to start of work.
J. When equipment, ductwork, and piping insulation show evidence of vapor barrier failure or “wet” insulation after installation, the damaged insulation shall be removed, the equipment, pipe, and duct surfaces shall be cleaned and dried, and new insulation shall be installed.

K. Kitchen exhaust ductwork “type 1” shall be tested and balanced. A report shall be given to the Building Official for review before final approval of installation.
ARTICLE 508. ELECTRICAL

Installation of electrical systems, including all power, control, signal, radio, TV and communication, within and adjacent to Plot Sites and Building Spaces shall conform to the requirements under Articles 303, 305, 403 and 405 of this document. A permit shall be obtained before commencement of work.

Sec. 508.1 Reference to Other Codes: Codes and orders listed in Sec. 501.1 of this document shall apply to all electrical installations within the Airport as supplemented by these Standards and Regulations.

A. Arrangement of Section 508 is patterned after the NEC, the California State Building Standards Electrical Code (24, CCR, Part 3) and the California Electrical Safety Orders (8, CCR, Chapter 4, Subchapter 5).

B. Requirements of these Standards and Regulations exceeding requirements of National and State codes are deemed necessary because of special operational and maintenance conditions of Airport and unique owner-tenant relationships encountered.

C. It shall be the contractor’s responsibility to be familiar with all applicable codes and provisions as defined in Part V, Article 501, Section 501.1 of this document.

Sec. 508.2 Service Connections: Service is a systems of conductors and equipment for delivering energy from Airport distribution system to tenant or contractor served. This is normally any portion of electrical system beyond meter, but will include tenant-furnished overcurrent devices and conductors within and from Airport load centers. All main electrical service equipment must be inspected and approved by the Electrical Inspector. A Permission to Connect (“green tag”) must be attached to the panel before the equipment is energized.

A. Building Space: Meters may be located within Airport electric rooms or closets, or may be located within tenant's leased area. Where tenant distribution switchboards or panel-boards are served by feeders with ground fault protection, the tenant shall provide ground fault protective devices in tenant service equipment, rated, set and located so as to achieve complete time-current band selectivity with the upstream devices and preclude interruption of other services. Two or more feeders of same class serving one tenant from one load center shall be routed through one meter.

Different classes of service shall be metered separately, as follows:

1. General power and lighting.
2. Aircraft service power units and boarding bridges.
3. Baggage handling systems.
4. Common Use equipment (A.C. units, etc.) serving two or more tenants.

Sec. 508.3 Temporary Service: Electrical energy shall be available during construction in such quantities and at such times as they are available from Airport's electrical system.

A. Tenant's contractor shall furnish and install all equipment, including metering connections, transformers, power lines, and other materials necessary for extending power to site of work, and shall remove all such connections, equipment and temporary lines when they are no longer required.

B. Installations shall be made in locations designated by Technical Services Branch. Construction shall conform with all regulations under this Article and Construction Regulations Part VI. Connections to Airport power mains will be made and removed at expense of Contractor, subject to the approval of Technical Services Branch.

C. All energy used shall be paid for by contractor at prevailing rate for type of service required. Application for electric service shall be made to Airport Director.

Sec. 508.4 Permanent Service: Electrical energy shall be provided per Articles 302, 304, 402, and 404. Primary metering shall be used when tenant distribution is at medium voltage, and secondary metering when distribution is at low voltage. Metered services shall normally be connected directly to Airport feeders. Submetering of one tenant service to another shall be permitted only where separate service is unfeasible.

A. Plot Sites: One metered service shall be normally provided for each leased plot, with service point designated in lease agreement. Energy shall be from either medium voltage or low voltage Airport distribution system.

B. Building Space: One metered service shall be normally provided for all leased areas occupied by one tenant within same building distribution system. Energy shall be at voltage available within said system.

1. All service shall be metered with the exception of services to car rental counters, insurance counters, limousine counters, small display cases, hotel-motel telephone centers, and similar loads less than 5KW.
2. Each baggage handling system shall be served by separate metered service. Said system shall be construed to include conveyor belts, tracked vehicles, rail and guideways, switches, and other equipment mechanically and electrically interconnected to operate through common control power source. Two or more baggage handling systems served from same panel-board or load center and under operation of one tenant shall be served through one meter.

3. No tenant installation shall preclude extension of service from load center to another tenant or Airport space.

4. When a leased area on an established metered electric service is subdivided by the Airport into two or more separate lease areas, one of the following arrangements shall be made at the option of the Airport.

   a. The new leased areas may be remetered for separate metered service for each area. This is preferred option for long term tenancy.

   b. The new leased areas may be flat rated. This option may be used when one or more areas comprise a small portion of the original area or when tenancy is of short duration.

   c. Metering may remain the same with charges for electricity prorated among all the tenants and approved by Deputy Airport Director, Business and Finance.

Sec. 508.5 Service Interruptions: No service shall be interrupted without approval of Airport. Such approval shall be obtained not less than three days in advance of interruption. Tenant may, without notice, interrupt low voltage service to his own area if no other tenants or public areas are affected.

   A. Times and durations of service interruptions shall be as determined by Technical Services Branch.

   B. Procedures for service interruptions are given in Sec. 508.16.

   C. All service disconnects over 600 volts shall be under physical control of Head Airport Electrician.

   D. Closing of any service disconnect of any voltage, even if under control of tenant, shall be coordinated with head Airport Electrician.
Sec. 508.6 Wiring Design and Protection

A. Design

1. Minimum feeder capacities shall be calculated on basis on 100% of all connected equipment and outlets plus one-half rated capacity of all spare branch circuits or spaces provided in panel-board. Each single space in a branch circuit panel-board shall be calculated as a 20 ampere circuit. Diversities shall be allowed based on operational experience by Airport.

2. See also Part II, Sec. 203.2, Paragraph B-4.

3. Tenant loads and distribution systems shall be so designed as to present to the Airport distribution system a power factor between 70% lagging and 90% loading, and shall not cause interference to the Airport distribution system and other tenant by intermittent use, violent fluctuations, or generation of radio noise or other signals. Any characteristic or activity of a tenant electrical load of distribution system which impairs service to other tenant or Airport loads or which presents a power factor beyond the limits noted above will not be approved by the Airport Commission, and may require the disconnection of such existing service.

B. Branch Circuits

1. Appliance and receptacle outlets shall be installed on branch circuits that are separate from lighting outlets.

2. There shall be not more than six plug receptacles on each branch circuit. Each receptacle may be duplex.

C. Color Code: All power conductors shall be color coded by outer jacket or by vinyl tape according to following schedule:

1. 120/208 volt ungrounded conductors - a. black, b. red and c. blue. Grounded conductor (Neutral) - white or natural grey.

2. 277/480 volt ungrounded conductors - a. brown, b. orange c. yellow or purple. Grounded conductor (Neutral) - white or natural grey.

3. 4.16 kV and 12 kV conductor - mark with Phase Letter - Do not use color coding.
4. On three-phase systems, when leads to two or more motors are run in the same raceway, all conductors of each motor circuit between load side of controller and motor shall be same color, and each set of motor circuit conductors shall be of a different color. Phase color-coding shall be taped on jacket at motor and controller terminations and on both sides of each splice. Phase rotation shall be made ONLY at motor terminals.

5. Additions of wiring within existing buildings shall follow existing color codings.

Sec. 508.7 Materials and Equipment

A. **Materials:** All electrical materials and equipment shall be either Underwriters' Laboratories, Inc. (UL) listed, or certified by a Nationally Recognized Testing Laboratory (NRTL).

B. **Fasteners:** All inserts, expansion bolts, and other type stud fasteners installed in concrete shall withstand 30-foot pounds torque without loosening. No fasteners shall be installed in concrete fireproofing of steel members. Installation of fasteners in precast members shall be under direction of Technical Services Branch. Powder-actuated fasteners shall not be permitted. Hanger rods shall be a minimum diameter of 3/8”. Seismic bracing shall be installed under NUSIG guidelines.

C. **Work on Structures:** Any cutting, drilling, repairing or finishing of carpentry, metal, or masonry, required for installation of electric work, shall be done by competent craftsmen. All such work shall be done without weakening walls, floors, partitions, etc., and holes shall be drilled without breaking out around holes. Any damage caused by such work shall be repaired to original condition. No cutting, drilling or use of power actuated fasteners shall be done without prior approval of Airport as to time and method. All-cores taken during drilling shall be turned over to BICE for inspection. All electrical V-17 work shall be coordinated with work of other trades according to requirements of Technical Services Branch.

D. **Raceways:** Raceways shall be provided for all conductors including communication and low energy control circuits.

1. **Rigid and Intermediate Galvanized Metal Conduit**

   Rigid Steel Conduit (RGS) or Intermediate Metal Conduit (IMC) shall be used everywhere.
Exception: where it can be determined that conduit will not normally be exposed to the weather and to physical damage, the use of Electrical Metallic Tubing (EMT) is permitted.

2. Electrical Metallic Tubing (EMT)

EMT is permitted in all dry locations for concealed and exposed work. EMT shall not be installed less than five feet above the floor, or platform at locations subject to physical damage.

3. Flexible Metal Conduit

Flexible metal conduit shall be listed galvanized steel when fished in finished walls or ceilings.

Use: Flexible conduit is permitted for use only in dry locations and only for the purposes listed below:

   a. Motor and equipment connections where flexibility or vibration isolation is required.

   b. Flexible metal conduit shall be limited in length not to exceed six feet for lighting fixtures, motors and other equipment. Longer lengths of flexible metal conduit are permitted to be used where it can be demonstrated that rigid type conduit including Electrical Metallic Tubing (EMT) cannot reasonably be installed.

   c. All flexible metal conduits containing conductors operating at 30 volts and above shall contain a bonding conductor. The bonding conductor shall be sized as required by Table 250-95 of the code and shall be terminated at the first outlet on each side of the flexible metal conduit.

   d. In alteration work of existing occupancy flexible metal conduit may be used to any required length in concealed locations.

   e. Other wiring methods and materials must be approved by the T.C. and the Building Official before installation.
4. **Rigid Non-Metallic Conduit**

Rigid non-metallic conduit is permitted in locations where corrosion or induction conditions preclude use of metal conduits.

**Exceptions:**

a. Exposed flexible cords, of shortest possible length and not exceeding six feet, shall be permitted for connections to movable equipment.

b. Conductors may be placed in cable trays when all the conditions of Section 508.9F.1 are met.

c. Surface extensions of Pacific Telephone Company cables not to exceed twenty feet shall be permitted in non-hazardous areas which are not exposed to public view or access.

d. Exposed low voltage radio and communication conductors terminated in approved room locations are permitted to have wire and cable trays into equipment.

E. **Conductors for General Wiring**

1. Minimum size of conductors shall be No. 12 AWG, except that control conductors may be No. 16 AWG. All conductors used for AC power shall be copper, including transformer windings.

2. All building conductors shall be identified at each junction box, outlet box, cabinet, pullbox, etc., with vinyl cloth self-adhesive tags showing panel and circuit numbers, control wire numbers or other appropriate information.

3. All multi-circuit conductors shall be connected to adjacent circuit breakers within panel-board.

4. 600 volt nominal or less: Conductors of different systems shall not occupy the same raceway, cable sheath outlet box, pull or junction box, fitting, cabinet, switch case, or other wiring enclosure.

F. **Prior Approval:** Whenever prior approval of Technical Services Branch for a particular wiring method is required, such approval must be obtained for each installation prior to start of construction project.
G. **Special Requirements for Raceways:**

1. **General:**

   a) All conduits shall be minimum 3/4-inch trade size ½-inch conduit may be used from a panel-board or junction box to a single device or appliance.

   b) All raceways shall be installed parallel or perpendicular to building members.

   c) Raceways shall not be attached to machinery or equipment except at point of service to motors, control devices, etc. Raceways shall not be secured to or supported by the HVAC duct system.

   d) Raceways shall not be supported by suspended wires or on any suspended ceiling system, but shall be separately supported by building structure, using 3/8” diameter all thread rod as a minimum.

   Exception: Special conditions shall include the following:

   1. When the ceiling plenum space exceeds ten feet in vertical height. Other means of support may be permitted.

   2. When mechanical equipment in the ceiling space above prevents the installation of proper support devices.

   3. All support, fastening, and mounting equipment shall be mechanically connected with the use of screws, nuts and bolts, and locking washer systems, as required. In the event that the work required is either impossible or impractical to perform, a written request to the Building Official stating the reason for non-compliance is required.

   e) All conduits penetrating roofs shall be provided with flashing collars sealed to conduit and counter-flashed with roofing material.
f) Raceway penetrations of air plenums shall be completely sealed.

g) Raceways shall not penetrate or pass through air ducts.

h) Raceways shall be concealed in all finished areas wherever possible.

i) Empty raceways shall be provided with identification tags in each pullbox and junction box showing origin of raceways run.

j) Raceways shall be cut with a hacksaw or machine saw, no wheel cutter shall be allowed. Inside cross-section area shall not be reduced due to cutting, cut ends shall be reamed to remove burrs and sharp edges.

k) Raceways shall be located not closer than 12 inches from uninsulated parallel steam or hot water lines, 6 inches from uninsulated crossing steam or hot water lines, and 2 inches from insulated steam or hot water lines; and shall be installed below such lines.

l) All suspended raceways, and electrical equipment, shall be away seismically braced to limit horizontal and vertical movement to the satisfaction of the Technical Services Branch.

2. **Installation of Conduit in Structures**:

   a) Conduit embedded in concrete structures shall not, with fittings, displace more than four percent (4%) of area of cross section of column. Embedded conduits, other than those merely passing through, shall not be larger in outside diameter than one third (1/3) of thickness of slab, wall or beam in which embedded, nor shall they be spaced closer than three diameters of larger conduit on center; or so located as to unduly impair strength of construction. Concrete covering of conduits and fittings shall be 1 1/4-inch minimum.

   b) Conduits or sleeves passing through slabs, walls, or beams, larger than two inches inside diameter or spaced less than three diameters of largest conduit on-center, shall be installed only when specifically permitted by Technical Services Branch.
c) Metal conduits penetrating concrete slabs, walls or beams, at or below grade level or in any damp or wet location, shall be wrapped or coated a minimum of three inches on each side of air-concrete interface.

3. **Identification:** Electrical raceways shall be identified by self-adhering, non-conductive markers with orange background and black letters. Lettering shall be printed or field applied by felt tip pen. Field applied lettering shall be covered with clear tape. Markers shall be placed on all exposed or accessible raceways within 18 inches of raceway termination, wherever raceway enters of leaves concealed space, and every 50 feet along raceway. Markers shall be 1/2 inch by 20 inches for conduits up to 10 inch nominal size; 1-1/8 inch by 40 inches for conduit, 10 inch nominal size and larger, and all other raceways. Markers shall be Brady or equal.

   a) Power and lighting raceways shall be identified as to system voltage between phases, and to ground if system is grounded.

   b) Emergency raceways shall be identified “Emergency Service” in addition to system voltage.

   c) Grounding raceways shall be identified “Ground”.

   d) Fire alarm raceways shall be identified “Fire Alarm”.

   e) Low voltage control raceways shall be identified “Low Voltage”.

   f) Clock system raceways shall be identified “Clock Runs”.

   g) Raceways reserved for telephone services shall be identified “Telephone”.

   h) Public address system raceways shall be identified “P.A.”.

   i) Miscellaneous communications systems raceways shall be identified “Intercom”.

   j) Other raceways shall be identified as directed by Technical Services Branch.

H. **Outlet, Switch and Junction Boxes, Cabinets and Cutout Boxes and**
**Fittings:**

All boxes and cabinets shall be securely fastened to building structural members so as to prevent movement in any direction. Boxes shall not be supported by lighting fixtures, suspended ceiling support wires, or freely hanging rods.

1. Covers of boxes and cabinets mounted in horizontal plans (top or bottom) shall either weigh not more than 40 pounds or shall require not more than 40 pounds of force to open or close.

2. Covers of boxes and cabinets mounted in vertical plane (front, back, sides) shall either weigh not more than 60 pounds or shall require not more than 60 pounds of force to open or close. All covers over 30 pounds shall be furnished with angle support at bottom to carry weight of cover for assembly.

3. Covers of boxes and cabinets weighing more than 30 pounds shall be provided with lifting handles or some means of grasping other than edges.

**I. Disconnect Switches:**

1. Fused and non-fused safety switches shall be heavy-duty type of proper voltage rating, and horsepower rated where applicable.

2. Enclosure doors shall be designed so they cannot be opened until switch is in open or “OFF” position.

**J. Switchboards and Panel-boards:**

1. Molded case circuit breakers shall have thermal (overload) and magnetic (short circuit) trips; they shall be “bolt-on” type and shall have symmetrical interrupting ratings to match or exceed available short circuit current.

2. All Panel-boards and similar equipment, in finished public areas shall be flush mounted. One 3/4-inch empty conduit shall be stubbed up into an accessible furred space from panel-board for each six spare 20Amp circuit breakers or single pole spaces.

3. All flush mounted equipment in finished public areas shall be finish painted to match surrounding wall or partition.

4. All panel-board face covers weighing more than 30 pounds shall be
furnished with an angle support at bottom to carry weight of cover for assembly.

5. All bus-bars shall be copper.

6. Where tenant distribution switchboards or panel-boards are served by feeders with ground fault protection, the tenant shall provide ground fault protective devices in tenant service equipment, rated, set and located so as to achieve complete time-current band selectivity with the upstream devices and preclude interruption of other services. Two or more feeders of same class serving one tenant from one load center shall be routed through one meter.

K. **Telephone Terminals:**

1. Telephone Terminals, including backboards, cabinets and closets, shall all be readily accessible and shall have working space as wide as the backboard, cabinet or door openings of the closet, but not less than 30 inches wide and with a clearance of 30 inches minimum clear distance.

2. Minimum headroom of working space in front of telephone terminals shall be 6 feet 3 inches except that headroom may be reduced to 3 feet for a maximum depth of 2 feet.

3. Bottom of telephone cabinets shall be not less than 6 inches above finished floor.

L. **Wiring Devices:**

1. All switches shall be 20 Ampere specification.

2. All receptacles shall be 20 Ampere specification grade.

3. All 125 volt single phase 20 ampere receptacles installed in rest rooms, kitchens, repair shops, crawl spaces, roof locations, janitor’s rooms, on the outsides of buildings, in landscape areas, pool, and fountain areas, carpenter shops, plumbing shops, electric shops or other areas where hand tools are used, shall have ground-fault circuit-interrupter protection for personnel.

**Sec. 508.8 Equipment for General Use:** See UBC Standard 25-2.
A. **Lighting Fixtures:**

1. Ballasts shall be high power factor, and shall have ballast protection. Fluorescent ballasts shall have minimum sound ratings as follows:

   a) Office areas B
   b) Ticket counters, lobbies, concourses, concessions C
   c) Exterior, shop and maintenance areas F

2. Ballasts for fixtures which cannot meet above sound rating shall be remotely located in areas where their sound ratings are acceptable.

3. Each instant start, slimline or trigger start fluorescent ballast shall be provided with radio interference filter.

4. Mercury and other metallic arc lamp ballasts shall be regulator type.

5. Outdoor ballasts, and those exposed to temperatures below 50°F, shall be designed to operate from 25°F.

6. The horizontal distance of flexible cable used in pendant mounted fixtures shall be limited to eighteen inches (18”) from the feeder to the hanger of the fixture.

B. **Motors:**

1. Motor running overcurrent protective devices shall be provided in all ungrounded conductors of motor leads on all three phase motors.

2. Voltage characteristics of motors shall be as follows:

   a) 120-volt Single phase – not exceeding 1 H.P.
   b) 208-volt Single phase – not exceeding 2 H.P.
   c) 208-volt Three phase – not exceeding 10 H.P.
   d) 480-volt Three phase – not exceeding 250 H.P.
   e) Motors over 250 H.P. shall be served from separate high voltage service.

3. Use of 208-volt motors exceeding 10 H.P. shall be permitted only where 480-volt service is not available.

C. **Controls:**
1. Control circuits for motors of other devices, equipment and apparatus shall operate at voltages not to exceed 120 volts to ground.

2. Control power shall be derived from same source that supplies the controlled motor, device, equipment, or apparatus except in case where two or more controlled items are served from separate sources and have a common control circuit.

D. **Labelling:**

Service equipment, circuit breakers, disconnect switches, meters, relays, transformers, switch boards, panel boards, branch circuit panels, alarm panels, control panels, communication panels, UPS Systems, generators, motors, motor starters, motor controllers, radio equipment, antennas, and any other equipment, shall be identified to indicate function, where fed from and ownership.

**Sec. 508.9 Special Occupancies:**

A. **Aircraft Aprons:**

1. Following areas of aircraft parking or service aprons where gasoline, jet fuels or other volatile flammable liquids or flammable gases are used shall be considered Class I, Division 2 locations, as defined by Articles 500 and 513 of the National Electrical Code and Article 500 of the State Building Standards Electrical Code (California Code of Regulations Title 24, Part 3):

   a) Any area within 20 feet horizontally from edge of an aircraft fueling pit, which area shall extend to level 18 inches above ground level.

   b) Any area within 5 feet horizontally from aircraft power plants, aircraft fuel tanks or aircraft structures containing fuel, which area shall extend upward from ground to level 5 feet above upper surface of wings and of engine enclosures.

   c) Any area within 20 feet horizontally on each side gravity flow path(s) of liquid fuel from aircraft fueling pit and from aircraft fueling points to drainage catch basin(s) and 20 feet beyond such catch basin(s), which area shall extend to level 18 inches above ground level.

2. Electrical wiring and equipment, any portion of which is below surface of the aircraft apron, shall be considered to be within Class I, Division I
location, as defined by the National Electrical Code and State Building Standards Electrical Code (California Code of Regulations Title 24, Part 3), which location shall extend at least to point of emergence above grade.

3. Static grounding rods shall be provided at each aircraft parking position.
   a. Static grounding rods shall be copper-clad steel sectional rods, 3/4-inch diameter with minimum 10-foot length. Ground rods shall be driven to depth necessary to achieve test results specified in Section 508.13.B.7.
   b. Static grounding rods shall be terminated with static grounding receptacle set flush with finish grade as shown on drawing 7.1. Part VII.
   c. Locations of static grounding rods shall be as shown on the 7 series drawings of Part VII, or as determined by Electrical Inspector for aircraft types not listed.
   d. Locations shall be identified by painted markings as shown on drawings 7.2, Part VII or by self-adhesive pavement marker as described on same drawing.
   e. Static grounding rods and receptacle shall be kept electrically isolated from all underground piping systems and from all fuel piping valves, etc., nor shall receptacle be located inside any pit.

B. **Mobile Homes:**

All mobile homes shall comply with Section 550 of NEC.

**Sec. 508.10 Special Equipment:**

A. **Clock System:** All clocks in public areas (e.g. holding rooms, restaurants, bars, lobby areas) must be connected to Airport operated clock system. Tenant installed and maintained clocks so connected shall be connected through booster or isolating relays and shall derive local power from tenant's metered service.

B. **Aircraft Ground Power Units:** Equipment which converts electrical energy from 60Hz to 400 Hz shall be provided with ground rod of ten-foot minimum
length to ground high frequency system.

C. **Cathodic Protection Equipment**: Use of direct-current rectifiers for cathodic protection shall be subject to coordination with other users so that equal protection of all metallic lines is attained.

D. **Pre-wired Equipment**: All equipment wired prior to delivery to project site shall comply with requirements of these Standards and Regulations.

E. **Aircraft Loading Bridges**: Aircraft loading bridges shall be constructed in accordance with these Standards and Regulations.

1. Factory wired sections complying with California State Building Standards Electrical Code (California Code of Regulations Title 24, Part 3) will be accepted. Exterior wiring shall be subject to approval of Technical Services Branch.

2. All wiring installed in the field shall comply with these Standards and regulations without exception.

3. Emergency lighting shall be installed in each aircraft loading bridge to provide illumination as required by OSHA Standards. Emergency lighting shall be provided by battery powered unit equipment.

F. **Neon Signs and Lighting**:

1. Neon transformers shall not be placed into ceiling spaces or wall cavities.

2. Neon tubing exposed below 8'0" of finished floor, platform, or stage shall be guarded against accidental contact by persons or equipment.

3. All neon tubing shall terminate in terminals designed for the purpose.

**Sec. 508.11 Special Conditions**:

A. **Outside Branch Circuits and Feeders**:

1. No permanent overhead line shall be installed. Temporary overhead lines shall remain not longer than ninety (90) days unless specifically approved by Technical Services Branch in which case definite time period shall be given at end of which overhead lines must be removed.

2. All underground raceways shall be encased in concrete unless otherwise specifically approved on construction drawings.
a) Concrete encasement shall be minimum of 3 inches around outer walls of raceways and minimum of 1-1/2 inches between raceways.

b) Medium voltage, low voltage and communications raceways sharing same trench or excavation shall have concrete encasements separated longitudinally by 1/4-inch thick plywood along entire length of duct. Distance from raceways to plywood separator shall be 3 inches.

c) Concrete shall be Portland cement type with 4 sacks cement per cubic yard of concrete, maximum coarse aggregate size of 3/8 inches and shall have minimum strength of 2000 psi after 20 days. Amount of water shall not exceed slump required for placement. Five pounds red lead oxide shall be added per cubic yard of concrete for medium voltage raceway encasement only.

d) Underground raceways shall slope toward manholes, pullboxes, etc., at minimum rate of 3 inches per 100 feet. Raceway entrances in manholes, pullboxes, etc., shall be by means of bell ends and shall be sealed against entry of silt, debris, rodents, etc., into raceways.

e) Top of conduit or concrete encasement shall be minimum of 24 inches below grade.

f) Underground raceways within Airport roadways and assessments shall be run parallel or perpendicular to road centerline or lease lines.

g) Pull wires left in underground raceways shall be 1/8” nylon rope or 3/16” polypropylene.

h) Concrete encased raceways may be conduit, rigid galvanized or sheradized steel conduit, or Type I polyvinylchloride conduit.

i) All steel conduits installed in direct contact with earthfill below grade and conduits installed outdoors shall be galvanized rigid steel or shall have a 40-mil PVC exterior coating.

j) Minimum size conduit installed underground for street or area lighting shall be 1-1/2 inch trade size.
B. **Tests:** Following tests shall be performed on all electrical work installed on airport property.

1. All cables and conductors over 600 volt rate shall be field tested by an independent laboratory after installation for withstand voltage in accordance with latest NEMA and IPCEA publications. Direct current tests shall be used.

2. All wiring shall be tested for shorts and grounds and continuity after installation of complete work including lamps. All feeders and branch circuits shall be tested for voltage drop in accordance with Section 215-3 of State Building Standards Electrical Code (California Code of Regulations Title 24, Part 3).

3. All motors, controllers, switches, circuit breakers, contactors, relays, pilot control devices, etc. shall be tested for individual performance and system performance. Electrical tests shall be made in conjunction with overall tests of complete systems.

4. All grounding installations shall be tested to meet all code requirements.

**Sec. 508.12 Communications Circuits**

A. Radio Transmission: Construction and operation of any radio transmission device shall be coordinated with and approved by Federal Aviation Administration and Airport Communications Supervisor. All Airport Departments and tenants must follow the requirements as outlined below:

1. Contact Building Inspection and Code Enforcement (BICE) for permit information and requirements.

2. A copy of the station license must be provided to Airport Communications Supervisor/Radio Services.

3. Submit proposed location of equipment, antenna coax runs, and antenna sites.

4. An intermodulation study must be conducted by the users for all new, additions and or changes in radio equipment and be submitted to Airport Communications Radios Services before implementation.

The following are the Airport emergency frequencies:
5. Antenna coax must be in conduit and terminated on the roof with weatherhead.

6. Antenna must be mounted to weatherhead or suitable structure for proper grounding.

7. Equipment and antennas must be tagged with users name and frequency.

8. All transmitters must be equipped with isolators to reduce intermodulation.

9. If equipment is found to interfere with Airport emergency frequencies, operation will be suspended.

10. Any illegal installation not approved will be terminated

11. Contact BICE for electrical inspection and approval requirements.

12. Obtain approval from the Federal Aviation Administration (650-876-2822) via a 7460-1 permit application.

B. **Reserved Conduits:** Conduits within passenger terminal building complex installed by Airport, reserved for miscellaneous communications shall be used only for common use equipment and only with prior approval of Technical Services Branch, Electrical Engineering Section through the Building Inspection and Code Enforcement (BICE) permit process. These conduits shall not be used for single-tenant purposes.

C. **Telephone Service:** Telephone service is provided by telecommunication service providers.

All telecommunication conduit usage will be required to have prior approval from Technical Services Branch, Electrical Engineering Section through the **TX**

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Building Inspection and Code Enforcement (BICE) permit process. Personnel performing approved work in the field must possess a copy of the BICE permit, and be subject to on-site verification by the Electrical Inspector, Electrical Engineering or Airport Duty Manager. Any fiber optic cable, copper cable, or innerduct which is installed without a proper permit, will be subject to removal at the owner’s expense.

If emergency repairs need to be made on existing telecommunication cable, notification to Electrical Engineering at (650) 737-7756 must be made prior to start of work. In addition, a written request to BICE must be submitted during the next business day.

**Section 508.13 Procedure for Shutdown:**

**A. Application:** This procedure applies to all electrical facilities within Airport including those owned and operated by tenants.

**B. Purpose:** Purpose of this procedure is primarily to protect safety of workmen involved and general public, and secondarily to coordinate construction work so that service interruptions will be held to an absolute minimum.

**C. Responsibilities:** It will be duty of all tenants of Airport to read and comply with this procedure and to inform all agents, architects, engineers, contractors, and employees of this procedure.

**D. General Requirements:** All service interruptions shall be subject to following requirements:

1. All switching operations of existing electrical equipment, except that under exclusive control of a single tenant, shall be performed by or under supervision of Airport electrical personnel. Medium voltage service switches shall be operated only by Airport electrical personnel, except for United Airlines Maintenance Base.

2. Service interruptions shall be held to a minimum.

3. Inquiry and preliminary scheduling of medium voltage or major power shutdowns shall be made fourteen (14) working days before submitting written request for shutdown.

4. Permission for shutdown must be obtained on REQUEST FOR ELECTRICAL SHUTDOWN AND RESTORATION OF SERVICE
Form (Form 23 AED) three (3) working days before shutdown is required.

5. Times and durations of shutdowns will be set by Airport. Work may have to be performed at any time, day or night, in calendar week, including weekends, and shall be done at no expense to Airport.

6. Work may be terminated before completion and service temporarily restored at any time as directed by Technical Services Branch at no expense to Airport.

7. Tenant and responsible agents shall follow approved work phasing sequence and other specific directives of Technical Services Branch.

E. Preparation and Use of Form 23 AED:

1. Tenant or responsible agent shall obtain blank Form 23 AED from Technical Services Branch and shall fill out first portion of form giving circuit or area affected, date, time and duration of shutdown, and shall, when necessary, attach an 8-1/2” by 11” sketch for clarification of work to be done.

2. Technical Services Branch shall review and initial form, return copy No. 4 to tenant or agent and transmit remaining copies to Head Airport Electrician.

3. Head Airport Electrician shall contact Airport Operations and obtain necessary clearances and approvals. Airport Operations reviewer shall initial and date form when deemed necessary by Airport Electrician.

4. Head Airport Electrician shall review form, make any changes in request for shutdown that are deemed necessary, approve it and perform shutdown. Tenant or agent shall sign for receipt of clearance. Head Airport Electrician shall then retain copy No. 3, and tenant or agent shall retain remaining copies. Should request be disapproved, reasons for disapproval shall be noted on form and form returned to Technical Services Branch. Technical Services Branch and tenant or agent shall each retain one copy of disapproved requests for record. Resubmitted requests shall be made on new forms.

5. Upon completion of work described on form, tenant or agent shall sign form and transmit copies No. 1 and No. 2 to Head Airport Electrician.
for restoration of service. Head Airport Electrician will sign form to indicate service restoration and transmit copy No. 2 to tenant or agent. Copy No. 1 shall be kept in Head Airport Electrician's files.

6. Each stage of a series of shutdowns shall be requested on separate form. Restoration of service shall be recorded on same form as request for shutdown. Repetitive or consecutive shutdowns must be requested on day-to-day basis with separate form required for each shutdown.

F. **Acknowledgment:** Written acknowledgment of this procedure and all of requirements herein shall be made by tenant for operational shutdowns and by general and electrical contractors for construction shutdowns.

**Sec. 508.14 Lightning Protection:** Power, lighting, and flag poles shall be grounded to a grounding electrode placed into the bottom of the pole foundation. The grounding electrode shall be a ground rod or a coil of bare copper cable #6 A.W.G. or larger. The grounding electrode shall be bonded to the pole with a #6 A.W.G. copper cable terminated in approved lugs or clamps at the electrode and pole base, per NFPA 78-1983 (ANSI).

**Sec. 508.15 Hazardous Electrical Materials:**

A. Electrical equipment containing materials that constitute a health hazard shall not be used. If a question should arise as to whether the materials contained within a piece of equipment constitute a health hazard, the decision of the Deputy Airport Director, Facilities Operations and Maintenance, shall be final.

B. Oils or liquids used for insulation shall be P.C.B.-free. A certified report by an independent laboratory shall be filed with the Airport verifying that the fluid has no P.C.B.
ARTICLE 509. VERTICAL AND HORIZONTAL TRANSPORTATION

Installation of elevators, escalators, and moving walks and ramps within Building Spaces shall conform to the requirements under Parts III and IV of this document. A permit shall be obtained before commencement of work.

Sec. 509.1 Design Requirements: Subsequent to notification to State of California, Department of Consumer Affairs, Division of Industrial Safety, complete plans and specifications of work shall be submitted to Construction Services Branch, Building Inspection and Code Enforcement Section (BICE) for approval.

Sec. 509.2 Codes and Orders: Labor and materials shall meet requirements of Elevator Safety Orders of State of California and Uniform Design Standards and all pertinent sections of these regulations. Tenant shall notify State of California, Department of Consumer Affairs, Division of Industrial Safety and BICE of his intention to install elevators, escalators, or moving ramps and walks, and shall pay all permit and inspection fees required.

Sec. 509.3 Scheduling: Work shall be conducted, under the direction of BICE so as to minimize interference and annoyance to patrons, tenants, and Airport operations. Service interruption shall be permitted only with Airport approval. Such approval shall be obtained three days in advance of start of work; exception, work within tenant owned structures.

Sec. 509.4 Testing: Upon completion of work, tenant shall notify State of California, Department of Consumer Affairs, Division of Industrial Safety and BICE for performing final tests and receiving final approval. Tenant shall also notify the Airport Fire Marshal 72 hours before completion of work for testing appointment.
ARTICLE 510. FIRE PROTECTION

Installation of hydrants and sprinkler systems in all Plot Sites shall conform to the requirements under Parts III and IV of this document. A permit shall be obtained before commencement of work.

Sec. 510.1 Design: Shop drawings for fire protection system shall be approved by Airport Fire Marshal and the Building Official.

Sec. 510.2 Service Connections: Connections to Airport provided mains, located in proximity of Plot Sites, shall be in accordance with Sec. 505, Water System.

Sec. 510.3 Codes and Orders: Labor and materials shall meet requirements of latest National Fire Codes of National Fire Protection Association San Francisco Fire Code applicable Safety orders of State of California, Airport Fire Marshal, the Building Official and requirements specified herein.

Sec. 510.4 Metering: Water required for fire protection shall not be metered. In lieu of requirements under Sec. 505, one 5/8-inch meter shall be installed on by-pass connection of each detector check valve. Meter shall read in cubic feet of water.

Sec. 510.5 Scheduling: Shutdown shall conform to requirements of Sec. 505.5.

Sec. 510.6 Sprinklers: Fire sprinkler systems shall be installed by Fire Protection Contractor licensed by State of California. All new or renovated existing structures, except miscellaneous occupancies determined by the Building Official, shall be sprinklered throughout. All automatic fire sprinkler systems shall be supervised to the Airport Communication Center unless exempted by the Fire Marshal and the Building Official.

Sec. 510.7 Hydrants: Fire hydrants shall be Clow-Rich No. 93 or approved equal with two 3-inch and one 4 ½” outlets of San Francisco Fire Department Thread, or approved equal. Shut-off valve to be located not less than 10-feet from hydrant unless hydrant is provided with break-off check valve. Each fire hydrant installation shall be complete with 6-inch Underwriter Laboratory-labeled shut-off valve, and properly located concrete thrust blocks. An all blue reflector shall be installed to indicate the location of the fire hydrant.

Sec. 510.8 Flexible Connections: Suitable flexible connections shall be provided to accommodate a minimum of 12 inches of differential settlement and accompanying lateral movement for pipes entering or leaving buildings and at other transition conditions where differential settlement may occur.
Sec. 510.9 Alarm Connections:

A. General:

1. All required automatic fire detection and protection devices installed at San Francisco International Airport shall be connected to the Central Alarm System in the Communications Center, or monitored by a Fire Marshal approved central proprietary or remote station.

2. Each facility, which has automatic fire detection and/or protection devices shall be connected to the Central Alarm System by one two-wire supervised circuit. Any required zoning within the facility shall be accomplished by an approved local fire alarm annunciating system which shall initiate the alarm to a local annunciator panel immediately accessible to the Fire Department and to the Central Alarm System. Zoning requirements within facilities shall be determined by the Airport Fire Marshal.

3. Burglar alarm circuits may be connected to the Central Alarm System. Circuits shall be limited to one per plot and one per leased or rented area within Airport owned buildings. Requirements and other limitations shall be determined by Airport Chief of Police.

4. The device or devices which are connected to the Central Alarm System shall have a normally open contact for the alarm circuit and may also have normally closed trouble contact.

5. Wiring installed by tenant shall be in conduit and also protected from damage.

B. All facilities outside the Terminal sector and plots within the Terminal sector:

Fire and burglar alarm systems of devices shall be connected to the Central Alarm System by one circuit for fire alarm and one circuit for burglar alarm. Interconnecting wiring shall be installed by tenant, a line leased by a telecommunication service provider, or a combination thereof. Minimum wire size shall be 14 AWG, except for lines leased by a telecommunication service provider.
C. Terminal Sector Leased Areas:

1. Burglar alarm systems and devices shall be connected to the Central Alarm System by one circuit. Interconnecting wiring shall be installed by tenant, a leased Pacific Telephone Company line, or a combination thereof. Minimum wire sizes shall be 14 AWG, except for lines leased by a telecommunication service provider.

2. Fire alarm devices shall be required under the following conditions:
   a. Whenever taps are made into any Fire Main which is not already monitored for the same zone in which the sprinklers on those taps are located, new flow switches shall be installed and connected to the fire alarm system. Extent of work shall be determined by circumstances peculiar to each installation.
   b. Whenever an air ducting system is extended or altered, requiring additional or relocated smoke detectors and/or firestate. Detailed requirements shall be determined by the Airport Fire Marshal.
   c. Whenever required by the Airport Fire Marshal.

3. The terminal buildings and associated concourses, connectors and boarding areas are zoned for fire alarm purposes. Any lease area having fire detection or protection devices, or connected to a fire sprinkler line or fire main, shall be monitored by the zone circuit for the zone in which the lease area is located. Tenant shall perform all work required by the Airport to insure proper connections of mechanical and electrical systems to preserve the zoning arrangement.

D. Procedures

1. During the design development phase of project, Permit Applicant shall determine by consulting with Technical Services Branch the actual requirements for fire detection and protection, burglar alarm and mechanical and electrical connections to Airport systems. Permit Applicant shall incorporate all required work into construction documents submitted for approval in accordance with Articles 203 and 204.
2. If lines leased by a telecommunication service provider are to be used in making any connections to the Central Alarm System, the Permit Applicant shall arrange and pay for such leased lines. He shall notify the Airport Supervisor of Communications if leased lines are to be used so a circuit number may be obtained from the telecommunication service provider. Permit Applicant shall provide terminations for leased lines within his facility in accordance with Technical Services Branch requirements.

3. Permit Applicant’s contractor shall obtain an Airport Building Permit from Building Inspection and Code Enforcement (BICE) Section for any required construction.

**Sec. 510.10 Fire Protection Compliance:** All components designed to be incorporated into the fire protection system and required aide to facilitate exiting shall be operable and functioning prior to occupancy. Evidence of compliance with required flame spread rating of wall and floor coverings shall be submitted for approval before installation of the material. All above-ground sprinkler piping exposed to weather shall be galvanized.

**Sec. 510.11 Light Framing:** All concealed wood in fire resistive construction shall be fire retardant treated by an approved applicator. All wood used in construction of walls shall be fire retardant treated by an approved applicator.

**Sec. 510.12 Area Occupancy:** Whenever an area is assigned to a different occupant the area must comply with current regulations prior to occupancy.
ARTICLE 511. LANDSCAPE PLANTING

Installation and maintenance of landscape work in all Plot Sites, shall conform to the requirements under Parts II and IV of this document. A permit shall be obtained before commencement of work.

**Sec. 511.1 Ground:** Planting areas shall have imported loam, adequate surface drainage, and provided with underground irrigation system. Portable irrigation shall be permitted only in cases where conditions render such underground irrigation system, unfeasible. Piping materials shall be as specified under Article 505. Schedule 40 polyvinyl chloride pipe and fittings (rigid type) may be used for exterior buried irrigation system when approved by the Engineer.

**Sec. 511.2 Planting:** Scale, density, and extent shall be determined by nature of adjacent improvements, weather and sun exposure, and use of site. Refer to Airport Landscape Master Plan.

A. Quality nursery stock shall be equal to standards of California Association of Nurserymen.

B. Plants shall be grown in a climate similar to San Francisco Bay Area and selected on basis of local Airport weather conditions.

C. Deciduous trees and shrubs shall not be permitted.

**Sec. 511.3 Maintenance:** All landscaping shall be continuously maintained with plants receiving prescribed fertilization and scheduled watering.

**Sec. 511.4 Backflow Protection:** All underground irrigation systems shall be installed with approved backflow devices to protect public water system. After final installation, all new backflow prevention devices shall be tested by a backflow prevention tester certified with San Mateo County Health Department. Submit copy of test results to Plumbing Inspector for approval.
ARTICLE 512. STANDARD DETAILS AND SPECIFICATIONS

Installation of all improvements in Rentable Building Space within Terminal Sector, shall conform to the requirements under Sec 405.3 of this document and shall conform with details and specifications depicted and described as follows. A permit shall be obtained before commencement of work.

Sec. 512.1 Standard Details: Construction of all fixed assets, including partitions, attached furnishing and finish equipment within areas designated under Sec. 512.2, shall be in accordance with drawing details depicted.

A. Light Framing:

1. All structures and partitions within hangar buildings subject to wind when the hangar doors are open shall be designed to withstand a 20 lb. wind load.

2. Powder actuated fasteners are not permitted without the expressed consent of the Engineer on an individual case basis. All fasteners into marble, terrazzo, architectural precast, or light-weight concrete shall be drilled.

3. Partitions and furred spaces not required to extend from slab to slab above shall be fire stopped at the suspended ceiling elevation.

4. Partitions along the leased area perimeter within the Terminal Complex shall extend from slab to slab above with the covering on at least one side above the suspended ceiling to form a draft stop.

5. Draft stopped areas within a leased area shall not exceed 30,000 square feet.

6. Openings within the draft stops shall be adequately protected against fire and smoke migration.

Sec. 512.2 Finish Specifications: Colors and materials and finishes of work, installed within specific areas noted, shall be equal to the following:

A. Ticket Counter Area:

1. Counters - low lustre finish facing and counter tops of high-pressure, thermo-set laminated plastic surfacing material, general purpose type; color, equivalent to Textolite 1608-N, Deep bronze. Baggage openings in counters to be type 304, #4 finish stainless steel.
2. **Fascia** - translucent white matte-finished plexiglass panels with letters marked out and plexiglass painted with matte-finish acrylic paint in opaque color similar to Textolite 1608-N, deep bronze mentioned in Item A-1.

3. **Black Walls** - white plaster, sealed and troweled smooth to receive tenant installed finishes or materials.

B. **Pass-thru Check-in Area:**

1. **Counters** - Same as Item A-1. Construction in accordance with details similar to ticket counter drawings 1.1 through 1.14. Counter same width (either 6' or 8') as holding area storage unit.

2. **Fascia** - Same as Item A-2.

3. **Wood Rail Dividers** - Stainless steel tube posts, Type 304, #4 finish with dark-stained hardwood railing. Posts set in double sleeve for removability.

4. **Holding Area Storage Units** - Low lustre finish facing of high-pressure thermo-set laminated plastic surfacing material, general purpose type, with color equivalent to Textolite 1608-N, deep bronze. Install with steel tubing frame and wood blocking. Doors, stain grade, of bi-folding type. Aluminum angles, black anodized, of .065: thickness. Provide openings for painted changeable message units, console/computer-controlled digital flap units, such as manufactured by Solari, and closed circuit TV.

5. Consideration shall be made for the variance of the design finish, treatment and use of corporate identify in exclusively leased passenger boarding areas (exclusive of terminal frontal gates) and on equipment. Such plans are to be reviewed and approved by the San Francisco International Airport and coordinated relative to the design characteristics of adjacent areas and to the terminal complex in general.

C. **Baggage Claim Area:**

1. **Carousel Trim** - Stainless steel, type 304, #4 satin finish.

2. **Back Walls** - White plaster, sealed and troweled smooth, painted.

3. **Late Claim Baggage Storage Units** - Sliding glass doors in steel core sash, clad in 40 mm, x 40 mm, polyvinylchloride, and stainless steel surfaced shelving on plywood backing, with back facing material of laminated plastic similar to Item A-1, Graphic panel, similar to Item A-2.
D. **Ground Level Exterior Walls:**

1. **Walls** - Precast concrete, job cast, with vertical broom finish and black mineral oxide integral color. Wall panels in segments on building module, with structural steel tubing at joints. Walls and openings to resist design wind loading of 65 p.s.f. positive and 30 p.s.f. vacuum.

2. **Doors** - Painted hollow metal doors in pressed metal steel frames. Metal roll-up doors, chain-operated with galvanized metal slats and hoods.

3. **Windows** - Tampered solargray glass in extruded aluminum frame, black anodized finish, with extruded neoprane structural gaskets, windows attached to structural steel tubing.

E. **Tenant Ceilings:**

1. **Plaster Ceilings** - Consisting of 3/4 inch thick machine-applied sandfloat finish gypsum plaster with metal lath, suspended with #9 galvanized annealed wires at 4'-0” centers, and 3/4 inch cold-rolled galvanized channels at 4'-0” centers, and 3/4 inch cold-rolled cross furring channels at 13-1/2 inch centers if metal lath is used, or 16-inch if gypsum lath is used. Ceilings shall be independently supported from the structure. Anchoring or suspending from piping, ducts, etc. shall not be permitted. Powder actuated fasteners are prohibited.

2. **Acoustical Ceilings** - Consisting of 3/4 inch thick fissured mineral fiber acoustical tile, 12”x24”, in concealed or exposed suspension system of galvanized steel grid bars, with low-sheen satin white exposed finish. Ceilings shall be independently supported from the structure. Anchoring to piping, ducts, etc. shall not be permitted. Powder actuated fasteners are prohibited without the expressed consent of the Engineer. Ceilings shall be braced against lateral or horizontal movement on 12'-0” o.c. each way commencing 4'-0” from the perimeter in accordance with details depicted in Part VII or an approved equivalent.

3. **Penetrations** - Properly frame and gasket all penetrations through walls or ceilings for mechanical, electrical, fixtures, etc. Repair plaster and finish so as to match adjacent surfaces and insure clean, tight joints all around.
F. **Interior Window Walls**

1. **Partitions** - Dimensions and profiles of members at interior partitions to match those of Kawneer Spanline 700 Narrow Line split mullion framing members with Type 190 door. Design members so as to adjoin these products without use of intermediate members or exposed fasteners. Provide black anodized push-pulls, cross bars, and bar plates for doors, similar to Kawneer Style “L”.

2. **Glass and Glazing** - Interior partitions, glazed with 1/4 inch clear tampered glass, with flush glazing on all sides with through sight lines and no projecting stops or face joints.

3. **Finishes** - Exposed aluminum extrusions, chemically etched and black anodized, to match Aluminum Association designation AA-M12 C22 A42 black.
ARTICLE 513. TELECOMMUNICATIONS (RESERVED)

All the provisions previously articulated in Sec. 508.14 of this document shall apply.
ARTICLE 514. STORAGE OF HAZARDOUS SUBSTANCES IN TANKS:

Sec. 514.1 General Provisions:

A. Purpose

The purpose of these regulations is to protect the health, life, resources, and property of the public by preventing and controlling unauthorized releases of hazardous substances stored in underground and above ground tanks at San Francisco International Airport, pursuant to Chapter 6.7., Division 20 California State health and Safety Code.

B. Tenant Obligation

No tenant or occupant shall store or handle hazardous substances in a manner that:

1. Causes any unauthorized release of hazardous substances.

2. Violates any Airport, City, State, or federal statute, code, rule, or regulation pertaining to hazardous substances.

3. Deviates from the procedure set forth in the tenant's approved Monitoring and Response Plans.

C. Definitions

1. Applicant shall mean any tenant or occupant, with or without an existing valid permit, that is applying for a permit.


3. Closure shall mean an underground tank or above ground tanks or pipeline taken out of service.

4. Hazardous material shall mean substance defined in U.S. Department of Transportation (DOT) 49 CFR Part 173, November 1, 1984, and as hereafter amended.

5. Hazardous substance shall mean any substance listed under Part II of regulations 49CFR Part 173 as amended. A waste substance is hazardous if it contains any of the listed substances, a product is hazardous if it contains one percent (1%) or more of any of the listed substances.
6. **Motor vehicle fuel** shall mean a product which is intended to be used primarily to fuel an engine or any self-propelled device by which any person or property may be propelled, moved, or drawn.

7. **Permit** shall mean any Storage Tank Permit issued pursuant to these regulations.

8. **Permittee** shall mean any tenant or occupant to whom a permit is issued.

9. **Pipe** shall mean an underground pipeline system is used either appurtenant to tanks used to store hazardous substances or appurtenant to distribution lines used to transport hazardous substances at the Airport.

10. **Primary containment** shall mean the inside shell, whether or not lined, of a container that comes in direct contact with the hazardous substance.

11. **Product-tight** shall mean impervious to the hazardous substance so as to prevent leakage and deterioration of the container.

12. **Secondary containment** shall mean the outside level or shell separated from the primary container into which leaking hazardous substances from the primary container can collect.

13. **Site** shall mean the land area adjacent to an underground tank, appurtenant piping, or distribution pipeline.

14. **Single-walled** shall mean containment constructed with walls consisting of only one thickness of material. Any containment constructed of, laminated, coated, or clad materials shall be considered as single wall.

15. **Sump** shall mean a pit, well, or depression into which liquids drain and collect.

16. **Unauthorized release** shall mean any release of a hazardous substance which does not conform with these regulations.

17. **Underground** shall mean that at least 10 percent (10%) of the underground storage tank, including connecting piping, or distribution pipeline is below the ground surface and not capable of visual inspection. Underground shall also include surface tanks in vaults depressed below the surrounding normal grade level. Where piping system contains more than 10 percent (10%) of the volume of the tank, the piping system is considered an underground tank.
18. **Vadose zone** shall mean the unsaturated zone between the ground surface and the water table.

19. **Full Term Permit** shall mean a Permit issued for a period of five (5) years.

20. **STP** shall mean Standard Temperature and Pressure.

21. **Special Inspector** shall mean a qualified engineer, chemist or professional consultant who shall demonstrate expertise to the satisfaction of FOM.

22. **Special Warning** label shall mean a caution alert and the requirements necessary to preclude jeopardizing a person's health, or safety, or both.

**Sec. 514.2 Regulated Substances:** The hazardous substances governed by these regulations shall include the following:

A. Any substance, waste or product, listed in Sections 66680 and 66685 of Title 22 of the California Code of Regulations; Register 85, No. 2 - January 1, 1985, and as hereafter amended; or

B. Any substance listed by the Environmental Protection Agency (EPA), in 40 CFR, Sections 401.15, July 1, 1984, and as hereafter amended; or

C. Any substance classified by the National Fire Protection Association (NFPA) in the National Fire Code, latest edition, as either a flammable liquid, a Class II combustible liquid or a Class III A combustible liquid; or

D. Any substance listed by the Director of the Department of Industrial Relations in Title 8, California Code of Regulations 339; Register 82, No. 36 - August 28, 1982; or

E. Any substance defined as hazardous by California Health and Safety Code Section 25280c.
Sec. 514.3 Storage Standards:

A. Hazardous Substance Storage:

1. No tenant or occupant shall store any regulated hazardous substance in any tank unless and until an Underground Storage Tank Permit has been issued by FOM and San Mateo County. No permit shall be issued unless applicant demonstrates to FOM, San Mateo County and Airport Fire Marshal by the submittal of drawings, specifications, and other informational data that the design and proposed construction of the tank is suitable for hazardous substance storage.

2. All tank and pipeline fabrication, installation, construction, repair, modification, closure and removal shall comply with these regulations.

3. All fill inlets must be properly tagged by San Mateo County before fuel is in placed.

B. New Storage Tanks and Pipelines:

1. Monitoring Capability

   a. All underground storage tanks and pipelines installed or constructed on or after January 1, 1984 intended for storage of hazardous substances shall be designed and constructed with a monitoring system capable of detecting both hazardous substances leaking from the primary containment into the secondary containment and water intruding into the secondary containment from the outside soil.

   b. Monitoring shall be conducted by daily visual inspection and gauging of the primary container except as permitted by the provision of subsection c of this Section 2.

   c. Methods of monitoring:

      1. Whenever complete visual inspection of the primary container is determined by FOM to be impractical, an alternate method(s) of monitoring each tank may be approved by FOM, San Mateo County and FM.
2. Alternated methods of monitoring may include but are not limited: liquid level indicator, hazardous substance sensor, pressure or vacuum loss detector, and vapor well monitor for volatiles. In addition to such alternate method, one downgradient groundwater well shall be installed.

d. Wherever automatic, continuous monitoring devices are installed or where monitoring is to be done from a central location remote from the site, the monitoring device shall be equipped with both visual and audible alarms.

e. Monitoring devices shall be sufficiently sensitive to comply with the inventory reconciliation limits set forth in Table 5 of these regulations.

2. **Storage Requirements**

   a. Primary and secondary levels of containment shall be provided for all underground storage tanks, appurtenant piping, and pressurized distribution pipelines.

   b. **Criteria**

      1. All primary containment shall be product-tight.

      2. All secondary containers shall be fabricated or constructed of materials sufficiently thick, dense and resistant to contain the hazardous material during the entire time it is in contact with a released hazardous substance.

      3. In the case of installation with one primary container, the secondary containment shall be large enough to contain 100 percent (100%) of the volume of the primary tank.

      4. In the case of multiple tanks, the secondary container shall be large enough to contain 150 percent (150%) of the volume of the largest primary tank placed, or 110 percent (110%) of the aggregate internal volume of all primary tanks, whichever is greater.
5. The space between any secondary container that is open to rainfall and the primary container shall be increased to contain, in addition to the amount set forth in 3 and 4 above, a volume of rainwater equivalent to that generated over twenty-four (24) hours during a one-hundred (100) year storm.

3. **Linings**

Linings subjected to twenty-four (24) hour immersion tests shall not exceed the limits for lining properties set forth in Table 1.

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>LIMIT</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume swell</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Elongation</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Hardness</td>
<td>5%</td>
<td>of original hardness</td>
</tr>
<tr>
<td>Transport Rate</td>
<td>6%</td>
<td>of substance weight</td>
</tr>
<tr>
<td>Solution Rate</td>
<td>0.1%</td>
<td>of substance weight</td>
</tr>
</tbody>
</table>

4. **Overflow Protection**

All primary containers installed or constructed after January 1, 1984 shall be equipped with automatic shutoff valves. Such containers shall be so designed and constructed as to prevent overflow spills.

5. **Collection Sumps**

All secondary containers shall be equipped with sumps from which unauthorized releases of hazardous substances can be collected and removed without spillage. Both the sump bottom and interior surface of the container directly below a measurement opening shall be protected against impact from gauging sticks by bonding a contoured metal protective plate to the tank wall unless the tank is steel.

6. **Separating Substances**

Hazardous substances that when mixed may cause fire, explosion, toxicity, formation of poisonous gases, or deterioration of the primary or secondary containment shall be separated in both primary and secondary containers.
C. Existing Underground Storage Tanks and Pipelines

1. All tenants and occupants with underground tanks, appurtenant pipelines, or distribution pipelines installed or constructed prior to January 1, 1984 shall obtain an Underground Storage Tank Permit pursuant to these regulations.

2. Monitoring Requirements

   a. All underground storage tanks and pipelines installed or constructed prior to January 1, 1984 shall be monitored in conformity with the provisions of this Section 2. All new and replacement tanks and pressure piping not visible must have continuous monitoring.

   b. Monitoring shall be conducted by daily visual inspection of the primary container, except as permitted by the provisions of subsection c of this Section 2.

   c. Monitoring methods

      1. Whenever complete visual inspection of the primary container is determined by FOM to be impractical, an alternative method of monitoring each storage tank on a monthly or more frequent basis may be approved by FOM and FM.

      2. Alternative method(s) of monitoring may include but are not limited to: pressure testing, vacuum testing or hydrostatic testing the piping system or underground storage tank; groundwater monitoring well(s) which are downgradient and adjacent to the storage facility; vapor analysis within all well(s) where appropriate; and analysis of the soil boring(s) at the time of initial installation of the well(s). Sampling frequency shall be as set forth in Table 2.
### TABLE 2
#### TANKS INSTALLED PRIOR TO 1/84

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Vehicle Fuel</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Other</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

3. The required number of groundwater monitoring wells shall be as set forth in Table 3. The location of additional groundwater monitoring wells is subject to approval by FOM and FM.

### TABLE 3
#### WELL LOCATIONS

<table>
<thead>
<tr>
<th>TANKS LESS THAN 1000 GALLONS</th>
<th>TANKS OVER 1000 GALLONS</th>
</tr>
</thead>
<tbody>
<tr>
<td># Tanks at Site</td>
<td>Downgradient Wells</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
4. **Monitoring Wells**

   a. **Vapor Wells**

   Vapor wells of approved diameter or other vadose monitoring sensors approved by FOM and FM shall be placed within the bedding material surrounding an underground tank or pipeline. The tenant or occupant shall demonstrate that the bedding material is of such soil type, grain size and moisture content that vapor can traverse it and be detected.

   Vapor wells shall extend to a depth at least 1 foot below the bedding material and soil interface below the tank bottom but not below the water table or Bay Mud interface.

   b. **Groundwater Wells**

   1. All groundwater monitoring wells shall be located as close as possible to the underground storage tank at the perimeter of the underground storage tank cluster.

   2. Groundwater monitoring wells shall extend at least 20 feet below the lowest anticipated groundwater level and at least 15 feet below the underground storage tank bottom; provided, however, that such wells shall not extend through any laterally extensive clay layer that is below the water table and is at least 5 feet thick. In these situations, the well shall be terminated 1 to 2 feet into such clay layer.

   3. Groundwater monitoring well casings shall extend to the bottom of the boring and shall be factory perforated from a point 1 foot above the bottom of the casing to an elevation which is either 10 feet above the highest anticipated groundwater level to the bottom of the surface seal or to the ground surface, whichever is the lowest point above the highest anticipated groundwater level.
4. Groundwater monitoring wells shall be constructed as filter-packed wells that will prevent the migration of the natural soil into the well. Such wells shall be equipped with factory perforated casing that is sized to prevent migration of filter material into the well.

5. All well casings shall be equipped with a bottom cap or plug.

6. Filter packs shall extend at least 2 feet above the top of the perforated zone, provided that where the ground surface is less than 10 feet above the highest ground water level, in which case this requirement may be waived by FOM and FM provided the filter pack extends to the top of the perforated zone.

7. Groundwater monitoring wells shall be constructed with casings having a minimum inside diameter of 2 inches. Any such casing shall be installed in a boring whose diameter is at least 4 inches greater than the outside diameter of the casing.

8. Groundwater monitoring wells shall be sealed from the ground surface to the top of the filter pack.

d. A full term Storage Tank Permit shall not be issued until the permittee has fully complied with all monitoring and storage requirements.

5. Distribution Pipeline Monitoring

The permittee, as part of the Monitoring Plan required under Part IV subpart b of this Article 514, shall continuously monitor pressurized fuel distribution pipelines and equip them with monitoring wells as required by FOM and Fire Marshal in accordance with table 2 or shall provide secondary containment with hazardous substance sensors at the designed low points of the pipeline.

6. FOM Compliance Review

a. The continued use of any underground tank shall be subject to review, modification, or termination by FOM whenever there has been any unauthorized release.
b. FOM shall conduct a review each time a tenant applies for renewal of any permit required under this Appendix D.

7. Existing underground storage tanks and pipelines denied a permit by FOM and Airport Fire Marshal shall either be altered to comply with these regulations or shall be subject to closure.

D. Closed Underground Storage Tanks and Pipelines

1. No underground storage, tank, appurtenant pipeline, or distribution pipeline shall be abandoned unless and until a closure permit has been issued.

2. All underground storage tanks or pipelines unless granted a closure permit shall be monitored and inspected in accordance with these regulations.

3. Any underground storage tank and appurtenant pipeline not monitored or inspected shall be closed and removed.

4. Any underground pipeline that is to be closed shall, at the Airport's option, be removed or filled with cement slurry.

5. A Removal Plan shall be filed with the closure permit application. The Plan shall include all of the following:

a. Provisions for removal of all hazardous substance residues;

b. Provisions for removal of all appurtenant piping;

c. Evidence demonstrating that the tank or pipeline has not leaked;

d. Adequate soil samples in order to determine the extent of soil or groundwater contamination;

e. Designation of a clean-up contractor and an off-Airport dump site for contaminated tanks, pipelines, soil, and groundwater;

f. Designation of the person, and his or her title and telephone number, responsible for clean-up;

g. Designation of the laboratory performing soils and water sample analyses; and
h. Designation of any consultant's studies.

E. **Monitoring, Testing, Inspection, and Maintenance of Records**

1. Each permittee shall provide testing, monitoring, and inspection in accordance with the permittee's approved Monitoring Plan. The permittee shall maintain all testing, monitoring, and inspection records for at least three (3) years. All such records shall be made available to FOM for inspection upon request.

2. Each permittee shall provide FOM with a calendar year quarterly summary of monitoring results from each well and monitoring device on a Quarterly Underground Tank Monitoring Form provided by FOM no later than fifteen (15) days following the end of the quarter.

F. **Maintenance, Repair and Replacement**

1. Permittee shall carry out maintenance, ordinary upkeep, and minor repairs in accordance with these provisions. No permit shall be required for routine maintenance and upkeep.

2. Any substantial modification or repair of an underground storage tank, appurtenant piping, or distribution pipeline shall require drawings and specifications in accordance with the San Francisco International Airport's Tenant Improvement Guide.

3. **Emergency Repairs:**

   a. Permittee may make emergency repairs to underground storage tanks or pipelines without prior authorization, therefore, if, and only if, immediate repair is required to minimize or contain an unauthorized release or to protect the integrity of the containment.

   b. Permittee shall apply for a permit amendment for approval of any emergency repair no later than five (5) working days after such repair.

   c. It will be incumbent on the tenant or occupant to adequately demonstrate to FOM and FM that the repaired primary container will provide continued containment, as failure to do so will be grounds for denial of subsequent approval of the attempted repair.
4. Non-emergency Repairs

a. An underground tank, appurtenant piping, and distribution pipeline shall be deemed to be repairable if, and only if:

1. The cause of the failure is determined and removed, or rectified;

2. The primary container either passes an ultrasonic test or is certified by a special inspector that the limits set forth in Table 4 are not exceeded.

<table>
<thead>
<tr>
<th>TABLE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEL TANK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FAILURE TYPE</th>
<th>LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seam/Split</td>
<td>3”</td>
</tr>
<tr>
<td>Holes</td>
<td>1-1/2” dia.</td>
</tr>
<tr>
<td>Holes Under Gauge Hole</td>
<td>2-1/2” dia.</td>
</tr>
<tr>
<td>Holes/Sq.Ft.</td>
<td>5 holes all</td>
</tr>
<tr>
<td>Holes/500 Sq. Ft.</td>
<td>20 holes all</td>
</tr>
<tr>
<td></td>
<td>1/2” dia.</td>
</tr>
</tbody>
</table>

b. A repairable underground tank or pipeline may be relined if FOM and FM determine that the primary container:

1. has not been weakened by corrosion;

2. has not been previously relined;

3. has an adhesive lining compatible with the hazardous substance stored; and

4. has a lining certified by a national testing organization and applied according to FOM and FM approved engineering process.

c. All underground tanks and pipelines not deemed repairable shall be closed pursuant to the procedures set forth in Part III, subpart d of this Article.
5. Replacement of any underground tank and pipeline shall comply with new installation standards.

G. Handling of Hazardous Substances

1. Dispensing or mixing of hazardous substances, whether product or waste, shall be conducted in a manner that does not increase the risk of an unauthorized release.

2. The filling, draining, transport, or recovery of hazardous substances into or from an underground tank or pipeline shall be conducted in a manner that does not result in unauthorized release.

H. Security and Labeling of Underground Tanks and Wells

1. Access to underground storage tanks, appurtenant piping, and monitoring wells shall be restricted to authorized personnel. Sites accessible to the public shall be secured or attended.

2. a. Each monitoring well shall be identified by number, type, depth, and the diameter of each casing. Each tank shall be identified by number, capacity, hazardous substance name, and special warning label for substances other than motor vehicle fuel.

b. The information required by subsection a. of this Section 2 shall be posted in a conspicuous location adjacent to each entrance to the monitoring well or tank enclosure in plan view and shall be well lighted. If the monitoring wells or tanks are not within an enclosure, the required information shall be affixed to the individual well or tank filler cap in a manner approved by FOM and FM.

c. An approved emergency procedure for handling unauthorized releases of hazardous substances stored at the site, the 24-hour telephone number of the tenant's emergency contact, and the Airport's 6-2323 emergency number shall be posted with the well and tank information.
Sec. 514.4 Monitoring and Response Plans:

A. Plans - General

1. Each applicant for an Underground Storage Tank Permit for new or existing underground tanks, appurtenant piping, and distribution pipelines shall submit a Monitoring Plan and a Response Plan for review and approval by FOM and the Airport Fire Marshal.

2. A Monitoring Plan and Response Plan may require updating if an underground tank, appurtenant piping, distribution pipeline, or monitoring system is changed, closed, removed, or the cause of an unauthorized release.

B. Monitoring Plan

1. The Monitoring Plan shall demonstrate to FOM and the Fire Marshal that unauthorized releases of hazardous substances from underground tanks, appurtenant piping, and distribution pipelines can be detected, contained, and removed before the adjacent soil and groundwater becomes contaminated.

2. The Monitoring Plan shall include:
   a. Facility Description: The Monitoring Plan shall include the facility's name, location, and Airport mailing address, the operator's business name and type of business, and the operator's contact person's name and telephone number.
   b. Owner Identification: The Monitoring Plan shall include the underground tank tenant owner's name, the name and address of such owner's authorized agent for service of legal process, type of business, name, title and telephone number of the local responsible person, immediate contact, and alternate contact.
   c. Container Identification: The Monitoring Plan shall include the type of underground container, identification number, capacity, and identity of the hazardous substance stored in each container.
   d. Cathodic Protection: The Monitoring Plan shall include the type of cathodic protection; the number, location, composition, and expected life of any anodes and the number, location and impressed voltage of any rectifiers.
e. Monitoring System: The Monitoring Plan shall include the monitoring method(s), frequently shall state the instrument measurement sensitivity at each site.

f. Site Map: The Monitoring Plan shall include a map of a scale sufficiently large and legible to:

1. identify the location of all underground containers and monitoring wells;
2. indicate capacity;
3. identify the hazardous substances contained;
4. locate anodes and rectifiers;
5. reference to prominent structures or property lines; and
6. locate emergency equipment.

g. Forms: The Monitoring Plan shall include an Inspection Check Sheet for monitoring containers. The inspection check sheet shall set forth the time and date of inspection; time and date of corrective action. Inspector's name and signature of the responsible person named in the Monitoring Plan.

C. Response Plan

1. The Response Plan for each tank shall indicate the procedure for determining, confirming and containing unauthorized release of hazardous substances and for notifying the Airport and/or State officials depending on the extent of the unauthorized release of hazardous substances.

2. The Response Plan shall include:

   a. 24-Hour Emergency Contact: The Response Plan shall include the name and telephone number of the tenant's designated representative and one alternate. Such representative or alternate shall be available on a 24-hour basis in case of an emergency created by any unauthorized release of stored hazardous substances.
b. **Clean-up Contractors and Disposal Sites:** The Response Plan shall designate authorized contractors for clean-up of unauthorized releases, soils and water analyses, soils and groundwater contaminant removal, and container removal. The lawful disposal site, that meets State and Federal regulations, shall be stipulated in the Response Plan.

c. **Hydrostatic Testing:** The Response Plan shall require hydrostatic testing of each underground tank, appurtenant piping and distribution pipeline on an annual basis.

D. **Duplication of Information**

A completed Form, 2711A and 2711B Underground Storage Tank Permit shall satisfy the requirements for the Monitoring Plan and Response Plan to the extent that it provides the information required by subparts b and c of this Part IV.

E. **Variance**

1. A tenant may apply to the California Regional Water Quality Control Board for a site-specific variance.

2. The application shall be made upon a specific form provided by the Regional Board. Any such application shall include all of the following information:

   a. a description of the provision from which the variance is sought;

   b. a description of the proposed construction or monitoring methods;

   c. a description of the proposed alternative;

   d. a description of the circumstances that justify the proposed variance;

   e. a statement that soil and groundwater will be adequately protected;

   f. a statement that CEQA will be satisfied; and
g. payment of any requisite fee.

Sec. 514.5 Responsibility:

A. Reporting Unauthorized Releases

1. Any designated emergency contact person or subordinate in charge of a facility containing an underground tank, appurtenant piping and distribution pipeline that has reason to suspect or has actual knowledge of an unauthorized release of hazardous substance shall initiate all necessary steps to ensure the discovery, containment, and clean-up of such release and the immediate notification of Airport Operations, Fire Department, FOM's Water quality Section and State Regional Water Quality Control Board, as appropriate.

2. Confirmed Unauthorized Release: Any recordable unauthorized release, as defined under Section 3 of this subpart a, shall be contained, removed and lawfully disposed of by the permittee. The facts and circumstances surrounding both the unauthorized release and the response shall be recorded in the permittee's monitoring records and shall be reported on the Quarterly Underground Tank Monitoring Form submitted to FOM.

3. A recordable unauthorized release is any unauthorized release of a hazardous substance which meets all the following criteria:
   
a. The release is from a primary containment into a secondary containment.

   b. The permittee is able to clean-up the release within eight (8) hours of its detection.

   c. The risk of fire, explosion, toxicity, poisonous gas, or deterioration of the secondary containment is not increased.

B. Reportable Unauthorized Releases

1. Any unauthorized releases, other than release recordable, shall be reported to Operations, Fire Department, Airport Water Quality Control Section of FOM, Regional Water Quality Control Board and the U.S. Coast Guard by the owner or operator immediately. The reporting party shall provide sufficient information to permit FOM and FM to determine:
a. the permittee's ability to contain and dispose of the hazardous substance;

b. the estimated time to contain and dispose of the hazardous substance;

and

c. the severity of the hazard created.

2. Suspected Unauthorized Releases

a. Indication of Loss in Inventory Records

Whenever periodic inventory reconciliation indicates a loss greater than the limits set forth in Table 5, the permittee shall immediately determine by retesting whether there has been an unauthorized release.

**TABLE 5**  
**INVENTORY RECONCILIATION LIMITS**

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>% THRU-PUT</th>
<th>UPPER LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAILY</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>WEEKLY</td>
<td>5.0%</td>
<td>+0.625% (TANK CAPACITY)</td>
</tr>
<tr>
<td>MONTHLY</td>
<td>0.5%</td>
<td></td>
</tr>
<tr>
<td>ALLOWABLE</td>
<td>0.15% (THRU-PUT)</td>
<td></td>
</tr>
<tr>
<td>MEASURABLE ERROR</td>
<td></td>
<td>+0.625% (TANK CAPACITY)</td>
</tr>
</tbody>
</table>

b. Test Results: Whenever a result of a single hydrostatic test, inventory reconciliation, vapor well reading, or groundwater well analysis indicates an unauthorized release but there is no confirmation by other means, the permittee shall immediately retest to confirm the adverse result. If a retest confirms the accuracy of the initial test result, the tenant shall pressure test the container unless both the initial test and retest were pressure tests.

If the retest procedure indicates that there has been no unauthorized release, the results of both tests shall be recorded in the permittee's monitoring records and submitted to FOM in the Quarterly Report.
If an unauthorized release is confirmed by retesting, the tenant shall install a ground water well as close as possible but within ten (10) feet of the suspect container unless such a well already exists.

The tenant shall analyze the soil samples taken from the well borings. If the soil samples indicate hydrocarbon contamination greater than 100 parts per million (ppm), the container shall be removed and inspected. If soils contamination exceeds 1000 parts per million (ppm) the tenant shall immediately notify FOM and the Toxics Division of the California Water Resource Control Board.

c. Nuisance Condition: FOM may require the tenant to hydrostatically pressure test any underground tank if excessive fumes or free hazardous substance are detected within 2,000 feet of the tenant's site, when fumes or a free hazardous substance is detected within the tenant's leasehold area, or the tenant has any record of adverse monitoring results.

d. Notification: The tenant shall notify FOM and the Regional Water Quality Control Board in writing within five days after confirming an unauthorized release. The notification shall be made to FOM using the Unauthorized Release/Leak Detecting Reporting Form. Notification shall be made to the Regional Water Quality Control Board by letter, signed by the person responsible, describing the observations and test results that confirm the unauthorized release, the steps that have been taken to locate and identify the source, and the actions taken to contain and correct the condition.

e. Follow-up: The tenant shall submit to the Regional Water Quality Control Board, with a copy to FOM, a complete report of the facts and circumstances surrounding the unauthorized release within thirty (30) days. The report shall contain drawings and description of any excavations, soil samples, and any additional investigation; details of soil borings and monitoring well construction; and results of associated soil and groundwater analyses.

f. Clean-up Responsibility: The tenant responsible for storing the hazardous substance shall institute and complete all actions necessary to remedy the effects of any unauthorized release.
Sec. 514.6 Inspections and Records:

A. Inspections by FOM

1. FOM may conduct such inspections as it deems necessary to ascertain compliance with these or any other Airport regulations or any State or federal law governing the storage of hazardous substances in underground tanks, appurtenant piping, and distribution pipelines.

   a. Right of Entry

   FOM and FM shall retain the right to enter the tenant's lease area to conduct inspections of suspected or reported unauthorized releases or to enforce these regulations.

   b. Inspection by Permittee

   The permittee shall conduct regular inspections of its own underground tanks, appurtenant piping and distribution pipelines as prescribed for each monitoring method selected and shall maintain check sheets and file reports in accordance with the tenants approved Monitoring Plan. The inspector conducting such inspections must be qualified.

Sec. 514.7 Application for Permit:

A. Permit

1. Any tenant which stores any hazardous substance shall obtain and keep current an Underground Storage Tank Permit issued by FOM and San Mateo County pursuant to these regulations. Each individual underground tank and distribution pipeline shall require a separate permit. Additional approvals shall be obtained for any underground storage tank and distribution pipeline that thereafter is connected, installed, constructed, repaired, substantially modified, replaced, closed, or removed, or if any change or increase is made in the hazardous substance stored.

2. Permittee shall make application for an additional approval at least thirty (30) days prior to the storage of a new or different hazardous substance.
B. Application for Permit

Application for a new, changed, or renewed permit or any additional approvals shall be made to the FOM on Forms 2711A and 2711B. Underground Storage Tank Permit Form. In addition to the form, applicant shall submit a Monitoring Plan and a Response Plan. Required drawings and specifications shall be submitted in accordance with the Tenant Improvement Guide.

C. Investigation

1. FOM, San Mateo County and the Fire Marshal shall make such investigation of the applicant's intent, site, or use as they deem necessary.

2. The Building Inspection and Code Enforcement Section of FOM together with the Airport Fire Marshal shall investigate:
   a. Tank and pipeline leak testing;
   b. Tank and pipeline purging;
   c. Soil contamination;
   d. Fire or explosion hazards;
   e. Removal and disposal of contaminated soil and groundwater;
   f. Removal and disposal of used tanks and pipelines;

3. The Water Quality Section of FOM shall perform
   a. Soils and water sampling;
   b. Soils and water analyses evaluations;
   c. Estimate of the extent of contamination;
   d. Follow-up reporting to the Regional and State Water Quality Control Board;
   e. Notification of Business and Finance of contaminated sites in tenant lease areas.

4. The Building Inspection and Code Enforcement Section of FOM together with the Airport Fire Marshal shall be responsible for inspection of all construction and installation of underground tanks appurtenant piping and distribution pipelines at the Airport.

D. Full Term Permit

A permit shall not be approved or issued until FOM and the Fire Marshal certify that the underground storage tank, appurtenant piping, or distribution pipeline complies for which the permit is sought with these regulations.
E. **Issuance of Permits**

1. Upon approval of a particular permit application, FOM shall issue and deliver the permit to applicant. The permit shall contain:
   
   a. The name and address of the permittee for purposes of legal service;
   
   b. The location of the underground tank or pipeline;
   
   c. The identity of the particular hazardous substance authorized for storage;
   
   d. The effective date;
   
   e. The expiration date;
   
   f. The designation of permit type; and
   
   g. Any conditions affecting use.

2. FOM shall maintain a record of all permits issued, their expiration dates, and all restricting conditions.

F. **Additional approval**

1. Applications for renewal, changed, closure, or removal permits shall include updated Monitoring and Response Plans, as required by FOM.

2. An application for closure or removal permits shall be submitted to FOM at least thirty (30) days prior to terminating storage.

3. Closure shall be issued if, and only if:
   
   a. Monitoring of a temporary closed underground tank or pipeline is maintained;
   
   b. The threat to public health and safety because of residual hazardous substance is eliminated;
   
   c. The hazardous substance will be removed, disposed of, neutralized or reused in a proper manner, to the satisfaction of FOM and any other agency having jurisdiction.
4. Removal permits shall be issued if, and only if abandoned tanks shall be removed and disposed of immediately in a lawful manner.

G. **Term**

A full term permit shall be issued for five (5) years. Closure permits shall be issued for no more than one (1) year.

H. **Renewal**

Application for a renewed full-term permit shall be made at least one hundred eighty (180) days prior to the expiration of the existing permit.

**Sec. 514.8 Permit Denial:**

A. **Grounds for Denial:** A permit shall be denied if the applicant fails to demonstrate compliance with these regulations and such denial shall be in writing and shall set forth the basis for the denial.

B. **Appeal:** Within ten (10) days after receipt of denial, the applicant may appeal in writing to the Airport Director or his representative. Such appeal shall set forth the particulars wherein it is alleged that the permit denial constitutes error in interpretation of these regulations or an abuse of discretion.

**Sec. 514.9 Notice of Non-Compliance:**

A. FOM shall issue a Notice of Non-Compliance or a Non-Compliance Report for permit applicant’s or tenant’s failure to comply with (a) these regulations, (b) any permit condition or (c) any provision of the Monitoring and Response Plans.

B. Any act or omission constituting revocation, as set forth in Section (a) of this Article, shall be a ground for violation of a condition of the Tenant’s Lease agreement.

C. **Appeal**

Within thirty (30) days after receipt of a notice of permit revocation, the permittee may appeal in writing to the Airport Director or his representative. Such appeal shall set forth the particulars wherein it is alleged that the permit revocation constitutes error in interpretation of these regulations or an abuse of discretion.
D. If any tenant does not take action as directed, the Airport Director has the right to enter the property and correct the deficiencies. Tenant shall pay all costs for personnel, labor, materials, and services required including overhead.

Sec. 514.10 Permit Revocation:

A. Grounds for Revocation

A permit may be revoked for any of the following:

1. Any false statement, in applying for a new or renewed permit, regardless of whether such misrepresentation is made on the face of the permit application.

2. Any false statement, or misrepresentation in any report required in this regulation.

3. Failure to abate or correct any condition specified in any Notice of Non Compliance within the time prescribed in such notice for such abatement for correction.

4. Failure to abate or correct any condition specified in any notice from the Regional or State Water quality Control Board within the time prescribed in such notice for such abatement or correction.

Sec. 514.11 Compliance Schedule:

A. Effective Date

These regulations shall become effective on the date the Airport Commission adopts a resolution approving these regulations.

B. Time Table for Compliance

1. New Underground Tanks and Distribution Pipelines

   a. As of the effective date of these regulations, no new underground storage tank or distribution pipeline shall be constructed or installed unless and until a permit, therefore, is issued for such construction or installation.
2. Existing underground tanks and distribution pipeline
   
a. The owner or operator of any existing underground tanks and distribution pipelines shall have a permit on file with FOM.

Sec. 514.12 Severability:

A. If any part, section, subsection, subdivision, paragraph, sentence, clause or phrase of these regulations of any portion thereof, is for any reason held to be unconstitutional; or invalid or ineffective by and court of competent jurisdiction, or other competent agency, such decision shall not affect the validity or effectiveness of the remaining portions of these regulations. The Airport Commission hereby declares that it would have passed each part, section, subsection, subdivision, paragraph, sentence, clause or phrase thereof, irrespective of the fact that any one or more parts, sections, subsections, subdivision, paragraphs, sentences, clauses or phrases be declared unconstitutional or invalid or ineffective.

B. If the application of any provision or provisions of these regulations to any building, structure, including, but not limited to, any underground storage tank or pipeline, parcel of land, or operation is found to be invalid or ineffective in whole or in part by any court of competent jurisdiction, or other competent agency, the effect of such decision shall be limited to the property or situation immediately involved in the controversy, and the application of any such provision to other properties and situations shall not be effected.

C. This Section shall apply to every provision of these regulations, as these regulations now exist and as they may exist in the future, including all modifications thereof and additions and amendments thereto.

Sec. 514.13 Indemnification and Hold Harmless Provisions:

Any permit application filed pursuant to these regulations shall contain an agreement by the owner and by the operator of any underground storage tank or other structure for which the permit is sought to indemnify and save harmless the City and County of San Francisco, its officers, employees and agents without cost to them, from any and all losses, claims, costs, liability or damages for or by reason of any death or deaths or any injury or injuries to any person or damage to any property whatsoever arising out of, or alleged to arise out of, relating to, alleged to relate to, any work, operation or activity authorized by the permit or any act or omission of such owner or operator or of the City and County of San Francisco, its officers, employees or agents, including the concurrent or joint negligence, whether active or passive, of the City and County of San Francisco, its officers, employees or agents.
ARTICLE 515. Hazardous Materials Inventory and Analysis

Sec. 515.1 Definitions:

“Applicant” shall mean any tenant, or occupant, with or without an existing valid permit, that is applying for a permit.

“Business” shall mean an employer, self-employed individual, trust, firm, joint stock company, corporation, partnership or association. For purpose of these regulations “business” includes a business organized for profit and a non-profit business.

“Business Map” shall mean a facility layout map meeting the requirements of California Health and Safety Code Section 22504 (Appendix B); California Code of Regulations, Title 19, Section 2730 (Appendix C).

“Business Plan” shall mean a separate plan for each facility site or branch of a business that meets the requirements of Section B1 a, b, c, and d of these Regulations.


“Chemical Name” shall mean the scientific designation of a substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry or the system developed by the Chemical Abstracts Service.

“Certified Laboratory” shall mean a laboratory certified by the California Department of Health Services, pursuant to the provisions of Section 25198 of the California Health and Safety Code, for analyzing samples for the presence of hazardous waste.

“Common Name” shall mean any designation or identification such as code, name, code number, trade name or brand name, used to identify a substance other than by its chemical use.

“Eddy Line,” referenced in Article 20, is the original high tide shoreline prior to the imported fill expansion of the Airport as depicted on a map in the office of the Deputy Airport Director, of Facilities Operations and Maintenance. All other locations will be decided by the Airport Director on a case by case basis.

“Establishment” shall mean a single business operation conducted on the same or contiguous parcels of property under the same ownership or entitlement to use the building or buildings, appurtenant structures, and surrounding land areas used by the establishment at that location or site.
“Extremely Hazardous Material” shall mean a substance or combination of substances which, if human exposure should occur, may likely result in death, disabling personal injury or serious illness caused by the substance or combination of substances because of its quantity, concentration, or chemical characteristics. All of the items considered to be extremely hazardous wastes in Section 25115 of the California Health and Safety Code, including those identified as extremely hazardous wastes in Section 66680 of Title 22 of the California Code of Regulations, are considered to be extremely hazardous materials, as well as any additional items determined by the Director of Health.

“Handler” shall mean any person that handles a hazardous material.

“Hazardous Material” shall mean any material that, because of its quantity, concentration or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous Materials” include, but are not limited to, those materials enumerated in:

a. Regulations of the U.S. Department of Transportation published in 49 Code of Federal Regulations (CFR) Parts 100 through 199 as amended;

b. The Director's List, as amended, issued by the Director of the California Department of Industrial Relations in a California Code of Regulations Section 339;

c. Sections 66680, 66720, and 66723 of Title 22 of the California Code of Regulations, as amended as a hazardous and/or extremely hazardous material, or hazardous and/or extremely hazardous waste, whether such material is stored or handled in waste or nonwaste form;

d. The list of Environmental Protection Agency (EPA) pollutants, 40 CFR Section 401.15 as amended;

e. Any substance as determined by Airport Director.

“Hazardous Waste” shall mean any substance that meets the definition of hazardous waste in Section 25117 of the California Health & Safety Code and Section 66680 of Title 22, California Code of Regulations.

“Permit” shall mean any Hazardous Material Permit issued pursuant to these regulations.

“Permittee” shall mean any tenant, or occupant to whom a permit is issued.
“Person” shall mean any employee, authorized representative, agent or designee of a handler.

“Release” shall mean any spilling, pumping, pouring, emitting, emptying, discharging, escaping, leaching, dumping, disposing into the environment unless permitted or authorized by the Airport Commission.

“Storage” shall mean the containment of hazardous materials.

“STP” shall mean Standard Temperature and Pressure.

“Threatened Release” shall mean a condition creating a substantial probability of harm, when the probability and potential extent of harm make it reasonably necessary to take immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment.

“Unauthorized Release” shall mean any release of a hazardous material which does not conform with these regulations.

Sec. 515.2 Hazardous Materials Emergency Response Release and Inventory:

A. GENERAL PROVISIONS

1. Purpose:

The purpose of these regulations is to protect the public health and safety and the environment by the establishment of business plans relating to the handling and release or threatened release of hazardous materials on the premises of the San Francisco International Airport pursuant to Section 25500 et. seq. California Health and Safety Code - AB 2185, 2187 and 3777, and Ordinance No. 44386 City and County of San Francisco.

2. Tenant Obligation:

a. No tenant or occupant shall store or handle hazardous substances in a manner that:

1. Causes any unauthorized release of hazardous materials.

2. Violates any Airport, City, State or Federal statute, code, rule or regulation pertaining to hazardous materials.
3. Deviates from the procedure set forth in the tenant's approved Hazardous Materials Storage Permit.

b. Tenants storing and handling hazardous materials on the property of the City and County of San Francisco.

San Francisco International Airport shall submit to the Airport Commission a Hazardous Materials Permit Application including Business Plan for Emergency Response.

c. Tenants are responsible for their subcontractors employed in the course of tenant operations on Airport property. Tenants shall ensure that all hazardous materials brought onto Airport property by their subcontractors are included in tenant permits and business plans.

3. **Businesses Requiring a Hazardous Materials Permit:**

A tenant that handles a quantity of a hazardous material at any one time during the reporting year equal to at least 500 pounds for solids, 55 gallons for liquids or 200 cubic feet at STP for compressed gases shall submit a Hazardous Materials Permit and Business Plan. This statement refers to individual hazardous materials, not the aggregate total of all hazardous materials handled by a business.

4. **Exemptions:**

a. **Retail Products**

These regulations do not apply to hazardous materials contained solely in consumer products packaged for distribution to, and used by, the general public or commercial products, provided that such products shall be stored in such a manner and in volumes not in excess of those specified in the regulations.

b. **Small Quantities**

A tenant that handles a quantity of a hazardous material at any one time during the reporting year equal to less than 500 pounds for solids, 55 gallons for liquids or 200 cubic feet at STP for compressed gases, is exempt from the requirement of submitting a Hazardous Materials Permit and business Plan.
c. **Hazardous Materials in Transit**

Hazardous materials in transit and which are temporarily maintained in a facility for a period of less than 5 days during the course of transportation are exempted from these regulations provided that the quantities involved are less than those requiring a Hazardous Materials Permit.

d. **Exceptions**

1. **Extremely Hazardous Materials:**

   A tenant shall not qualify for exemption if material stored is classified as an extremely hazardous material.

2. **Unauthorized Releases:**

   A tenant shall not qualify for exemption in the event of an unauthorized release. Any such releases must be handled in accordance with the requirements in Section D of these regulations.

5. **Declaration:**

   A tenant not requiring a permit shall fill out and return a Declaration (see attachment). Declaration form available from FOM. The Declaration must include a list of the hazardous materials stored and approximate maximum quantities.

B. **APPLICATION FOR PERMIT**

1. All tenants requiring a permit must submit the following materials to San Mateo County and the Airport Commission, San Francisco International Airport.

   a. **A Hazardous Materials Permit Application which includes:**

   1. Permit Application
   2. Hazardous Materials Disclosure Form
   3. Material Safety Data Sheets
   4. Emergency Response Plan
5. Business Map

2. After receipt of a completed application, inspections shall be made by Airport Commission Safety and Fire Department Inspectors and San Mateo County. Inspectors will check storage and use of hazardous materials to ensure that they are stored and used in a manner which will not endanger employee or public health and safety or the environment. Items checked will include the construction, suitability, and condition of storage and use facilities, labeling of hazardous materials, organization of storage, and suitability and condition of emergency and spill containment equipment.

3. A Hazardous Materials Permit will be issued if a business is in compliance with the Airport Tenant Improvement Guide at the time of Inspection and all required application materials have been submitted.

4. A Hazardous Materials Permit shall be issued for a term of one (1) year. Application for the removal of a permit shall be made at least thirty (30) days prior to the expiration of such permit. The application for renewal shall include a completed inventory form and a certification by the permittee that the permittee has reviewed the information submitted on the permit application and has amended as necessary. Where a product has been changed by the manufacturer, any changes making it hazardous or more hazardous must be noted and it must be included or deleted, if appropriate in the inventory. Where quantities of materials are increased, processes are modified, or new products added, those changes must be reflected in the inventory and in the plan itself. The emergency response plan must be reviewed to determine its relevance and accuracy. Names and telephone numbers must be verified and the existence and use of contractors verified. Where technology has changed significantly, or where new information has been made available (such as new findings that a hazardous material is a carcinogen) not only must the plan be changed but the process and management procedures themselves may require amendment. All such changes must be immediately transmitted to FOM.

6. Airport Commission Safety and Fire Department Inspectors and San Mateo County will inspect annually each establishment for which a permit renewal is sought.
7. A Hazardous Materials Permit does not take the place of any license required by State or Federal law nor does compliance with the permit requirements of these regulations relieve any party of compliance with any other applicable State, or Federal law.

8. The Deputy Airport Director, Facilities Operations and Maintenance Division shall grant or deny a permit or a renewal of a permit within ten (10) business days from the date that the completed application is received. This time limit may be extended by the Deputy Airport Director, Facilities Operations and Maintenance division.

9. No Permit Application shall be accepted by FOM until the Application has been signed by the permittee. Where the permittee is a company, firm, or corporation, the Application must be signed by a person having legal authority to bind the permittee.

10. No permit will be issued when storage or use facilities are in poor condition and failing to contain hazardous materials, when hazardous materials are being illegally discharged into the sewer or the environment, or when violations of the Airport Tenant Improvement Guide exist which may be detrimental to the public health, safety and welfare.

11. Any applicant for Hazardous Materials Permit who is denied such permit will be notified in writing outlining the findings upon which the decision is based. The applicant may appeal this decision to the Deputy Director, facilities Operations and Maintenance Division.

12. The permittee shall indemnify, hold harmless and defend the Airport Commission against any claim, cause of action, disability, loss, liability, damage cost or expense, however, arising, which occurs by reason of an unauthorized release in connection with permittee's operation under this permit except as arises from the Airport's Commission's sole willful act or sole act of negligence.

13. Tenants are advised that the disposal of existing or current inventories of hazardous materials is subject to the provisions of State hazardous waste regulations, found in Title 22 of the California Code of Regulations. Removal and transportation of hazardous wastes from a facility is to be done only by a State licensed hazardous waste hauler.
14. **Issuance of Permits**

   a. Upon approval of a particular permit application, FOM and San Mateo County shall issue and deliver the permit to applicant. The permit shall contain:

      1. The name and address of the permittee for purposes of legal service;
      2. The effective date;
      3. The expiration date;
      4. Any conditions effecting use.

15. **Permit Revocation**

Grounds for revocation: A permit may be revoked for any of the following:

   a. Any false statement, in applying for a new or renewed permit, regardless of whether such misrepresentation is made on the face of the permit application.

   b. Any false statement or misrepresentation in any report required in this regulation.

   c. Failure to abate or correct any condition in any Notice of Non-Compliance within the time prescribed in such notice for such abatement for correction.

16. **Compliance Schedule**

   These regulations shall become effective on the date the Airport Commission adopts a resolution approving these regulations.

C. **FAILURE BY TENANT**

   1. If a tenant fails to submit a permit properly completed, the Airport Commission may exercise its rights as Owner. Such rights include termination of the tenant's lease and issue of notice to vacate the premises.
2. If at any time a tenant's establishment is found to be in a hazardous condition due to improper storage and/or handling of hazardous materials, and if upon notice to correct such conditions, tenant fails to do so forthwith such failure shall be deemed a breach of tenants obligations and notwithstanding any other remedies which the Airport Commission may have, the Airport may proceed to mitigate the hazard and charge the tenant for all costs incurred by the Airport.

D. **UNAUTHORIZED RELEASE OF HAZARDOUS MATERIALS**

1. A person shall provide an immediate, verbal report of any release or threatened release of a hazardous material to the Airport Emergency Communications Office (650-876-2323) and the State Office of Emergency Services (800-852-7550 or 916-427-4341) as soon as:

   a. the person has knowledge of the release or threatened release.

   b. notification can be provided without impeding the immediate control of the release of threatened release.

   c. notification can be provided without impeding immediate emergency medical measures.

2. The immediate reporting shall include as a minimum:

   a. the exact location of the release or threatened release.

   b. the name of the person reporting the release or threatened release.

   c. the hazardous materials involved in the release or threatened release.

   d. an estimate of the quantity of hazardous material involved and

   e. if known, the potential hazards presented by the hazardous material involved in the release or threatened release.

3. Immediate reporting shall be made to the Airport Emergency Communications Office at telephone number (650) 876-2323, and the State Office of Emergency Services at telephone number (800) 852-7550 or (916) 427-4341.
4. In case of any doubt as to whether a report is required, the person having knowledge of a release or a threatened release shall make a verbal report to the Airport Communications office (650-876-2323).
DECLARATION

Business Name: __________________________________________

Address: _______________________________________________

Check appropriate statement(s)

_________ This business does not store, use or handle hazardous materials in any amount.

_________ This business does not store, use or handle hazardous materials in amounts greater than 55 gallons of liquids, 500 pounds of solids, or 200 cubic feet at standard temperature and pressure) of compressed gases. This business also does not store, use or handle any extremely hazardous materials.

Attached is a list of the hazardous materials stored in our premises and approximate maximum quantities at any one time.

Business owner:

_________________________ ____________________________ ____________
Name (Print) Signature Date
1. BUSINESS

<table>
<thead>
<tr>
<th>Business Name:</th>
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<th>Street Address:</th>
<th>Zip:</th>
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</table>

<table>
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<th>Type of Business Activity:</th>
<th>SIC Code:</th>
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</table>

<table>
<thead>
<tr>
<th>No. of Employees:</th>
<th>No. of Shifts:</th>
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2. OWNER OF BUSINESS

<table>
<thead>
<tr>
<th>Business Owner(s):</th>
<th>(List all partners, or principal officers. Use additional sheet if there is more than one business owner.)</th>
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<tbody>
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<table>
<thead>
<tr>
<th>City:</th>
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<th>Zip:</th>
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3. TENANT (SUB-TENANT, IF DIFFERENT FROM 1 or 2).

<table>
<thead>
<tr>
<th>Primary: Name, Title:</th>
<th>Phone:</th>
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<td>(      )</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>City:</th>
<th>State:</th>
<th>Zip:</th>
</tr>
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</table>
4. **24-HOUR Emergency Contacts**

<table>
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<tr>
<th>Primary: Name, Title:</th>
<th>Phone: ( )</th>
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</thead>
<tbody>
<tr>
<td>Alternate: Name, Title:</td>
<td>Phone: ( )</td>
</tr>
</tbody>
</table>

5. [ ] New Permit [ ] Renewal [ ] Ownership Change

6. Does the business have a permit from San Mateo County?

   **TYPES OF PERMITS**
   [ ] Yes _______________________ ________________________
   [ ] No ________________________ ________________________

7. Are there any underground storage containers located on the business property? If yes, see page 5 of the application instruction?

   [ ] Yes [ ] No

8. Is trade secret protection requested for any of the information included in this application? If yes, attach a written request that specifies the information of which protection is required; and use a separate Hazardous Material Disclosure Form to list any products or materials for which trade secret protection is requested. Also see page 5 of the application instructions.

   [ ] Yes [ ] No

I certify that the information in this application and in other material required to be submitted with this application is complete and accurate to the best of my knowledge.

*Business Owner(s) Signature(s) Date*

*If partnership, all partners must sign. If corporation, authorized officer must sign.*

---

**FOR OFFICE USE ONLY**

To the Deputy Airport Director – Facilities Operations and Maintenance Division.

After having made a careful inspection of the above premises on:

_________________________, 19 __

I RECOMMEND the issuance of a Permit [ ]
San Francisco International Airport
Tenant Improvement Guide

<table>
<thead>
<tr>
<th>I DISAPPROVE the issuance of a Permit [ ]</th>
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<tr>
<td>for the following reasons: ____________________________</td>
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<td>____________________________</td>
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<tr>
<td>Inspector _________________________ Date _________________________</td>
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</table>
PERMIT NO: ________________

AIRPORT COMMISSION
CITY AND COUNTY OF SAN FRANCISCO
HAZARDOUS MATERIALS PERMIT

PERMIT ISSUE DATE: ________________________________

EXPIRATION DATE: ________________________________

OWNER’S NAME: ____________________________________________

BUSINESS NAME: ____________________________________________

BUSINESS ADDRESS: ____________________________________________

______________________________________________________________

? Hazardous Materials Disclosure Form

? Material Safety Data Sheets

? Emergency Response Plan

? Business Map

AUTHORIZED BY: ____________________________________________________________________________

Deputy Airport Director
Facilities Operations & Maintenance

DATE: ___________________________________________________________________________________

Facilities Operations and Maintenance
Construction Services

Building Inspection & Code Enforcement

515 - 15
April 1999
INSTRUCTIONS FOR COMPLETION OF THE HAZARDOUS MATERIALS

PERMIT APPLICATION

GENERAL INFORMATION

Item 1 Provide information for the business for which the permit is requested. Provide the name of the operator or manager who is on-site during normal business hours (8-5, M-F).

Item 2 If the business is owned by a partnership, provide the name of each owner. If the business is owned by a corporation or other association, provide the names of at least two principal officers. Provide a mailing address which will ensure timely receipt of official mail by the owner(s) or their authorized representative.

Item 3 Provide the name and legal mailing address of the property owner.

Item 4 Provide the names of a primary emergency contact and a back-up who may be reached outside of normal operating hours. Phone numbers must be for home phones or pagers. Contact persons shall have full facility access and familiarity, and shall have authority to make decisions for the business regarding incident mitigation. (Required pursuant to the California Health and Safety Code).

Item 5 List any San Mateo County permits for this facility which are related to storage or use of hazardous materials.

Item 6 If you own underground storage tanks, you are required to register each tank with the Airport Commission and to comply with State and local guidelines for leak detection. Monitoring and response plans must also be implemented.

Item 7 Be sure to include the contents of the tank on the Hazardous Materials Disclosure Form in this application.

Item 8 You are entitled to protection from public disclosure of proprietary information. Requests should be specific. Materials which are designated as Trade Secrets must be listed on a separate Hazardous Materials Disclosure Form.
# HAZARDOUS MATERIALS DISCLOSURE FORM

<table>
<thead>
<tr>
<th>1. BRAND NAME OR PRODUCT NAME</th>
<th>2. COMMON NAME</th>
<th>3. HAZARDOUS SUBSTANCES IN PRODUCT</th>
<th>4. CAS # CHEMICAL ABSTRACTS SERVICE NUMBER</th>
<th>5. MAXIMUM QUANTITY STORED ANY TIME (gal./lbs./cu.ft.)</th>
<th>6. TOTAL QUANTITY USED EACH YEAR (gal./lbs./cu.ft.)</th>
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Facilities Operations and Maintenance
Construction Services April 1999
INSTRUCTIONS FOR COMPLETION OF

HAZARDOUS MATERIALS DISCLOSURE FORM

This must be a complete list of the reportable hazardous materials handled on site (all those not excluded under Items A5, a, b, & C):

<table>
<thead>
<tr>
<th>Column 1: Brand Name or Product Name:</th>
<th>If the material is a commercial product, enter the trade name or names which readily appears on the label of the container.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If the material is a product or mixture made on the premises, enter the word “In-House” or another name assigned to the product which appears on the label.</td>
</tr>
<tr>
<td></td>
<td>If the material is a waste, enter the word “Waste”.</td>
</tr>
<tr>
<td>Column 2: Common Name:</td>
<td>Enter a common generic name for the material. This name will often indicate the common use of the material or the chemical composition of the material. (Required pursuant to the California Health &amp; Safety Code).</td>
</tr>
<tr>
<td>Column 3: Hazardous Substances in Product:</td>
<td>List the chemical names of the hazardous components of the product or material. Use as many lines as necessary. Give percentages if available. This information should be found on the Material Safety Data Sheet and might also be found on the label. If the material is a waste, provide the minimum to maximum percentage range. (Required pursuant to the California Health and Safety Code).</td>
</tr>
<tr>
<td>Column 4: CAS #:</td>
<td>Enter the CAS (Chemical Abstracts Service) number for each hazardous component. This number should be found on the Material Safety Data Sheet. (Required pursuant to the California Health &amp; Safety Code).</td>
</tr>
<tr>
<td>Column 5: Maximum Quantity Stored at Any Time:</td>
<td>Enter the maximum quantity of this product or material which will be present on the premises during the one year period covered by the Disclosure form. This is the amount for which the permit will be issued. Enter the quantity in gallons, pounds, or cubic feet only. (Required pursuant to the California Health and Safety Code).</td>
</tr>
</tbody>
</table>
Column 6: **Total Quantity Used Each Year**: Enter the estimated total quantity used or produced during the one year period covered by the disclosure form. If the material is a waste, enter the estimated total quantity which will be produced. Enter the quantity in gallons, pounds, or cubic feet only.

Column 7: **MSDS**: Check here that an MSDS has been obtained and is enclosed with the permit application.

Column 8: **Location**: Enter here the location or reference code on your facility layout map.
MATERIAL SAFETY DATA SHEETS

You are required to submit a copy of the Material Safety Data Sheet (MSDS) for each hazardous material listed on the Hazardous Materials Disclosure Form.

If an MSDS is not available, request one by writing to the manufacturer or supplier. If the manufacturer or supplier does not respond within 25 working days, send a copy of the request to the Director, California Department of Industrial Relations, with a note stating that no response has been received.

An MSDS should be complete and include all information that you need to handle a product safely or to plan an emergency response. MSDS's should give hazardous components of a product with percentages and CAS number. Information on the MSDS will also allow you to determine the hazard class of the product.

You must maintain current copies of MSDS's. Manufacturers and suppliers should provide updated MSDS's when new information about a product becomes available. Be aware that OSHA, Form 20 is obsolete and does not contain all required information (such as CAS number).

If the MSDS, which was supplied to you, is incomplete or outdated, you should request a complete and current version by writing to the supplier or manufacturer. If you do not receive a reply within 25 working days, notify the Department of Industrial Relations.
INSTRUCTIONS FOR COMPLETION OF A BUSINESS MAP

1. The business map is intended to aid emergency response personnel in the event of a fire or other disaster.

2. Site Map:

   A site map must be included and must show the entire premises occupied by the tenant and be drawn to scale. The map should also indicate streets and adjacent occupancies.

   The site map must be annotated (coded) to clearly show the following information:

   a. Scale of map
   b. Site orientation (north, south, etc.)
   c. Loading areas
   d. Parking lots
   e. Internal roads
   f. Storm and Sewer drains
   g. Adjacent Property
   h. Locations and names of adjacent streets and alleys
   i. Exits

3. Facility Layout:

   A facility layout must be included, clearly annotated to indicate the following information:

   a. Location of each hazardous material handling area and which materials are handled in each area.

   b. Type of storage including above ground, below ground and partially buried, storage tanks, pallets, cylinders, pipelines, truck, trailers, etc.

   c. Location of emergency response equipment such as fire extinguishers and other equipment for fire suppression (automatic sprinkler, system valves) fire hydrants, etc. materials for mitigation and clean up of spilled materials, breathing apparatus, protective clothing, medical supplies, etc.

   d. Include external and internal walls doors, stairways, and ramps.

4. General Requirements:

   a. All layouts and maps should fit into an 8-1/2” x 12” folder.
b. Do not make layouts too “busy”. It is preferable to have more than one layout rather than to include too much information.

c. If you have a large number of hazardous materials on the inventory, do not try to include all the names of these on the layout. Number each storage or use area and relate the specific materials to these numbered areas either on the disclosure form or a separate sheet.

d. Include any information that you believe would be important to emergency response personnel.
INSTRUCTION FOR COMPLETION OF AN
EMERGENCY RESPONSE PLAN

The following is a checklist of items that must be included in your plan.

A. BUSINESS:______________________________________________________

B. ADDRESS:_____________________________________________________

C. PROCESSES IN WHICH HAZARDOUS MATERIALS ARE USED:

D. EMERGENCY RESPONSE NUMBERS

   Airport Emergency Communications .............................................(650) 876-2323
   State of CA Office of Emergency Services ...................................(800) 852-7550
   Ambulance _______________________ ................ ......................... ______________
   Medical Facility
   ________________________________________________________________

LOCATION OF TELEPHONE AND ALARMS

OTHER AGENCIES

   Poison Control Center ............................................................ (800) 876-4766

   State Department of Health Services
Toxic Substance Control Division ................. (800) 698-6942
Regional Water Quality Control Board ............... (510) 622-2300
Environmental Protection Agency ..................... (415) 744-1225
U.S. Coast Guard ........................................ (415) 556-2103
California Highway Patrol (SF) ......................... (415) 557-1094
Bay Area Air Quality Management District .......... (415) 771-6000
Caltrans .................................................... (800) 427-7623
National Response Center .............................. (800) 424-8802

E. EVACUATION PLAN

1. Method(s) of Alarm to Employees

2. Routes of Egress

3. Method to Account for all Persons

F. UNAUTHORIZED RELEASES OF HAZARDOUS MATERIALS

1. SPILL AND LEAK CONTAINMENT EQUIPMENT (availability and maintenance).

2. NOTIFICATIONS

If a spill or leak involves a significant quantity, or if the spill or leak cannot be easily contained and cleaned up by employees, or if spilled material creates any health or safety hazard to employees or the public:

Notify the Emergency Communications Office – (650) 876-2323 and the State Office of Emergency Services (800) 852-7550 or (916) 427-4341.

If employee injuries are involved, notify emergency medical services, the Poison Control Center, and CAL-OSHA.

PERSON(s) RESPONSIBLE FOR CONTACTING AGENCIES

NOTIFICATION OF ADJACENT OCCUPANCIES

3. SPILLS ON ROADWAYS

Notify CHP if on highway, Emergency Communications for Airport roads.

CONTAINMENT AND CLEAN-UP PROCEDURES FOR SPILLS ON ROADWAYS.

4. SPILLS AND LEAKS OF HAZARDOUS MATERIALS (Cont.)

a. MATERIAL(S)

PROCEDURES
b. MATERIAL(S) PROCEDURES

c. MATERIAL(S) PROCEDURES

d. MATERIAL(S) PROCEDURES

5. PROCEDURES FOR UNDERGROUND TANK LEAKS

Notify San Francisco International Airport, and the Regional Water Resources Control Board immediately. A full written report must be submitted within 5 days: Follow detailed procedures contained in the underground storage tank monitoring plan.

G. FIRES AND EXPLOSIONS

1. METHOD OF ALERTING OTHER EMPLOYEES
2. RESPONSIBILITIES FOR CALLING FIRE DEPARTMENT AND HEALTH DEPARTMENT

3. RESPONSIBILITIES FOR ALERTING PERSONS IN ADJACENT OCCUPANCIES

4. PROCEDURES AND RESPONSIBILITIES FOR SHUT OFF OF GAS AND ELECTRICITY

5. RESPONSIBILITIES FOR SHUTTING OFF EQUIPMENT

6. EMERGENCY EQUIPMENT (availability and maintenance)

7. PROCEDURES FOR CONTAINING SMALL FIRES

8. SPECIAL INSTRUCTIONS FOR FIRES INVOLVING HAZARDOUS MATERIALS

H. EARTHQUAKES

1. SAFEST LOCATION(S) IN BUILDING
2. METHOD TO ACCOUNT FOR ALL PERSONS

3. SHUT OFF OF GAS, ELECTRICITY, AND WATER

4. PROCEDURES TO SECURE AND ASSESS CONDITION OF HAZARDOUS MATERIALS STORAGE

5. PROCEDURES FOR CONTAINMENT OF SPILLED MATERIALS

6. NOTIFICATION OF EMERGENCY ASSISTANCE AND PUBLIC

I. INJURIES CAUSED BY HAZARDOUS MATERIALS

1. FIRST AID FACILITIES

2. MAINTENANCE OF FIRST AID FACILITIES

3. NOTIFICATION OF AMBULANCE AND MEDICAL FACILITY

4. NOTIFICATION OF CAL-OSHA

J. TRAINING

1. METHOD FOR TRAINING NEW EMPLOYEES

2. METHOD FOR ANNUAL REFRESHER TRAINING

3. METHOD FOR TRAINING EMPLOYEES IN SAFE HANDLING OF HAZARDOUS MATERIALS
4. METHOD FOR TRAINING EMPLOYEES IN THE USE OF EMERGENCY EQUIPMENT

5. METHOD FOR TRAINING IN PROCEDURES FOR SPILLS, FIRES, EARTHQUAKE
PART VI

CONSTRUCTION REGULATIONS
ARTICLE 601. GENERAL

This Part includes rules and regulations governing all tenant construction within Airport boundaries. Over and above codes, laws, orders, and special requirements under Part V, conditions outlined herein shall serve to insure all work proceeds with maximum of safety and minimum of Airport disruption. Because of high hazard conditions inherent to airports, these regulations, along with directives of Operations Division, shall be strictly enforced.

Sec. 601.1 Preconstruction Conference: Prior to commencement of construction, contractor shall attend a meeting, generally held in Facilities Operations and Maintenance Division Conference Room per Sec. 204.3, for following purposes:

A. Receive details instructions on security measures, including personnel and vehicular identification requirements.

B. Receive advice on special hazards and all restrictions related to vehicular movement and access.

C. Receive instructions on coordination requirements for work performed in conjunction with ongoing Airport construction outlined under Sec. 203.2, Paragraph H.

D. The contractor shall provide the Airport two 24-hour emergency telephone numbers.

E. The contractor shall be required to provide utility locating services to identify all existing utilities prior to commencing excavation and demolition work.

F. The Building Official shall reserve the right to direct the permit applicant to provide construction management services to ensure all coordination requirements will be complied at no cost to the Airport.

Sec. 601.2 Construction Space: Contractor shall develop traffic, storage and parking plan on basis of above instructions, and submit for approval to Construction Services Branch Building Inspection and Code Enforcement (BICE) Section. All fixed features shall be clearly identified.

Sec. 601.3 Safety, Hazards, and Job Cleanliness: Contractor shall develop a site-specific health and safety plan, and a site-specific stormwater pollution prevention plan, and submit for approval to Construction Services Branch, Building Inspection and Code Enforcement Section.
Sec. 601.4 Construction Safety Requirements: Contractor shall comply with the following rules and regulations described in this section for general safety requirements, driving safety requirements and emergency/accident reporting.

A. References

1. 29CFR, Section 1910.1001.
2. 40CFR61, Subpart M.
3. CCR, Title 8 Division 1, Chapter 4, Subchapter 4.
4. CCR, Title 22, Division 4
6. SFIA Rules and Regulations.
8. Airport Hazard Communication Program.

B. General Safety Requirements

1. Requirements listed in this section cover only those more significant safety features that must be considered. It is expected that Contractor may see additional hazards which, of course, must be dealt with as Federal, State, local and Airport Regulations require, in order to insure safety and health of all concerned. Contractor shall comply with all applicable Federal, State, local and Airport Rules and Regulations. Become familiar with the Airport’s Safety Program and Procedures (including Lockout and Tagout, Confined Space Entry, Excavation, Traffic Signs) and the Airport’s Emergency Plan. Both documents are available at Airport Safety Office in Engineering Building.

2. Contractor shall designate a safety representative(s) for the project who shall be on the site whenever work is being performed and who shall have the responsibility and authority to insure the safety of employees and property. The safety representative shall, as a minimum, have completed an OSHA 10 hour Hazard Recognition Course. The name and resume of the designated person(s), and documentation of course completion, shall be submitted to BICE for review. For projects over $10 Million the safety representative must have, as a minimum, 5 years diversified construction safety experience and 2 years of experience related to this Contract’s scope of work.
3. A representative of the Commission, along with the BICE Inspector, will make periodic safety inspections of construction areas and will document deficiencies when observed. Deficiencies will be submitted, in writing, to BICE for distribution to the Contractor. Contractor shall be responsible for reply to BICE within 24 hours as to what corrective action has been taken on the deficiencies.

4. Contractor shall conduct ongoing safety inspections of the work area. A formal inspection shall be conducted at least weekly and a copy of the inspection documentation shall be provided to BICE. This inspection will be in addition to the periodic inspections conducted by the representative of the Commission.

5. Contractor shall be responsible for providing safety training for its employees. This shall include, but not be limited to, hazard communication, use of personal protective equipment, fall protection, excavation safety, confined space and weekly “Toolbox” safety meetings.

6. Before commencing work:
   b. Establish respiratory protection, hearing conservation programs and implement as required.
   c. Require employees to wear hearing and eye protection, hard hats, sleeved shirts, long pants, adequate work boots, and fall protection and other special equipment that may be required to perform scope of work assigned in Contract in accordance with Federal, State and local standards. Fall arresting equipment consisting full body harness with shock absorbing lanyard attached to an approved anchor point is required when fall protection is required.
   d. Conduct walk-through with Airport Fire Marshal and meet all additional requirements imposed by Airport Fire Marshal at no additional cost to the City.
   e. Post on work site copy of Cal/OSHA “Safety and Health Protection on the Job” poster.

7. Contractor shall provide adequate first aid supplies on site for its employees and a person trained in basic first aid who can render immediate care when needed. Contractor will provide transportation to medical facility for injured employees with minor injuries. For major injuries, see Paragraph E.2.
8. Possession of illegal drugs, alcoholic beverages, and drug paraphernalia is prohibited. Being under the influence of illegal drugs or alcoholic beverages is prohibited.

9. Contractor shall insure that employees taking prescription medications notify their immediate supervisor who will make a determination as to the employee’s ability to operate equipment.

10. No one under Contractor’s employ or direction is permitted to enter Airport’s Control Rooms, Electrical Substations or Motor Control Centers unless authorized to do so.

11. No one under Contractor’s employ or direction is permitted to start, or in any way tamper with the Airport’s operating plant or equipment.

12. Employees shall be required to immediately correct all unsafe conditions and unsafe acts, and to report those that cannot be corrected to their supervisor.

13. Notify BICE at least 3 working days prior to hazardous work activity or receipt of hazardous substances which would endanger Airport’s property or employees, or general public. Provide Material Safety Data Sheet (MSDS) to BICE for hazardous substances used in Work.

14. Materials and equipment shall not be released from elevated locations in an uncontrolled manner; and area below elevated work locations shall be barricaded off to exclude all persons.

15. Provide personnel with protective clothing and equipment and insure compliance with Federal, State and local laws, rules and regulations pertaining to safety, including Contractor’s Code of Safe Practices. Provide reflectorized traffic vests for employees when working around or near moving vehicles or any type of mobile equipment either on Airport roadways or in AOA. Insure compliance with this provision.

16. Smoking is prohibited in the AOA.

17. Provide to employees, and insure compliance with, AOA Regulation requiring guide for vehicle or mobile equipment when operator’s vision is restricted.
18. Instruct employees working within AOA, including security guards and flaggers, on potential hazards of aircraft jet blast, right-of-way of aircraft, high sound levels, proper attire, safe procedures, etc.

19. Store materials and equipment in approved areas and in approved manner where they will not constitute hazard to Airport operations. Do not unreasonably encumber premises with unusual materials, equipment or scaffolding. After working hours, remove unauthorized equipment to a safe location as directed by BICE and Airport Fire Marshal. Inspect construction and storage areas as often as is necessary to insure safety of areas.

20. Electric tools and extension cords shall be grounded. Ground fault circuit interrupters (GFCI) shall be used whenever electrical tools or extension cords are used.

21. Hand tools shall be maintained in safe, usable condition.

22. Only authorized, properly trained, and licensed employees shall operate equipment, machinery, vehicles, and tools. Only the operator shall ride on any equipment.

23. Powder actuated tools shall be operated by licensed operators using the required personal gear.

24. Inspect ladders and scaffolding prior to use. Defective ladders or scaffolding shall be removed from service immediately.

25. Ladders shall have firm footing, secure at top, and extend 36 inches above landing level.

26. Secure compressed gas cylinders in upright position at all times. Valve caps shall be in place when cylinders are not in use. Transport and store cylinders in accordance with Federal and State standards.

27. At least 1 ten-pound ABC rated fire extinguisher shall be within 25 feet any time:
   a. Power tools (gasoline or electric) are being used;
   b. Welding, grinding, or other spark generating work is being done;
   c. Paint or cleaning solutions are being used.
28. A fire watch shall be utilized any time welding, grinding or other spark generating work is being done and 30 minutes after work is completed. No welding or open flames are permitted unless and until a welding permit has been obtained from the Airport Fire Marshal.

29. Install anti-flashback devices on fuel side of all fuel gas and oxy-acetylene welding and cutting torches.

30. Provide safety devices on air compressors with hoses exceeding 1-1/2 inch inside diameter at source of supply or branch line to reduce pressure in case of hose failure.

31. Provide a safe means of access for each work location on site.

32. Immediately inform BICE when Cal/OSHA inspectors visit site.

33. Blasting is prohibited on Airport. Any use of explosives or explosive devices must be approved by BICE.

C. **Driving Safety Requirements**

1. Operators of vehicles or equipment in the AOA must have passed a Vehicle Safety Test administered by the SFIA License and Permit Bureau and have the designation “DR” on their Identification Media.

2. Maintain vehicles in safe condition (i.e. operational headlights, brake lights, brakes, reverse horn, and unobstructed windshield). No fluid leaks of any kind.

3. Turn on vehicle lights between ½ hour after sunset and ½ hour before sunrise and while operating during periods of darkness or reduced visibility except when parked in areas designated by Airport Director.

4. Operate vehicles and equipment in a safe and orderly manner. Yield right-of-way to aircraft at all times. Runway and taxiway incursions will result in permanent removal of involved personnel from the Work. Depending on severity of incident, work cancellation is possible. Fine of $1,000 may be charged by City to Contractor.

5. Do not drive vehicles between aircraft and passenger terminal or passenger lane when aircraft is parked at gate position. Drive vehicles around aircraft away from passenger loading gates and passenger lanes.
6. Do not drive vehicles on taxiway side of double white line without positive escort from Inspector or Airfield Operations.

7. Do not operate vehicles within jet blast of running jet engine.

8. Do not transport loose debris or items which could be dropped from or blown out of a vehicle on Airport. Foreign object damage (FOD) to aircraft must be prevented.

9. All engines shall be shut off before refueling. Smoking is prohibited around all volatile fuels, vapors, or combustible material.

10. Do not leave vehicles unattended with engines running. Vehicle left unattended which poses hazard to aircraft will be towed and impounded at owner’s expense as directed by Airport Operations Supervisor.

D. Emergency and Accident Reporting

1. An emergency action program for the care of injured employees and for fire incidents shall be addressed in the Contractor’s Safety Plan.

2. Report emergencies (medical, criminal, vehicle accident, industrial accident, property damage) immediately to Airport Communications Control Center at 6-2323 from Airport telephones, and (650) 876-2323 from outside line telephones.

   a. Tell nature of emergency (e.g. male, 60 years, possible heart attack, unconscious, not breathing – or unauthorized male, approximately 30 years, acting irrational).
   b. Give location of emergency.
   c. Have escort stand by if possible.
   d. Stay on phone and give updates if possible.

3. Report all accidents/incidents to BICE.

4. Drivers of vehicles involved in an accident in AOA must file Accident Report with both Airfield Operations and Airport Police. Report is to be filed as soon as possible, but not later than 12 hours after accident.

5. Drivers of vehicles involved in an accident outside AOA, but resulting in injuries to Airport property must file Accident Report with Airport Police. Report is to filed as soon as possible, but not later than 12 hours after accident.
6. When industrial accident results in injury, submit copy of written Accident Report detailing accident to BICE within forty-eight (48) hours. Immediately notify BICE of serious injuries or illnesses defined in CCR, Title 8, Division 1, Chapter 3.2, Subchapter 1, Article 1, Section 330(h).

7. Contractor is responsible for complying with Airport Rules and Regulations and California Vehicle Code Sections concerning reporting of accident and property damage.
ARTICLE 602. PROJECT SIGNS

Sec. 602.1 Text: Generally, only one sign, limited to following text shall be permitted:

PROJECT TITLE
AIRPORT COMMISSION
ARCHITECT AND ENGINEERS
GENERAL CONTRACTOR

Additional Airport display may be included when approved by Construction Services Branch, Building Inspection and Code Enforcement Section.

Sec. 602.2 Size: Exterior signs shall be limited to 4 feet x 8 feet. Color, layout, location, construction and mounting, shall be subject to Construction Services Branch, Building Inspection and Code Enforcement Section approval and direction.
ARTICLE 603. HAZARD PROTECTION

Contractor shall limit his operations to areas specifically designated for performing his contract. Whenever a tenant is planning on making improvements which will require his contractor, subcontractor, supplier, serviceman, etc. to enter the Air Operations Areas, he shall furnish a letter in writing to the Airport Operations staff at the time of the preconstruction conference stating he will assume responsibility for damages caused by his contractor, subcontractor, delivery man, suppliers and warranty serviceman, to any and all persons, tenants of Airport Commission property.

Sec. 603.1 Runway and Roadway Use: Use of runways for hauling or any other means of access shall be strictly prohibited. Use of Terminal Entrance Road system shall be prohibited except as specifically permitted by Operations Services of the Operations Division and Construction Services Branch. Use of Apron/Taxiway areas shall be prohibited except as specifically permitted by Operations Services of the Operations Division and Construction Services Branch.

Sec. 603.2 Traffic Control: The Contractor shall provide for the safe and proper routing of vehicular and pedestrian traffic in a manner that will minimize congestion and delay thereof. The Contractor shall furnish, install and maintain all temporary signs, lights, flares, barricades, cones, guard rail, pavement bridges, stairs and other devices and facilities necessary to safeguard the general public and the work where and as required by conditions at the site of the work, and in addition to the requirements shown on the plans. Upon determination by Landside Operations of the Operations Division and Construction Services Branch that a site is inadequately protected, the Contractor shall furnish, place and maintain additional protective devices as required. Such devices and facilities shall be relocated as necessary to accomplish the proper routing of traffic as the work progresses and, upon conclusion of the need therefore, shall be removed from the site of the work as the Contractor's property.

Temporary signs, lights and devices, shall be in accordance with the Caltrans “Manual of Warning Signs, lights and devices for Use in Performance of Work Upon Highways.”

The placing of all roadway striping and markings shall be coordinated with the roadway construction and be accomplished in stages as safety and efficient traffic movement requires. The procedure for Traffic Operations changeovers shall be as follows:

1. All required regulatory warning and directional signs must be installed in place prior to the changeover. The installed signs shall be covered with cardboard, taped paper or other satisfactory method until they are to take effect.

2. Roadway re striping shall proceed in stages in order to maintain efficient and safe traffic control at all times.
3. As each area is re-stripped the applicable signs are uncovered and the obsolete signs shall be covered by the same methods in (#) above to affect a changeover of traffic operations.

4. The covered obsolete signs that are no longer required shall then be removed.

Roadway striping and markings shall conform with Caltrans Standards for “reflective pavement painting.” All Airport roadways stripings and markings which are to be abandoned and/or to be removed shall be obliterated by sand blasting or a method approved by Landside Operations of the Operations Division and Construction Services Branch. Painting out existing roadway markings is prohibited.

Traffic sign installation shall be in accordance with the State of California Dept. of Transportation, Standard Plans for “Roadside Sign Posts” - Typical Installation Details No. 2 (S4Z-15).

Airport signs (Regulatory, Warning and Directional) shall be maintained at all times throughout Construction projects for the safety and convenience of the general public. If a Contractor must remove signs temporarily due to construction phase, he must maintain the existing signing (on skids) in the general area.

Contractor shall furnish flagger during all times when equipment is working or traveling on Entrance Road System, all other Airport Roadways, and in Apron/Taxiway area. Flagger shall wear red jackets and use red flags of an area not less than two square feet.

Sec. 603.3 Airport Access: Airport Security Regulations require that all personnel within the field side of the Airport, including runways, taxiways, aprons, ramp and grading areas, as well as other areas designated by the Airport as requiring security precautions, shall display on their outer garment proper identification in a readily visible manner. In addition, no vehicle shall be operated within Air Operation areas without a proper vehicle permit.

The Airport will review the Contractor's determination of the number of vehicles that are required to be in air operations and restricted areas and will issue the number of requirement permits.

Access permits for prime contractor or subcontractor vehicles to enter or park in restricted or air operations areas will be issued (subject to review) to authorized persons or companies upon receipt of a written request from the prime contractor to the Construction Coordinator assigned to the project. Request must state location of work hours and days of work, length of contract and number of permits needed.
The prime contractor will be responsible for applying for and the issuance of access permits to all subcontractors involved in the prime contract. No permits will be issued directly to subcontractors by the Construction Coordinator.

Access permits shall not be used on any employee owned vehicles. Violation of this rule can result in immediate cancellation of all access permits issued to the prime contractor.

If access to Airport property by contractor's equipment is through gate that is normally closed to general public, the contractor shall post this gate with a licensed security guard and provide one sign stating “Restricted Area - Keep Out” in four-inch letters.

Sec. 603.4 Hauling: Contractor shall be permitted to use portions of existing Airport for hauling or other operations provided such use does not interfere with or constitute hazard to air navigation or other Airport activities, and does not endanger or damage pavements, drainage pipe lines or structures, duct lines, lighting system lading field areas, or other improvements. All such use or occupancy shall be subject to approval by Operations Division and Construction Services Branch, and if it proves in any way objectionable, contractor shall modify his arrangements so as to eliminate the objection. Location and grade of any temporary construction for convenience of contractor shall also be subject to approval. No vehicular traffic shall be permitted on any of existing fine graded field areas.

Whenever the Contractor is hauling pavement base, dry fill, or other granular materials of debris on or across aprons, taxiways, roads or runways, he shall take all necessary precautions to prevent any spillage or dropping of material or debris from his haul vehicles. If and when such spills occur, the Contractor shall be especially diligent in promptly cleaning them up. It is emphasized that even the smallest spills of rock or debris may be hazardous to aircraft until cleaned up.

The Contractor's particular attention is directed to the requirement that he shall obtain earth-haul permits from all local jurisdictions which may require such permits for restricted hauling routes.

Sec. 603.5 Access Roads: Contractor shall without additional compensation, construct and maintain such access roads as may be necessary for his work at points approved by Landside Operations of the Operations Division and Construction Services Branch, and shall remove them to extent directed on completion of work. Contractor shall, without additional compensation, provide suitable drainage by ditches or pipe culverts for his access roads.
Sec. 603.6 Pavement Damage: Any damage to existing Airport pavement, roads, bridges, drainage pipe lines, duct lines, lighting system, or other improvements on City property caused by contractor's operations shall be repaired by him at his own expense, to satisfaction of Technical Services Branch.

Sec. 603.7 Bridging: For hauling through specially installed accesses to Airport property, bridges or culverts constructed over intervening drainage channels shall be designed so as not to restrict flow of water in channels. Said installations shall be provided as directed without Airport compensation.

Sec. 603.8 Obstructions: Airport will be in continuous use during period of proposed work. Contractor shall conduct his operations, under the direction of Construction Services Branch, so that interference with normal use of field shall be held to minimum. Where trenches are opened in existing apron, runway or taxiway areas, work shall be so conducted as to permit Airplane access over pavements to all parties to all parts runway, or taxiway. Timber planking over such trenches shall be provided as directed without Airport compensation. Trenches opened across taxiways or near runways must be filled to level each day.

Sec. 603.9 Equipment Marking: Contractor shall properly mark all equipment, structures and obstructions caused by his operations within landing field area with flags by day, with stiffeners to prevent drooping, and with red lamps or flares of approved size and distribution by night or during periods of poor visibility. Flags for vehicles shall not be smaller than 3’ x 3’ consisting of a checkered pattern of international orange and white squares of not less than one foot on each side, and mounted above highest point on vehicle or equipment used on field. Contractor's equipment shall be parked at least 500 feet from any runway and taxiway. Flags and lights shall be used in sufficient number to give a good definition of hazard and shall be of such height that market is supported free of ground or vegetation. Such mounts or any barricades shall be so constructed to stay upright under adverse wind or aircraft blast conditions. Equipment and structures such as hoisting towers, pile drivers, etc., shall be marked at the top by not less than two red 100 watt electric lamps above the top of the equipment, at night and during periods of poor visibility, and by two flags above the top of the equipment by day. Equipment in excess of fifty (50) feet in height above ground level shall be painted, including interior surfaces of skeletal members, in alternating bands of international orange and white. The width of the bands shall be 1/7 of the total height or not less than seven (7) feet in width or whichever is the largest. The top band shall be international orange. Any deviation must have the approval of the Operations Services of the Operations Division and Construction Services Branch.
Sec. 603.10 Runway Shut-down: When it becomes necessary to close off section of runway to facilitate work, contractor shall mark portion of runway so closed by approved large flags during daylight hours and by approved flasher lights during hours between sunset and sunrise and during times of low visibility. When section of taxiway is closed, approved electric lights (360° visibility) shall be used to mark closed area.

Sec. 603.11 Lighting: Contractor shall maintain proper lights each night between hours of sunset and sunrise upon all obstructions of such size and in such locations as to endanger or obstruct traffic, and shall be responsible for all damages to persons and property resulting from his failure to maintain such lights. Contractor shall designate personnel to replace or relight such markers or barricades and shall provide Technical Services Branch or Construction Services Branch with their names and telephone numbers for use in summoning them as necessary. Cal OSHA lighting standard shall prevail.

Sec. 603.12 Parking: Parking space for the personal automobiles of the contractor's employees who are employed in the terminal area, must be obtained from the public parking areas on a standard fee basis. The contractors service trucks may operate within the terminal area after arrangements have been made with both Airport Operations and Police.

When construction is outside the terminal area, parking space may be available for the contractor's employees. The exact location will be designated by the Airport Operation Division upon the recommendation of the Construction Services Branch.

Any area designated for parking of 3 or more vehicles located within the field operations area of the Airport, shall be fenced or barricaded as directed by the Construction Services Branch.

Sec. 603.13 Toilet Facilities: For work within Terminal Sector Buildings, facilities shall be specifically assigned by the Construction Services Branch.

Sec. 603.14 Airport Operations: The Contractor shall conduct his operations, as directed by the Construction Services Branch, so that interference with the use of the Airport and annoyance to the patrons, visitors, and operating personnel will be held to an absolute minimum. The Contractor's operations shall be conducted in compliance with the rules, regulations, and requirements of the Airport relating to the safety and convenience of the public, to the safeguarding and protection of Airport property, and to Airport Operations.
Airport security shall be maintained at all times. If the construction program calls for any change in security as required by the FAA, such construction program shall be reviewed by the FAA Field Security Office. No area shall be left open to the public, which would allow free access to the Air Operations area. Access shall be controlled in such a manner as to satisfy FAA standards as outlined in FAA 107 and 121.538. Failure to meet these standards will cause a shut-down of construction operations. Any change in security provisions must have prior approval of the Superintendent of Operations (Administration).

**Sec. 603.15 Closure of Airfield Facilities** The prime contractor is responsible for complying with specific procedures as required by the Construction Services Branch when the closure or interruption of routine operations in the airfield area is required due to this contract work. Specific procedures such as advance written notice of closure required or use of areas which affect Airfield operations are mandatory and must be processed through the project inspector.
ARTICLE 604. DEMOLITION

All work shall be accomplished with a constant effort to eliminate unnecessary noise, dust, obstructions, and other annoyances. Contractor shall not unreasonably encumber premises with unused materials, equipment, or scaffolds. Publicly occupied buildings shall be kept fully in operation and free from accumulations of waste materials at all times. “Stage Construction” shall be planned to facilitate the work and to permit maximum protection of public.

**Sec. 604.1 Utilities:** Properly protect, relocate and remove existing utilities encountered in work. If existing utilities are not indicated, but encountered, notify Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section and agencies having jurisdiction in ample time for necessary measures to be taken for protection, relocation, or removal thereof. No demolition work shall disrupt any existing facilities including telephone and electrical cables and conduits until these have been rerouted.

**Sec. 604.2 Bulk Materials:** Concrete, plaster, terrazzo and other debris shall not be brought through public lobbies, corridors or concourses except by expressed permission of BICE. Any construction material stored in areas accessible to public shall be protected by suitable barricade.

**Sec. 604.3 Scheduling of Operations:** Prior to starting work, submit to BICE detailed schedule for proposed methods and sequence of work for approval, including estimated dates for starting and finishing each operation. Work shall be conducted in accordance therewith.

**Sec. 604.4 Protection of Property:** Adequately protect existing work against damage. Safely protect all utilities, conduits, piping, etc., whether shown on drawings or not, and maintain all walkways and pedestrian areas in safe, usable conditions.

**Sec. 604.5 Shoring and Bracing:** Provide adequate supports to insure protection of existing structures and installations. Said protection shall be subject to approval by BICE.
**Sec. 604.6 Methods**: Special care shall be taken in demolition and removal of materials within or adjacent to occupied structures. Concrete walls and slab shall be cut in neat, straight lines, using tools and methods producing least noise and dust. Saw slab kerfs as deep as possible before employing air tools for break-up. Use of air tools, power saws, power driven studs, etc., inside Terminal Buildings, Concourses, Connectors, and Piers shall be restricted to the period between 1 A.M. and 6 A.M. At other hours, written permission of Construction Branch shall be obtained. All openings or cut holes shall be protected from rain or inclement weather with tarpaulin. All broken debris shall be removed from Airport.

**Sec. 604.7 Piling**: Piles shall be removed completely or cut-off at an elevation at least five (5) feet below ground surface, or Elev. + 2.0 feet (Airport Datum), whichever is lower, or as directed by Technical Services Branch.

**Sec. 604.8 Final Cleanup**: Upon completion of work, all rubbish from, in and about the building, including all surplus materials, shall be removed. Areas within terminal buildings, including spaces adjacent to work, shall be left broom clean at the end of each workday. If, upon completion of work, and after three (3) days prior notice by Engineer to remove all debris and rubbish, such debris and rubbish have not been removed, Airport shall undertake work and tenant and/or his contractor shall be liable for costs.

**Sec. 604.9 Removal and Dumping**: All demolished materials shall be removed from Airport within 5 days.
ARTICLE 605. TEMPORARY CONSTRUCTION

All work shall comply with applicable provisions of Federal, State and Municipal safety laws and building codes. It shall be accomplished with a constant effort to eliminate unnecessary noise, dust, obstruction, and other annoyances and shall not encumber premises and adjoining areas with materials, equipment, or parking of cars.

Sec. 605.1 Fences and Barricades: Contractor shall provide barricades, fences, canopies, guard rails, warning signs, steps, and property required for conditions of work. Adequate lights shall be provided and/or maintained for all walks used by public during construction period. Permanent openings used as thorough-fares shall be safeguarded by solid boarding. All major construction areas accessible to public shall be fenced or barricaded.

A. Material: provide and maintain 8-foot high solid wood barricades at any exterior location of public spaces of sufficient strength to withstand a 15 pound wind load.

Within the terminal complex where barricades can be viewed by the general public, barricades must be constructed with minimum 5/8-inch thick gypsum board, taped, painted and installed with a vinyl base to match surrounding areas.

B. Color: Paint barricades, two-coat application, in colors to match surrounding areas.

Sec. 605.2 Scaffolds and Runways: Contractor shall provide all scaffolds, runways, guard rails, platforms, and similar temporary construction necessary for performance of contract. such facilities shall be of type and arrangement as required for their specific use, shall be substantially constructed throughout, strongly supported, and well secured.

Sec. 605.3 Ladders, Ramps and Stairs: Contractor shall provide accesses between different levels of structure. Permanent stairways within Terminal Sector buildings shall be used only at discretion of Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section, and shall be protected against damage. Open walls and shafts shall be enclosed with railing of 42-inch height, provided with top rail, intermediate rails not more than 9” on center and toeboards of 6” height.

Sec. 605.4 Structures: All weather-tight enclosures shall have raised wood floors, solid sheathed composition roofs, and adequate windows and screening for light and ventilation.

A. Offices: If a contract has sufficient scope and duration to require a separate office it shall have adequate heat, lights and telephone service.
B. **Storage Sheds:** Contractor shall provide secured enclosures for proper storage of tools, materials and equipment employed in performance of work.

**Sec. 605.5 Utilities:** Provide and maintain all necessary utilities, including special connections to water supply, telephone and power lines. Connections and extensions shall be installed according to respective Articles under Design and Materials Standards, and shall be maintained throughout construction period.

**Sec. 605.6 Maintenance:** All work shall be maintained in serviceable condition at all times and shall remain in place until their removal is ordered by BICE. All installations exposed to public view shall have a neat, clean, attractive appearance. Touch up paint as required during construction. Exposed unpainted structures shall not be permitted.

**Sec. 605.7 Removal:** All work shall be dismantled and removed from site within five (5) days. Upon completion of work, all remaining structures shall be removed and premises left in original condition.
ARTICLE 606. PLANT AND EQUIPMENT

Complete provisions for fabricating, assembling, handling, conveying, installing and erecting all work and materials required under contract.

**Sec. 606.1 Equipment:** Plant shall include all hoists, derricks, and conveyances for transporting and placing materials and all tools, appliances, power equipment, and implements of service that are necessary or customarily incidental to construction of nature indicated or specified. Plant shall facilitate proper and timely performance of all operations under contract.

**Sec. 606.2 Operating Conditions:** All plant and equipment shall be maintained in safe and efficient operating condition; all parts deemed unsafe, defective, or in any way inadequate for proper performance of work by Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section shall be promptly removed from site and replaced with corresponding plant and equipment and uses made thereof. Remove plant and equipment from site as rapidly as progressive completion of operations will permit.
ARTICLE 607. WORK IN PLACE PROTECTION

Installed work that is subject to damage because of operations adjacent thereto, shall be covered, boarded up, and otherwise substantially protected.

Sec. 607.1 Impact Protection: Permanent openings used as thoroughfares for introduction of work and materials to structure shall have heads, jambs, and sills well blocked and boarded. All forms of protection shall be such as will be deemed safe and sufficient by Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section.

Sec. 607.2 Weather Protection: Provide complete protection from all weather conditions to existing and new work. Remove and replace all damaged work and materials. Specifically, roof openings shall be provided complete protection.

Sec. 607.3 Fire Protection: Immediately following initial delivery of combustible materials at site of work, and throughout construction storage period thereafter, contractor shall supply and maintain suitable means of fire protection. It shall consist of either portable extinguishers, or approved wet standpipes, firelines, valves, hoses and nozzles of types, numbers, and locations approved by Airport Fire Department.
ARTICLE 608. EXCAVATION

All excess material shall be hauled off Airport and disposed of by tenant. All excavation work shall comply with applicable erosion control requirements and Airport’s Stormwater Pollution Prevention Program (SWPPP).

**Sec. 608.1 Trenching:** When necessary to trench across pavements of active roadways, taxiways, aprons, or runways, contractor shall provide safe diversion for vehicular or aircraft traffic. All pipes shall have a minimum burial depth of four feet. Pipes crossing paths of aircraft shall be able to withstand wheel loads with tire pressure of 250 psi minimum. Submit plans or proposal to Construction Services Branch, Building Inspection and Code Enforcement (BICE) Section for review and approval at least ten (10) working days prior to trenching operation.

**Sec. 608.2 Backfill:** Fill replacement shall be of equal quality to that of adjacent soil and finish grade shall conform to existing adjacent pavement. Pavement shall be replaced in kind as to type, texture, depth, and quality of original construction. Use of contaminated or recycled materials for backfill shall not be permitted. Refer to Article 502 of this document. Substitute material shall be used only upon receipt of written approval by BICE.

**Sec. 608.3 Utility Locating:** The contractor shall be required to provide utility locating services to identify all existing utilities prior to commencing excavation and demolition work.
ARTICLE 609. VACATING PREMISES
In preparation to vacate Airport premises, Tenant shall comply with obligations of his lease or permit agreement, and following general requirements:

Sec. 609.1 Removal: Depending upon conditions of individual agreements, retain or remove all or part of improvements constructed by the tenant.

Sec. 609.2 Repair and Clean-up: All damage to premises over and above ordinary wear and tear caused during occupancy or by removal process shall be repaired by Tenant. Premises shall be left broom clean.

Sec. 609.3 Vacating Procedure: The following procedures shall be followed when a tenant desires to vacate leased or rented premises:

1. Upon notice from a tenant of a pending “move-out” date the Airport Business and Finance Division will make arrangements for a joint inspection, including the tenant's representative, of the premises after they have been vacated.

2. Based upon the condition of the area released and the terms under which the occupancy existed decision will be made as to whether the tenant has exceeded “fair wear and tear”. For this purpose the inspection team may include representation from the Airport's Maintenance Branch.

3. Tenant's surrender of keys will be accepted at the time of inspection if the premises are in good order and condition. If not, surrender of keys will be accepted after restoration of premises. Control and custody of keys is the responsibility of the Airport's Operations Division.

4. Security of premises when vacated is the responsibility of the Airport Police Division.

5. Access to vacated premises is restricted to prospective tenants as conducted or authorized by the Airports Business and Finance Division.

6. Tenants are admonished that, to the extent possible, rents on vacated premises will continue until surrender of keys which follows restoration, if necessary.

7. Tenant shall arrange for final meter readings at time of space surrender.

8. Tenants shall remove from premises and other adjoining locations, all telecommunications and all other low voltage special systems cables which are not integrated with Airport’s Special Systems and Communications Systems if use of the system(s) is discontinued.
PART VII

STANDARD DETAIL DRAWINGS
PART VIII

SFIA CAD STANDARD
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<td>Appendix B: CAD STANDARD SOFTWARE</td>
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<td>Appendix C: MAP REQUEST AND RELEASE</td>
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<td>Appendix D: DRAWING NUMBER</td>
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<td>Appendix E: FACILITY NAMING</td>
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</table>
Room Number ................................ ................................ ............... E-3
Door Number ................................ ................................ ................. E-3
INTRODUCTION

The San Francisco International Airport (SFIA) CAD Standard is a conclusive guideline for producing deliverable CAD drawings and Airport contract related documents. This manual defines the organization of engineering and architectural related data in three major areas: format and layout of a CAD drawing, naming and organization of a drawing/document, and requirements for submitting final deliverables. It does not explain, nor will it replace, the overall objectives and requirements of an Airport contract. This manual should be used in conjunction with Airport contract specifications and/or agreements. If there are any discrepancies between this manual and Airport contract specification, please contact your Airport Project Manager or Engineering Information Services (EIS) for clarification.

The content of this manual supersedes all previously published Standards and is subject to change without notice. As of January 23, 1998 all contents stated in this CAD Standard will be fully enforced. SFIA shall not be liable for errors and omissions in this standard. To obtain the latest version, offer comments, or report any errors or omissions, please contact:

Engineering Information Services  
Facilities, Operations and Maintenance  
San Francisco International Airport  
PO Box 8097  
Building 676, McDonnell Rd  
San Francisco, CA 94128  
(650) 794-5511

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Organization of the Manual

This manual is designed and structured for both SFIA employees and SFIA consultants or contractors. Information covered herein applies to both parties unless otherwise stated.

Convention

UPPERCASE Key words such as AutoCAD commands, subject/title matters or unique identifiers appear in uppercase letters, for example:

INSERT, XREF and DDUCS are AutoCAD commands;
ROMAND font style;
SFIAPROT.DWT is the default SFIA prototype drawing name;

Courier Text that you are asked to enter will appear in courier font. For example, you enter the insert command like this:

Command: insert

Courier Italic Direction or information that prompts you for a response will appear in courier Italic font, for example:

Command: copy
Select objects:

Label Explicit or exclusive information for a single party, the appropriate labeling will proceed the information. There are only two labels in this manual – Airport and Consultant. For example,

Airport Airport employees are hired personnel of the SFIA through the Civil Services hiring process.

Consultant A group of individuals that obtain association with SFIA through contract acquisitions.

Abbreviation / Denotation

CAD Computer Aided Design and Drafting
SFIA San Francisco International Airport
PM Project Manager
PE Project Engineer
EIS Engineering Information Systems
Standard SFIA CAD Standard
AIA American Institute of Architects
OSHA Occupational Safety and Health Administration
ANSI American National Standards Institute
CHAPTER 2

REQUIREMENT

This chapter details the necessary requirements for submitting contract drawings and related documents. Requirements stated in this chapter apply to outside agencies as well as Airport employees. Only drawings and documents that adhere to the requirements covered hereinafter will be accepted. All non-compliant drawings and contract related documents would be rejected and returned to the originator.

**Airport** Project coordinators and draftspersons are both responsible for checking and complying with these requirements for all in-house contracts.

**Consultant** Primary consultants and contractors are responsible for checking and complying with these requirements for all involved Airport contracts.

**Data Format**

- Always use the latest release version of AutoCAD and/or Softdesk when creating contract drawings; and always use the SFIA prototype, SFIAPROT.DWT, as your default drawing settings; **Consultant** See Appendix B - CAD Standard Software for more information.

- Every contract must have a cover sheet and every drawing must have a title block. Both cover sheet and title block must be placed in PAPER SPACE. See Chapter 3 - Cover Sheet and Title Block for more information.

- The default coordinate system is SFO-B unless otherwise stated and approved by EIS. See Chapter 6 - Coordinate System for more information.

- **Consultant** Only the Airport specified control points and grid systems can be used to establish the drawing/project location. See Appendix C – Map Request and Release for instructions on obtaining a copy of Airport control points and grid systems.

- Drawing units must be set to decimal units with one base unit equals to one foot for engineering drawings with the exception of architectural drawings. The drawing units for architectural drawings is architectural units with one base unit equals to one inch.

- **Airport** Only one basemap drawing, XBASEMAP.DWG, can be used per contract. This basemap drawing must be placed in the DWG subdirectory. i.e. C:\1234\DWG (see the Directory Structure section of Chapter 5 - Document Management for more information.)

- **Consultant** Only one basemap drawing, XBASEMAP.DWG, can be used per contract.

- Sharing of the basemap should be done through XREF instead of INSERT. See Appendix C - Map Request and Release for instructions on obtaining a copy of the latest Airport basemap.

- Layer definition and usage must comply with Chapter 7 - Layer.

- Symbol/blocks can not be exploded and its definition and usage must comply with Chapter 8 - Symbol. Nested blocks are not allowed.

- Drawing entities must be created in full (1:1) scale and placed in MODEL SPACE.
Every drawing sheet must have an appropriate SFIA title block. Since a drawing file can have multiple drawing sheets, multiple viewports must be setup to accommodate multiple title blocks. The following table lists the standard Airport title blocks with their corresponding sheet sizes.

<table>
<thead>
<tr>
<th>FILE</th>
<th>NAME</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFOTBA</td>
<td>A size Cover sheet / Title Block</td>
<td>8 1/2 x 11</td>
</tr>
<tr>
<td>SFOTBB</td>
<td>B size Cover sheet / Title Block</td>
<td>11 x 17</td>
</tr>
<tr>
<td>SFOTBC</td>
<td>C size Cover sheet / Title Block</td>
<td>18 x 24</td>
</tr>
<tr>
<td>SFOTBD</td>
<td>D size Cover sheet / Title Block</td>
<td>24 x 36</td>
</tr>
<tr>
<td>SFOTBE</td>
<td>E size Cover sheet / Title Block</td>
<td>30 x 42</td>
</tr>
<tr>
<td>SFOTBJ</td>
<td>J size Cover sheet / Title Block</td>
<td>36 x 48</td>
</tr>
</tbody>
</table>

_Airport_ title blocks are located in R drive. It is recommended to insert the title sheet using the custom “SFIA” program. _Consultant_ title blocks are included in the accompanying floppy disk, see section TITLEBLK of Appendix B – CAD Standard Software for more information.

**Cover Sheet**

The first page in the drawing package of a contract is the cover sheet. The cover sheet contains the contract number, title of the project, index for drawings, abbreviations, symbols and notes used in the package. The cover sheet should be created from the title block file and the sheet number is always named G1.

**Title Block Attribute**

Attributes in each title block contain descriptive information of a drawing sheet. The following table lists every attribute within a title block. Note: The listing order is the editing order.

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Number</td>
<td>Contract number</td>
</tr>
<tr>
<td>1st Line of Project Name</td>
<td>Contract title</td>
</tr>
<tr>
<td>2nd Line of Project Name</td>
<td>Contract title</td>
</tr>
<tr>
<td>1st Line of Sheet Name</td>
<td>Sheet name</td>
</tr>
<tr>
<td>2nd Line of Sheet Name</td>
<td>Sheet name</td>
</tr>
<tr>
<td>Designer</td>
<td>The name of the project designer</td>
</tr>
<tr>
<td>Drafter</td>
<td>The drafter’s name</td>
</tr>
<tr>
<td>Checker</td>
<td>The checker’s name</td>
</tr>
<tr>
<td>Drawing Scale</td>
<td>The scale of the plotted drawing</td>
</tr>
<tr>
<td>Date (Month &amp; Year)</td>
<td>The date the design was completed</td>
</tr>
<tr>
<td>Drawing Number</td>
<td>The Airport drawing number (Airport Only)</td>
</tr>
<tr>
<td>Revision Number</td>
<td>The revision number</td>
</tr>
<tr>
<td>Sheet Number</td>
<td>The drawing sheet number</td>
</tr>
<tr>
<td>Sequence Number</td>
<td>The drawing sequence number in the entire project set</td>
</tr>
<tr>
<td>Total Number of Sheets</td>
<td>Total number of sheets in the entire project</td>
</tr>
<tr>
<td>Copyright (Year)</td>
<td>The copyright year</td>
</tr>
<tr>
<td>Drawing File Path</td>
<td>The full directory path of the drawing file</td>
</tr>
</tbody>
</table>
Size and Dimension

SIZE – A
8 ½” x 11”

SIZE – B
11” x 17”
The Airport sheet number is based on an adaptation of the AIA standard. Every sheet number consists of four parts: Discipline, Group, Sub-Group and Sub-Group Sequence. Discipline refers to the appropriate discipline of the drawing; Group and Sub-Group refer to a predefined drawing design of a particular discipline; and Sub-Group Sequence identifies the number of sheets within a particular Sub-Group.

All drawing sheets follow the above sheet numbering scheme with the exception of the cover sheet. The sheet number of a cover sheet is always named G1. The following table is the comprehensive list of drawing sheet numbers used by SFIA. No other sheet numbers will be accepted.

### Civil Drawing Sheet
- C1.1.1 Title Sheet
- C2.1.1 Existing Topography
- C2.2.1 General / Layout Plan
- C2.3.1 Phasing Plan
- C3.1.1 Existing Utility Plan (100 scale)
- C3.2.1 New Utility Plan (100 scale)
- C3.3.1 Drainage Plan (40 scale)
- C3.4.1 Piping Profile
- C3.5.1 Manhole Detail
- C3.6.1 Catch Basin Detail
- C3.7.1 Raising and Lowering of Utilities
- C3.8.1 Drainage Detail
- C4.1.1 Existing Paving Plan
- C4.2.1 Demolition Detail
- C4.3.1 New Paving Plan
- C4.4.1 Paving Detail
- C4.5.1 Paving Grading Plan
- C5.1.1 Profile Plans
- C6.1.1 Cross Sections
- C7.1.1 Stripping Plan
- C8.1.1 Miscellaneous Detail
- C8.2.1 Vehicle Parking Detail

### Structural Drawing Sheet
- S0.1.1 General Note
- S1.1.1 Site Work
- S2.1.1 Framing Plan
- S3.1.1 Elevation
- S4.1.1 Schedule
- S5.1.1 Concrete
- S6.1.1 Masonry
- S7.1.1 Structural Steel
- S8.1.1 Timber
- S9.1.1 Special Design

### Architectural Drawing Sheet
- A0.1.1 General Note
- A1.1.1 Demolition, Site Plan Temporary Work
- A2.1.1 Plans, Room Material Schedule, door Schedule Key Drawing
- A3.1.1 Sections, Exterior Elevation
- A4.1.1 Detailed Floor Plan
- A5.1.1 Interior Elevation
- A6.1.1 Reflected Ceiling Plan
- A7.1.1 Vertical Circulation, Stair, Elevator, Escalator
- A8.1.1 Exterior Detail
- A9.1.1 Interior Detail
The management of Airport documents is an adaptation of the PC directory and file naming standards. Documents are stored in hierarchical relationships and separated into directories and subdirectories. File names are eight characters long with a three-character extension. Long file names are not acceptable.

Directory Structure

**Airport**

Currently, there are three document storage areas in the Airport:

<table>
<thead>
<tr>
<th>Drive Letter</th>
<th>Drive Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>P:\</td>
<td>on-going contract documents</td>
</tr>
<tr>
<td>Q:\</td>
<td>Completed contract documents</td>
</tr>
<tr>
<td>R:\</td>
<td>Contains reference or static data that is shared among contracts</td>
</tr>
</tbody>
</table>

All three drives are network drives that require network access accounts. If you have problems accessing these drives, please see the EIS Network Administrator for assistance.

P drive is organized into directories with each directory representing an on-going contract. Logically, the contract number is the directory name. Furthermore, each contract directory is divided into three subdirectories: DWG, SPC and DOC. The DWG subdirectory contains contract design drawings, the SPC subdirectory contains contract specifications, and the DOC subdirectory contains documents other than design drawings and contract specifications. Note: It is important that all associated contract documents are appropriately stored underneath the associated directory and subdirectories.

Depending on the needs or requirements of a contract, additional directories within the three subdirectories can be established. The number of subsequent subdirectory needs to correlate with the number of disciplines involved in the contract. For example, if civil and mechanical engineers are the only groups involved in a contract, then for each of the three subdirectories, there are two subsequent subdirectories for both Civil and Mechanical. See Table 5–1 for the break down of P drive directory structure.

Note: For ease of identification, the immediate subdirectories of a contract directory are referred to as Subdirectory 1 and any subsequent subdirectory underneath Subdirectory 1 is called Subdirectory 2. Every entry listed in both Subdirectories 1 and 2 are the actual directory name.

<table>
<thead>
<tr>
<th>Contract Number</th>
<th>DOC</th>
<th>DWG</th>
<th>SPC</th>
<th>ARC</th>
<th>ASB</th>
<th>BPL</th>
<th>CST</th>
<th>CVL</th>
<th>ELT</th>
<th>MEC</th>
<th>STR</th>
<th>TEN</th>
<th>i.e. P:\1234/DWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.e. P:\1234</td>
<td></td>
<td></td>
<td></td>
<td>Architectural</td>
<td>As-Built: applicable only to DWG</td>
<td>Boiler Plate: applicable only to SPC</td>
<td>Consultant: applicable to DWG and DOC</td>
<td>Civil</td>
<td>Electrical</td>
<td>Mechanical</td>
<td>Structural</td>
<td>Tenant: applicable to DWG and DOC</td>
<td>i.e. P:\1234/DWG/CVL</td>
</tr>
</tbody>
</table>

Table 5–1: Directory Structure of P Drive
An automated Contract Directory Creation routine has been implemented via the customized Menu called SFIA in WordPerfect for Windows. This routine will automatically generate all necessary contract directories into P drive once users specified the contract number.

When a contract is completed, it will be transferred to Q drive as it exists. Thus, the directory structure of Q drive is the same as P drive. Since only contracts that are completed can be placed in Q drive, Q drive is set to read-only.

Since R drive contains reference information, directories are structured by disciplines rather than contract numbers. See Table 5–2 for the structure and contents of R drive. Please note that every entry listed is the actual directory name. Note: R drive is also marked as read-only. If changes are needed, please notify the CAD Manager in EIS for updates.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Subdirectory 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC (Architectural)</td>
<td>DET (Detail)</td>
</tr>
<tr>
<td>CVL (Civil)</td>
<td>SYM (Symbol)</td>
</tr>
<tr>
<td>ELT (Electrical)</td>
<td></td>
</tr>
<tr>
<td>MEC (Mechanical)</td>
<td></td>
</tr>
<tr>
<td>STR (Structural)</td>
<td></td>
</tr>
<tr>
<td>SUR (Survey)</td>
<td></td>
</tr>
<tr>
<td>GEN (General: Information that is shared among disciplines)</td>
<td>SYM</td>
</tr>
<tr>
<td></td>
<td>PRO (AutoCAD Prototype)</td>
</tr>
<tr>
<td></td>
<td>TSH (Title Sheet and Title Block)</td>
</tr>
<tr>
<td>SPC (Specification)</td>
<td>ARC</td>
</tr>
<tr>
<td></td>
<td>BPL (Boilerplate)</td>
</tr>
<tr>
<td></td>
<td>CVL</td>
</tr>
<tr>
<td></td>
<td>ELT</td>
</tr>
<tr>
<td></td>
<td>MEC</td>
</tr>
<tr>
<td></td>
<td>STR</td>
</tr>
</tbody>
</table>

Table 5–2: Directory Structure of R: Drive

**Consultant**

Deliverables must be organized in a single directory structure for each contract submittal without any subdirectories. The name of a directory is the associated contract number. For example, if you are to submit two contracts, #1000, #2000, information within the deliverable media should be placed in directory 1000 and 2000 respectively.

**File Naming**

The filename structure of all SFIA contract documents is based on the DOS filename structure, a maximum of eight-character name with a three-character extension. The naming scheme is different for CAD drawing files vs. non-CAD drawing files. Whereas a CAD drawing is a document created through AutoCAD. A non-CAD drawing document is a document such as a word processing document, a spreadsheet, a picture, etc.

**CAD Drawing**

The filename for a CAD drawing file consists of five parts: Discipline, Group, Sub-Group, Sub-Group Sequence and Revision. The 1st character of a drawing filename is Discipline, 2nd is Group, 3rd and 4th are Sub-Group, 5th and 6th are Sub-Group Sequence, and 7th and 8th are Revision. Discipline, Group, Sub-Group and Sub-Group Sequence are derived from its assigned sheet number, see Chapter 4, Sheet Number for more information. Revision is the last revision number of the drawing sheet. The extension of a CAD drawing file is always DWG.

For example, Figure 5-1; Referencing to Chapter 4, one should be able to identify that this drawing contains the very first plan design of the civil manhole detail, C3.5.1.
When a drawing file contains multiple drawing sheets, the filename should be derived from the very first sheet of the multiple-sheet set. Revision should reflect the last revision number of the entire sheet set within the drawing, see Figure 5.2.

**Figure 5-1: CAD Drawing File Naming Example**

**Figure 5-2: CAD Drawing File with multiple sheets**

Note: Cover Sheet, G1 is the only exception to the rule. All cover sheets should take the following form.

**Figure 5-3: CAD Drawing File Naming Example**

**Non-CAD Drawing Document**

All documents other than CAD drawings should follow the file naming scheme stated in Table 5-3.

<table>
<thead>
<tr>
<th>Name</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Name</td>
<td>Document type</td>
</tr>
<tr>
<td>List</td>
<td>User definable/description</td>
</tr>
<tr>
<td>List</td>
<td>Open section for document description</td>
</tr>
<tr>
<td>Sample</td>
<td>MEMLANUP.DJD – memo on the issue of network expansion was requested by John Doe.</td>
</tr>
</tbody>
</table>

Table 5-3: File Naming Standard for non-CAD drawing files
README File

Every contract must have a README file and it shall be placed at the contract directory. The purpose of this README file is to summarize the contents of the contract. The project manager is responsible for maintaining this README file. See table 5 - 5 for detailed content and a description of README file.

<table>
<thead>
<tr>
<th>Item</th>
<th>Pertains to</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Number</td>
<td>All</td>
<td>Number can be obtained from the Airport Contract Project Manager</td>
</tr>
<tr>
<td>Contract Title</td>
<td>All</td>
<td>Title is obtained from the Airport Contract Project Manager</td>
</tr>
<tr>
<td>Contract Status</td>
<td>Airport Only</td>
<td>Current status of the contract</td>
</tr>
<tr>
<td>Contract Initiated by</td>
<td>Airport Only</td>
<td>The name of the person that initiated the contract</td>
</tr>
<tr>
<td>Project Manager</td>
<td>All</td>
<td>Project Manager from the Airport or contractor/consultant depending on the submittal source</td>
</tr>
<tr>
<td>Project Engineer</td>
<td>All</td>
<td>Primary Engineer from the Airport or contractor/consultant depending on the submittal source</td>
</tr>
<tr>
<td>Draft Person</td>
<td>Airport Only</td>
<td>List of every draft persons involved in the contract</td>
</tr>
<tr>
<td>Architect</td>
<td>All</td>
<td>Primary Architect for the contract from the Airport or Contractor/consultant depending on the submittal source</td>
</tr>
<tr>
<td>Inspector</td>
<td>All</td>
<td>Primary Inspector of the contract from the Airport or Contractor/consultant depending on the submittal source</td>
</tr>
<tr>
<td>Contractor</td>
<td>All</td>
<td>The name of the principal contractor for the contract</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>Airport Only</td>
<td>The initial estimated cost of the contract</td>
</tr>
<tr>
<td>Pre-bid Date</td>
<td>Airport Only</td>
<td>The date of pre-bid – applicable to the Airport only</td>
</tr>
<tr>
<td>Bid Date</td>
<td>Airport Only</td>
<td>The date contract went out for Bid</td>
</tr>
<tr>
<td>Bid Amount</td>
<td>Airport Only</td>
<td>The final accepted bid cost from the contractor</td>
</tr>
<tr>
<td>Awarded Date</td>
<td>Airport Only</td>
<td>The date contract was awarded</td>
</tr>
<tr>
<td>Final Cost</td>
<td>Airport Only</td>
<td>The final project cost at the closed date</td>
</tr>
<tr>
<td>Design Start Date</td>
<td>Airport Only</td>
<td>The begin date of the design phase of the contract</td>
</tr>
<tr>
<td>Design Completion Date</td>
<td>Airport Only</td>
<td>The end date of the design phase of the contract</td>
</tr>
<tr>
<td>Advertise Date</td>
<td>Airport Only</td>
<td>The date contract was advertised</td>
</tr>
<tr>
<td>Pre-construction Date</td>
<td>Airport Only</td>
<td>The date contract was moved to pre-construction phase</td>
</tr>
<tr>
<td>Construction Start Date</td>
<td>All</td>
<td>The begin date of the contract construction</td>
</tr>
<tr>
<td>Construction Completion Date</td>
<td>All</td>
<td>The end date of the contract construction</td>
</tr>
<tr>
<td>As-Built Submitted Date</td>
<td>All</td>
<td>The date as-built drawings was submitted</td>
</tr>
<tr>
<td>Contract Completion Date</td>
<td>Airport Only</td>
<td>The date contract completely finished and ready for archive</td>
</tr>
<tr>
<td>Archive Date</td>
<td>EIS Only</td>
<td>The date contract was archived and moved to P: drive;</td>
</tr>
<tr>
<td>Comment</td>
<td>All</td>
<td>Additional information relate to the contract that one may provided;</td>
</tr>
<tr>
<td>List of Drawings</td>
<td>All</td>
<td>List of drawings includes reference drawings that pertaining to the</td>
</tr>
</tbody>
</table>
Every entry must have a drawing name and where applicable, a drawing number.

Table 5-5: README File

<table>
<thead>
<tr>
<th>Item</th>
<th>Pertains to</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>contract. Every entry must have a drawing name and where applicable, a drawing number.</td>
</tr>
<tr>
<td>DRAWING SHEET</td>
<td>SHEET</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>ELECTRICAL DRAWING SHEET</td>
<td>E0.1.1 General Note</td>
<td>E4.1.1 Electrical Room</td>
</tr>
<tr>
<td></td>
<td>E1.1.1 Site Plan</td>
<td>E5.1.1 Riser Diagram</td>
</tr>
<tr>
<td></td>
<td>E2.1.1 Floor Plan, Lighting</td>
<td>E6.1.1 Fixture/Panel Schedule</td>
</tr>
<tr>
<td></td>
<td>E3.1.1 Floor Plan, Power</td>
<td>E7.1.1 Detail</td>
</tr>
<tr>
<td>MECHANICAL DRAWING SHEET</td>
<td>M0.1.1 General Note</td>
<td>M3.1.1 Detail</td>
</tr>
<tr>
<td></td>
<td>M1.1.1 Site Plan</td>
<td>M4.1.1 Control Diagram</td>
</tr>
<tr>
<td></td>
<td>M2.1.1 Floor Plan</td>
<td></td>
</tr>
<tr>
<td>PLUMBING DRAWING SHEET</td>
<td>P0.1.1 General Note</td>
<td>P3.1.1 Riser Diagram</td>
</tr>
<tr>
<td></td>
<td>P1.1.1 Site Plan</td>
<td>P4.1.1 Piping Flow Diagram</td>
</tr>
<tr>
<td></td>
<td>P2.1.1 Floor Plan</td>
<td>P5.1.1 Detail</td>
</tr>
<tr>
<td>FIRE PROTECTION DRAWING SHEET</td>
<td>F0.1.1 General Note</td>
<td>F3.1.1 Detail</td>
</tr>
<tr>
<td></td>
<td>F1.1.1 Site Plan</td>
<td>F4.1.1 Riser Diagram</td>
</tr>
<tr>
<td></td>
<td>F2.1.1 Floor Plan</td>
<td></td>
</tr>
<tr>
<td>UTILITY DRAWING SHEET</td>
<td>U0.1.1 General Note</td>
<td>U4.2.1 Details Industrial Waste</td>
</tr>
<tr>
<td></td>
<td>U1.1.1 Site Plan</td>
<td>U5.1.1 Plan/Elevation Natural Gas</td>
</tr>
<tr>
<td></td>
<td>U2.1.1 Plan/Elevation Water Main</td>
<td>U5.2.1 Detail Natural Gas</td>
</tr>
<tr>
<td></td>
<td>U2.2.1 Detail Water Main</td>
<td>U6.1.1 Plan/Elevation Aviation Fuel</td>
</tr>
<tr>
<td></td>
<td>U3.1.1 Plan/Elevation Sewage</td>
<td>U6.2.1 Detail Aviation Fuel</td>
</tr>
<tr>
<td></td>
<td>U3.2.1 Detail Sewage</td>
<td>U7.1.1 Plan/Elevation Diesel Fuel</td>
</tr>
<tr>
<td></td>
<td>U4.1.1 Plan/Elevation Industrial Waste</td>
<td>U7.2.1 Detail Diesel Fuel</td>
</tr>
</tbody>
</table>
• Every drawing sheet must have a plot viewport. This plot viewport should be created in PAPER SPACE and properly scaled in accordance with the plot scale ratio stated in the contract specification. The naming convention of this plot viewport consists of “PLOT” and its sheet number, for example, the plot view for sheet number M.1.2 should be named PLOTM-1-2. Due to AutoCAD restrictions dashes are used instead of decimal points.

• Consistent data types must be employed throughout the entire design. Examples are as follows:
  – If one chooses to represent an electrical manhole as a symbol, then all electrical manholes shall be drawn as block (point) entities.
  – A power distribution line is made up of line segments of either lines or polylines, not lines and polylines. Mix matched data types are not allowed.
  – Circles and arcs are as is; not entities made up of many line segments.

• The application of line types should be consistent and always set through BYLAYER. See Chapter 9 - Linetype for more information.

• Capitalize all text entities with a ROMAND font style and a plot height of 3/32". Arrow size shall be the same as the text height. Tick mark shall be 1/8" long, 1/64" thick with a 45° slanted to the dimension lines.

• The name of a general external reference file must begin with an “X”, i.e. XGRID.DWG, XBASEMAP.DWG, etc.

• **Airport** Every drawing must have a drawing number. This uniquely assigned identification number must be included in a drawing’s title block. Note: This number is not the same as the sheet number (see Appendix D - Drawing Number for more information.)

• The final drawings must be zoomed to extents and purged.

### Deliverable Format

- All external reference files are unbounded.
- All sketches must be deleted.
- Prior to delivery, all documents and drawings are to be appropriately organized and named in accordance with Chapter 5 - Document Management.
- A README file is to be included for all contracts, see README File Section of Chapter 5 - Document Management for more information. It is the responsibility of the PM to maintain this file.

**Consultant** Asbuilt electronic files and hard copies should be given to the PM or PE.

**Consultant** 3.5" high-density floppy disk, Iomega ZIP disk or CD-ROM disk are acceptable media types. Every disk shall be appropriately labeled with the Airport contract number. If applicable, company name, date, disk sequence number, and installation instructions are to be included.

**Consultant** File compression using WINZIP is highly recommended if files will not fit on a single media.
COORDINATE SYSTEM

Currently, SFIA has recognized and adopted five coordinate systems: SFO-A, SFO-B, SFO-C, SFO-D, and SFIA95. SFO-A, SFO-B, SFO-C, and SFO-D are local coordinates established circa 1954 by the Airport. SFIA95 is basically the California Coordinate System of 1983, NAD83. A coordinate map is attached to the end of this chapter.

The default coordinate system for SFIA is SFO-B.

SFIA95

In the early 1990s, the State of California Department of Transportation (Caltrans) with the assistance of the National Geodetic Survey established a State wide Order ‘B’ High Precision Geodetic Network (HPGN). This system consisting of a couple of hundred stations was adjusted in 1991 and has the designated epoch of 1991.35. These Order ‘B’ points established by GPS methods were used to constrain the remainder of the NGS points in California and the results are designated as NAD83 (1992) values. The HPGN network will be the basis for all future geodetic surveys performed in the State of California. This HPGN network (HPGN-D) is the basis of SFIA95.

Although SFIA recognizes the benefits and importance of using SFIA95, only the local coordinates are acceptable coordinate systems for designing and submitting contract drawings. SFIA will not accept drawings presented in SFIA95 coordinates.

Airport Local Coordinate (ALC)

SFO-A, SFO-B, SFO-C, and SFO-D are designated as A, B, C and D coordinates respectively. These local coordinates are based upon ground measured distances. When these Local Coordinates were established, the accepted methods for determining distances included direct measurement using steel survey chains and triangulation based on baselines. Generally, angles were measured using surveyor’s repeating transit. The standard for Second Order surveys in 1954 was 1:10,000 or 100 parts per million (PPM). The present standard for Second Order surveys is 1:50,000 or 20 PPMs. The marked increase in the standard of 500% is due mainly to the invention and implementation of light based distance meters. Present day surveyors also use direction theodolites to measure angles more accurately than those measured in the past with transits.

When working on any of the local Coordinates, ground measured distances must be used. Ground measured distances must be corrected for atmospheric effects and reduced to horizontal lengths. When working on the Geodetic Coordinate, SFIA86 or SFIA95, corrected ground measured distances must be converted to grid distances. The average grid factor at the Airport is 0.9999362.

SFO-A
Its origin is located near Taxiway Romeo adjacent to Plot 7N approximately 400 feet away from the threshold of the Runway 10R. Axes are parallel and perpendicular to Bayshore highway.

SFO-B
Its origin is located about 200 feet left of the threshold of Runway 10L. Axes are parallel and perpendicular to the centerline of the Runway 10L and 28R.
SFO-C
Its origin is located at the center of the Airport terminal entrance highway and about 500 feet away from the center of the parking garage. Axes are parallel and perpendicular to the Airport terminal entrance highway.

SFO-D
Its origin is near the intersection of R-6 Road and McDonnell Rd. Axes are parallel and perpendicular to the section line common to sections 27 and 34, T.3s., R.4W.

Coordinates Conversion
Since local coordinates are based on ground measured distances and SFIA95 is based on grid distances, always proceed the coordinate conversion process with understanding and caution. Before attempting to perform coordinates conversion, one must be familiar with AutoCAD terminology and the drawing environment.

Terminology
- WORLD COORDINATE SYSTEM (WCS): is the default AutoCAD coordinate system used as the basis for defining all drawing objects. Every drawing has a WCS and it can be redefined, however, not renamed.
- USER COORDINATE SYSTEM (UCS): is a user-defined coordinate system that defines the orientation of the X, Y, Z axes in three-dimensional space. An UCS is defined by changing the origin and the rotation angle relative to the WCS.
- DDUCS: is an AutoCAD command that allows one to switch from one coordinate system to another.
- WBLOCK: is an AutoCAD command that allows one to save selected drawing objects as a separate drawing file. Note: the current coordinate system of the source drawing will be the WCS of the new drawing.

Environment
One must also understand the need of performing coordinate conversion before carrying out appropriately conversions. The following is a list of guidelines for identifying if coordinate conversion is needed. For the purpose of illustration, the name of the drawing that you are currently working on is called PRIMARY and the drawing that you wish to INSERT/XREF as an overlay is named SECONDARY.

- The WCS of PRIMARY and SECONDARY must be in either anyone of the ALC or SFIA95; if the actual WCS can not be certain, applying the following guidelines must make logical assumption:
  - If the coordinate values of the drawing objects are mostly at 6,000,000.00, 2,000,000.00, then this drawing is most likely in SFIA95.
  - If not, locate the origin and eye-ball the rotation angle of the drawing and then find the closest match to one of the ALC.
  - If neither, consult with the source of the drawing or Airport survey department for method of converting it to a known coordinate.

- The WCS of SECONDARY must match to the current coordinate system of PRIMARY.
- DDUCS or UCS command does not apply scale factor conversion.
- When converting to or from SFIA95, scale factor conversion is needed; then you can not perform conversion directly by using DDUCS or UCS command.
- ALC must be named SFO-A, SFO-B, SFO-C, and SFO-D respectively.
Examples

Exercise 1

WCS of PRIMARY is SFO-B (or any other ALC) and WCS of SECONDARY is SFO-C (or any other ALC):
1. Match the current coordinate system of PRIMARY to the WCS of SECONDARY by using DDUCS command or select Coordinates Conversion option from the SFIA pull-down menu.
2. Then overlay (by using INSERT / XREF) SECONDARY to PRIMARY; make sure the insertion point is 0,0, X scale factor is 1, Y scale factor is 1, and rotation angle is 0.0.

Exercise 2

WCS of PRIMARY is SFO-B (or any other ALC) and WCS of SECONDARY is SFIA95:
1. Open SECONDARY and make sure the current coordinate system is in WCS and all layers are thawed and turned on.
2. Note: you may want to make a backup copy of SECONDARY prior to running the conversion.
3. Select Coordinates Conversion option from the SFIA pull-down menu; select SFIA95 button on the From column, SFO-B on the To column, and then OK. Once the conversion is done, the drawing will be in SFO-B coordinates.
4. Run WBlock command to save all drawing objects to the same drawing (overwrite SECONDARY) with insertion point equals to 0,0, X scale factor equals to 1, Y scale factor equals to 1, and rotation angle equals to 0.0.
5. Re-open SECONDARY. Note: when AutoCAD prompts you for “Save Changes to SECONDARY?”, make sure to select No.
6. Once SECONDARY is re-opened, run DDUCS command and switch the current coordinate system back to WCS.
7. Run UCS command; type S to save, SFO-B for desired UCS name, and type Y to replace the existing SFO-B.
8. Save SECONDARY.
9. Open PRIMARY and then do the steps of Exercise 1.

Exercise 3

WCS of PRIMARY is SFO-B (or any other ALC) and WCS of SECONDARY is unknown:
1. Consult with the source of SECONDARY or Airport survey department for method of converting the WCS to a known coordinate.
2. Follow the steps of Exercise 1, 2, 3, or 4 appropriately.

Exercise 4

WCS of PRIMARY is SFIA95 and WCS of SECONDARY is SFO-C (or any other ALC):
1. Since the Airport default coordinate system is standardized in SFO-B, you must convert WCS of PRIMARY to SFO-B first; follow Step 1 to Step 7 of Exercise 2 for PRIMARY drawing instead of SECONDARY.
2. Then follow the steps of Exercise 1.

Exercise 5

WCS of PRIMARY is SFIA95 and WCS of SECONDARY is SFIA95:
1. Open PRIMARY and overlay SECONDARY; make sure the current coordinate system of PRIMARY is in WCS.
2. Since the Airport default coordinate system is standardized in SFO-B, you may wish to convert PRIMARY now by following Step 1 of Exercise 3, but it is not necessary.
Exercise 6

WCS of PRIMARY is SFIA95 and WCS of SECONDARY is unknown:

1. Unfortunately, there is no suggestive solution for this exercise. Please consult with the source of SECONDARY or Airport survey department for method of converting the WCS to a known coordinate.
All drawings submitted to the Airport must conform to this documentation without exception. A copy of the latest Airport CAD standard along with floppy diskette(s) that contain all relevant CAD data files and Softdesk prototypes may only be obtained from EIS, see Appendix A - Contact Person for further information. **Consultant** Please note that contractors and consultants must sign and date the Geographic Information System Data License Agreement for each participated Airport contract in order to obtain the floppy disks. See Appendix – C Map Request and Release for instructions.

Every SFIA layer name is comprised of five sequential segments\(^1\): TRADE, GROUP, ROOT, MODIFIER, and LEVEL. Segments are separated by dashes, see Figure 7-1.

![Figure 7-1: Layer Name Format](image)

**Trade**
The very first character of a layer name is always the TRADE. TRADE represents the construction discipline or relevant department in the Airport, see table 7-1 for the complete list of SFIA TRADES.

<table>
<thead>
<tr>
<th>Trade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Architectural</td>
</tr>
<tr>
<td>C</td>
<td>Civil</td>
</tr>
<tr>
<td>E</td>
<td>Electrical</td>
</tr>
<tr>
<td>F</td>
<td>Fire and Life Safety</td>
</tr>
<tr>
<td>L</td>
<td>Landscape</td>
</tr>
<tr>
<td>M</td>
<td>Mechanical</td>
</tr>
<tr>
<td>P</td>
<td>Property Management</td>
</tr>
<tr>
<td>R</td>
<td>Reference: information(layers) that are shared among the disciplines</td>
</tr>
<tr>
<td>S</td>
<td>Structural</td>
</tr>
<tr>
<td>X</td>
<td>Unknown/GIS Data(^2)</td>
</tr>
</tbody>
</table>

Table 7-1: Trade

\(^1\) There are two exceptions: a.) Layers containing R and X trades do not have Modifiers and Levels; b.) Layers generated by Softdesk’s Products that can not be customized nor altered through the "LY" files.

\(^2\) This TRADE is strictly reserved for EIS usage only. No one including other Airport agencies, contractors, and consultants can use or alter information located in layers that begin with TRADE X with the exception of the layer, X-UNKN-UNKN.
Group and Root
The GROUP and ROOT are the second and third components of the layer name. The combination of GROUP and ROOT describes the contents of a layer name. In other words, these two segments define information stored in a specific layer. The GROUP and the ROOT are each four characters in length.

Modifier
The function of the MODIFIER is to incorporate the construction status as part of a layer name for ease of identification and update. Through the Modifier, one can easily separate a design condition such as new (N) from other design conditions such as existing (E). The MODIFIER is always the fourth segment of a layer name and is one character in length. Every layer must always contain a predefined MODIFIER as shown in the table below:

<table>
<thead>
<tr>
<th>Modifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>As built – Use this MODIFIER to reflect the as-built conditions from the approved design drawing. In addition, surveyors and consultants must use this MODIFIER to distinguish their work from the original Airport designs</td>
</tr>
<tr>
<td>B</td>
<td>Abandoned – nonfunctional entity that is already or to be abandoned</td>
</tr>
<tr>
<td>C</td>
<td>Relocated – will be relocated to a new location</td>
</tr>
<tr>
<td>D</td>
<td>Demolished – to be demolished and removed</td>
</tr>
<tr>
<td>E</td>
<td>Existing – already exist currently</td>
</tr>
<tr>
<td>F</td>
<td>Proposed or Future project design</td>
</tr>
<tr>
<td>I</td>
<td>Interim-Interim location</td>
</tr>
<tr>
<td>L</td>
<td>Lowered – needs to be lowered</td>
</tr>
<tr>
<td>M</td>
<td>Modification – needs structural modification without moving or replacing</td>
</tr>
<tr>
<td>N</td>
<td>New – will be constructed as a new entity</td>
</tr>
<tr>
<td>P</td>
<td>Replaced – will be replaced by an object of similar specifications</td>
</tr>
<tr>
<td>S</td>
<td>Raised – needs to be raised</td>
</tr>
<tr>
<td>T</td>
<td>Nonfunctional – nonfunctional entity to be abandoned</td>
</tr>
</tbody>
</table>

Table 7-2: Modifier

Level
For ease of layer manipulation, LEVEL is incorporated as part of a layer. The LEVEL is the fifth and the last segment of the layer name. It consists of one or two characters. Every layer shall always contain one of the predefined LEVELS described in the table below. Note: if no other value is applicable, the default LEVEL should be “S”, site.

<table>
<thead>
<tr>
<th>Level</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Site</td>
</tr>
<tr>
<td>B</td>
<td>Basement</td>
</tr>
<tr>
<td>R</td>
<td>Roof</td>
</tr>
<tr>
<td>1</td>
<td>1st Floor</td>
</tr>
<tr>
<td>2</td>
<td>2nd Floor</td>
</tr>
<tr>
<td>2M</td>
<td>2nd Floor Mezzanine</td>
</tr>
<tr>
<td>3</td>
<td>3rd Floor</td>
</tr>
<tr>
<td>3M</td>
<td>3rd Floor Mezzanine</td>
</tr>
<tr>
<td>3R</td>
<td>3rd Floor Roof</td>
</tr>
<tr>
<td>4</td>
<td>4th Floor</td>
</tr>
<tr>
<td>4M</td>
<td>4th Floor Mezzanine</td>
</tr>
<tr>
<td>4R</td>
<td>4th Floor Roof</td>
</tr>
<tr>
<td>5</td>
<td>5th Floor</td>
</tr>
<tr>
<td>5R</td>
<td>5th Floor Roof</td>
</tr>
<tr>
<td>6</td>
<td>6th Floor</td>
</tr>
<tr>
<td>7</td>
<td>7th Floor</td>
</tr>
<tr>
<td>8</td>
<td>8th Floor</td>
</tr>
<tr>
<td>9</td>
<td>9th Floor</td>
</tr>
<tr>
<td>10</td>
<td>10th Floor</td>
</tr>
</tbody>
</table>

Table 7-3: Level
Layer List

Following is the entire list of the SFIA drawing layers. Note: only the following layers with the appropriate MODIFIERS and LEVELS are acceptable. Any other layers will not be accepted without the prior consent of EIS.

<table>
<thead>
<tr>
<th>Group</th>
<th>Root</th>
<th>Description</th>
<th>Group</th>
<th>Root</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLNG</td>
<td>LINE</td>
<td>Ceiling, ceiling grid or ceiling object</td>
<td>REVS</td>
<td>TEXT</td>
<td>Revision linework, symbols and text</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Ceiling Related text</td>
<td>ROOF</td>
<td>LINE</td>
<td>Roof Polylines</td>
</tr>
<tr>
<td>DETL</td>
<td>LINE</td>
<td>Detail lines, cross sections, etc.</td>
<td>EQPT</td>
<td>LINE</td>
<td>Roof equipment, handrail, ladder, etc.</td>
</tr>
<tr>
<td></td>
<td>LNL</td>
<td>Detail light linework</td>
<td>HTCH</td>
<td>TEXT</td>
<td>Roof hatch patterns</td>
</tr>
<tr>
<td></td>
<td>LNM</td>
<td>Detail medium linework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LINH</td>
<td>Detail heavy linework</td>
<td>SECT</td>
<td>LINE</td>
<td>Building, room and reference section lines</td>
</tr>
<tr>
<td></td>
<td>HTCH</td>
<td>Detail hatch patterns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Detail text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMS</td>
<td>TEXT</td>
<td>Dimension related text</td>
<td>SIGN</td>
<td>LINE</td>
<td>Signage and other information</td>
</tr>
<tr>
<td>DOOR</td>
<td>LINE</td>
<td>Door lines, swing, accessories</td>
<td>SPRN</td>
<td>EQPT</td>
<td>Landscaping, sprinkler</td>
</tr>
<tr>
<td></td>
<td>3DJB</td>
<td>Door 3D jamb</td>
<td></td>
<td>TEXT</td>
<td>Landscaping, sprinkler related text</td>
</tr>
<tr>
<td></td>
<td>3DLF</td>
<td>Door 3D lines</td>
<td>STRS</td>
<td>LINE</td>
<td>Stair symbols, blocks, lines, etc.</td>
</tr>
<tr>
<td></td>
<td>3DSL</td>
<td>Door 3D sill closures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Door tags, or text</td>
<td>3DHD</td>
<td></td>
<td>Stairs, 3D handrail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3DLS</td>
<td></td>
<td>Stairs, 3D risers</td>
</tr>
<tr>
<td>ELEV</td>
<td>LINE</td>
<td>Elevation linework</td>
<td>3DTR</td>
<td></td>
<td>Stairs, 3D tread</td>
</tr>
<tr>
<td></td>
<td>LNL</td>
<td>Elevation light linework</td>
<td>WALL</td>
<td></td>
<td>Stair Related text</td>
</tr>
<tr>
<td></td>
<td>LINM</td>
<td>Elevation medium linework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LINH</td>
<td>Elevation heavy linework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HTCH</td>
<td>Elevation hatch patterns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Elevation Related text</td>
<td>3DFT</td>
<td></td>
<td>3D Window footer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3DWH</td>
<td></td>
<td>3D Window header</td>
</tr>
<tr>
<td>EQPT</td>
<td>LINE</td>
<td>Permanent fixtures such as elevator, toilet, etc</td>
<td>HTCH</td>
<td>TEXT</td>
<td>Wall hatch patterns</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Equipment tags or text</td>
<td></td>
<td></td>
<td>Wall Related text</td>
</tr>
<tr>
<td>FLOR</td>
<td>LINE</td>
<td>Floor linework</td>
<td>WIND</td>
<td>LINE</td>
<td>Window symbols, jamb, header, footer</td>
</tr>
<tr>
<td></td>
<td>HTCH</td>
<td>Floor hatch patterns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Floor Related text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRAM</td>
<td>LINE</td>
<td>Framing member or furring not part of structural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Framing Related text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FURN</td>
<td>LINE</td>
<td>Non-permanent fixtures i.e. appliances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Furniture Related text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE</td>
<td>TEXT</td>
<td>Drawing specific notes and boundary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Lease line related text</td>
</tr>
<tr>
<td></td>
<td>LINM</td>
<td>Detail medium linework</td>
<td></td>
<td>REVRS</td>
<td>Revision linework, symbols and text</td>
</tr>
<tr>
<td></td>
<td>LINH</td>
<td>Detail heavy linework</td>
<td></td>
<td>SFIA</td>
<td>Airport property boundary line</td>
</tr>
<tr>
<td></td>
<td>HTCH</td>
<td>Detail hatching</td>
<td></td>
<td>TEXT</td>
<td>Airport property related text</td>
</tr>
<tr>
<td></td>
<td>SYMB</td>
<td>Symbols</td>
<td></td>
<td>TEXT</td>
<td>Detail related text</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Detail related text</td>
<td></td>
<td>TEXT</td>
<td>Dimension related text</td>
</tr>
<tr>
<td>NOTE</td>
<td>TEXT</td>
<td>Drawing specific notes and boundary lines</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Trade R (Reference)

<table>
<thead>
<tr>
<th>Group</th>
<th>Root</th>
<th>Description</th>
<th>Group</th>
<th>Root</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRID</td>
<td>S01K</td>
<td>1000 feet grid lines in SFIA95:NAD83(1992)</td>
<td>GRID</td>
<td>BLDG</td>
<td>Arch./Structural building column lines</td>
</tr>
<tr>
<td></td>
<td>S050</td>
<td>50 feet grid lines in SFIA95:NAD83(1992)</td>
<td>TEXT</td>
<td>CIVIL</td>
<td>Civil grid lines related text</td>
</tr>
<tr>
<td></td>
<td>S100</td>
<td>100 feet grid lines in SFIA95:NAD83(1992)</td>
<td>MTCH</td>
<td>LINE</td>
<td>Matchline</td>
</tr>
<tr>
<td></td>
<td>S500</td>
<td>500 feet grid lines in SFIA95:NAD83(1992)</td>
<td>TEXT</td>
<td>MATCH</td>
<td>Matchline text</td>
</tr>
<tr>
<td></td>
<td>A050</td>
<td>50 feet grid lines in A Coordinates</td>
<td>ROAD</td>
<td>RADI</td>
<td>Curve Radii / Data</td>
</tr>
<tr>
<td></td>
<td>A100</td>
<td>100 feet grid lines in A Coordinates</td>
<td>SECT</td>
<td>TEXT</td>
<td>Section Line Detail Bubble</td>
</tr>
<tr>
<td></td>
<td>A500</td>
<td>500 feet grid lines in A Coordinates</td>
<td>TBLK</td>
<td>LINE</td>
<td>Title block</td>
</tr>
<tr>
<td></td>
<td>B050</td>
<td>50 feet grid lines in B Coordinates</td>
<td>TEXT</td>
<td>TITLE</td>
<td>Title block related text</td>
</tr>
<tr>
<td></td>
<td>B100</td>
<td>100 feet grid lines in B Coordinates</td>
<td>VPRT</td>
<td>LINE</td>
<td>Viewport boundary line</td>
</tr>
<tr>
<td></td>
<td>B500</td>
<td>500 feet grid lines in B Coordinates</td>
<td>XREF</td>
<td>BASE</td>
<td>Basemap</td>
</tr>
<tr>
<td></td>
<td>C050</td>
<td>50 feet grid lines in C Coordinates</td>
<td>KMAP</td>
<td>KEY</td>
<td>Key Map</td>
</tr>
<tr>
<td></td>
<td>C100</td>
<td>100 feet grid lines in C Coordinates</td>
<td>NRTH</td>
<td>NORTH</td>
<td>North Arrow</td>
</tr>
<tr>
<td></td>
<td>C500</td>
<td>500 feet grid lines in C Coordinates</td>
<td>NUMB</td>
<td>X-REF</td>
<td>X-reference layer, number between 1 and 9</td>
</tr>
<tr>
<td></td>
<td>D050</td>
<td>50 feet grid lines in D Coordinates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D100</td>
<td>100 feet grid lines in D Coordinates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D500</td>
<td>500 feet grid lines in D Coordinates</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Trade S (Structural)

<table>
<thead>
<tr>
<th>Group</th>
<th>Root</th>
<th>Description</th>
<th>Group</th>
<th>Root</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNMU</td>
<td>WALL</td>
<td>Concrete masonry wall</td>
<td>DIMS</td>
<td>TEXT</td>
<td>Dimension related text</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Structural concrete masonry unit related text</td>
<td>NOTE</td>
<td>TEXT</td>
<td>Drawing specific notes and boundary lines</td>
</tr>
<tr>
<td>CONC</td>
<td>WALL</td>
<td>Concrete wall</td>
<td>REVS</td>
<td>TEXT</td>
<td>Revision linework, symbols and text</td>
</tr>
<tr>
<td></td>
<td>BEAM</td>
<td>Concrete beam</td>
<td>SLAB</td>
<td>LINE</td>
<td>Structural slab</td>
</tr>
<tr>
<td></td>
<td>CLMN</td>
<td>Concrete column</td>
<td>TEXT</td>
<td>SLAB</td>
<td>Slab related text</td>
</tr>
<tr>
<td></td>
<td>RINF</td>
<td>Reinforced concrete</td>
<td>TEXT</td>
<td>LINM</td>
<td>Detail light linework</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Concrete Related text</td>
<td>TEXT</td>
<td>LINM</td>
<td>Detail medium linework</td>
</tr>
<tr>
<td>DETL</td>
<td>LINE</td>
<td>Detail lines, symbols, cross sections, etc.</td>
<td>TEXT</td>
<td>LINH</td>
<td>Detail heavy linework</td>
</tr>
<tr>
<td></td>
<td>LINL</td>
<td>Detail light linework</td>
<td>TEXT</td>
<td>HTC H</td>
<td>Detail hatching</td>
</tr>
<tr>
<td></td>
<td>LINM</td>
<td>Detail medium linework</td>
<td>TEXT</td>
<td>SYMB</td>
<td>Symbols</td>
</tr>
<tr>
<td></td>
<td>LINH</td>
<td>Detail heavy linework</td>
<td>TEXT</td>
<td>TEXT</td>
<td>Detail related text</td>
</tr>
<tr>
<td>FNDN</td>
<td>BEAM</td>
<td>Foundation, footing and grade beam</td>
<td>BOLT</td>
<td>TEXT</td>
<td>Bolt</td>
</tr>
<tr>
<td></td>
<td>PCAP</td>
<td>Foundation Pile Cap</td>
<td>CLMN</td>
<td>TEXT</td>
<td>Structural column</td>
</tr>
<tr>
<td></td>
<td>PILE</td>
<td>Foundation Pile</td>
<td>FRAM</td>
<td>TEXT</td>
<td>Space frame, building frame, truss and bracing</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
<td>Foundation related text</td>
<td>REBR</td>
<td>TEXT</td>
<td>Rebar</td>
</tr>
</tbody>
</table>

### Trade X (Unknown/GIS Data)

<table>
<thead>
<tr>
<th>Group</th>
<th>Root</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS1</td>
<td>LINE</td>
<td>Presentational data generated by GIS</td>
</tr>
<tr>
<td>LGND</td>
<td>LINE</td>
<td>Legend generated by GIS</td>
</tr>
<tr>
<td>TEXT</td>
<td>LINE</td>
<td>Presentational related text</td>
</tr>
<tr>
<td>SSDK</td>
<td>LINE</td>
<td>Layers generated by Softdesk</td>
</tr>
<tr>
<td>UNKN</td>
<td>UNKN</td>
<td>Unknown objects</td>
</tr>
</tbody>
</table>

---

Revision 3.0
January 1998
The Airport accepts two groups of symbols: Airport custom symbols and default SOFTDESK symbols. The Airport custom symbols are discipline specific symbols designed and created by Airport engineers and architects. The default SOFTDESK symbols come with the SOFTDESK software.

Airport customs symbols have precedence over SOFTDESK symbols. When in doubt, always use Airport customs symbols instead.

Airports Custom symbols are located in R drive and organized by disciplines. However, one shall always access these symbols through the symbol manager in SOFTDESK.

Consultant Custom symbols are included in the accompanied floppy disk. To access these custom symbols through the symbol manager of SOFTDESK, you must install the SOFTDESK directory in the floppy disk into your SOFTDESK software, see SOFTDESK Section of Appendix B – CAD Standard Software for instructions.
LINETYPE

The Airport accepts three groups of linetypes: default AutoCAD linetypes (ACAD.LIN), default SOFTDESK linetypes (SDSK.LIN), and Airport custom linetypes (SFIA.LIN). Both ACAD.LIN and SDKLIN come from its respective application. SFIA.LIN is pre-loaded in the SFIA prototype, SFIAPROT.DWT; or it can be found Airport in G drive or Consultant in the provided floppy disk, see Appendix B – CAD Standard Software for more information.

Linetypes selection should be made in the order of Airport custom linetypes, the ACAD linetypes and the Softdesk linetypes. Always set the linetypes BYLAYER.

Custom Linetype

The Airport has developed a set of specialized linetypes for certain entities. Currently, the list comprises of utility lines and fence lines. The naming convention for linetype is, SFO followed by a description, and a number. This single digit number indicates the relative spacing between the annotated letters. As the number increases, the spacing between the annotated letters increases.

When using these linetypes, make sure LTSCALE is set equal to the plot scale. The following is the list of every custom linetype in SFIA.LIN.

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFO-FENCE1</td>
<td>--X--X--X--</td>
</tr>
<tr>
<td>SFO-FENCE2</td>
<td>--X--X--X--</td>
</tr>
<tr>
<td>SFO-FENCE3</td>
<td>---X---X---X---</td>
</tr>
<tr>
<td>SFO-GAS1</td>
<td>--G--G--G--</td>
</tr>
<tr>
<td>SFO-GAS2</td>
<td>---G---G---G---</td>
</tr>
<tr>
<td>SFO-GAS3</td>
<td>-----G-----G-----</td>
</tr>
<tr>
<td>SFO-WATER1</td>
<td>-- W -- W -- W</td>
</tr>
<tr>
<td>SFO-WATER2</td>
<td>--- W --- W --- W ---</td>
</tr>
<tr>
<td>SFO-WATER3</td>
<td>----- W ----- W ----- W -----</td>
</tr>
<tr>
<td>SFO-SEWER1</td>
<td>-- S -- S -- S</td>
</tr>
<tr>
<td>SFO-SEWER2</td>
<td>--- S --- S --- S ---</td>
</tr>
<tr>
<td>SFO-SEWER3</td>
<td>----- S ----- S ----- S -----</td>
</tr>
<tr>
<td>SFO-IW1</td>
<td>-- IW -- IW -- IW --</td>
</tr>
<tr>
<td>SFO-IW2</td>
<td>--- IW --- IW --- IW ---</td>
</tr>
<tr>
<td>SFO-IW3</td>
<td>----- IW ----- IW ----- IW -----</td>
</tr>
<tr>
<td>SFO-TELEPHONE1</td>
<td>-- T -- T -- T --</td>
</tr>
<tr>
<td>SFO-TELEPHONE2</td>
<td>--- T --- T --- T ---</td>
</tr>
<tr>
<td>SFO-TELEPHONE3</td>
<td>----- T ----- T ----- T -----</td>
</tr>
<tr>
<td>SFO-POWER1</td>
<td>-- P -- P -- P --</td>
</tr>
<tr>
<td>SFO-POWER2</td>
<td>--- P --- P --- P ---</td>
</tr>
<tr>
<td>SFO-POWER3</td>
<td>----- P ----- P ----- P -----</td>
</tr>
<tr>
<td>SFO-DRAINAGE1</td>
<td>-- D -- D -- D --</td>
</tr>
<tr>
<td>SFO-DRAINAGE2</td>
<td>--- D --- D --- D ---</td>
</tr>
<tr>
<td>SFO-DRAINAGE3</td>
<td>----- D ----- D ----- D -----</td>
</tr>
<tr>
<td>SFO-AIRFUEL1</td>
<td>-- AF -- AF -- AF --</td>
</tr>
<tr>
<td>SFO-AIRFUEL2</td>
<td>--- AF --- AF --- AF ---</td>
</tr>
<tr>
<td>SFO-AIRFUEL3</td>
<td>----- AF ----- AF ----- AF -----</td>
</tr>
</tbody>
</table>
SFIA has a color code scheme for identifying utility pipelines. This color code scheme conforms to the OSHA/ANSI A13.1 Standard. Combining color codes and pre-assigned custom line types, utility pipes can be easily identified and differentiated.

The following table lists utility pipes and their corresponding pipe color.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ABBREVIATION</th>
<th>PIPE COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler Water</td>
<td>-</td>
<td>Red</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>G</td>
<td>Yellow</td>
</tr>
<tr>
<td>Fuel Oil Supply</td>
<td>FOS</td>
<td>Yellow</td>
</tr>
<tr>
<td>Fuel Oil Return</td>
<td>FOR</td>
<td>Yellow</td>
</tr>
<tr>
<td>Domestic cold water</td>
<td>CW</td>
<td>Blue</td>
</tr>
<tr>
<td>Domestic hot water</td>
<td>HW</td>
<td>Yellow</td>
</tr>
<tr>
<td>Sanitary sewer</td>
<td>S</td>
<td>Green</td>
</tr>
<tr>
<td>Sanitary vent</td>
<td>V</td>
<td>Green</td>
</tr>
<tr>
<td>Storm drain</td>
<td>D</td>
<td>Green</td>
</tr>
<tr>
<td>Industrial waste</td>
<td>IW</td>
<td>Green</td>
</tr>
<tr>
<td>Cooling tower water</td>
<td>CTW</td>
<td>Blue</td>
</tr>
<tr>
<td>Heating water supply</td>
<td>HWS</td>
<td>Yellow</td>
</tr>
<tr>
<td>Heating water return</td>
<td>HWR</td>
<td>Yellow</td>
</tr>
<tr>
<td>Hi-press/temp. water supply</td>
<td>HTWS</td>
<td>Yellow</td>
</tr>
<tr>
<td>Hi-press/temp. water return</td>
<td>HTWR</td>
<td>Yellow</td>
</tr>
<tr>
<td>Primary chilled water supply</td>
<td>PCWS</td>
<td>Blue</td>
</tr>
<tr>
<td>Primary chilled water return</td>
<td>PCWR</td>
<td>Blue</td>
</tr>
<tr>
<td>Chilled water supply</td>
<td>CWS</td>
<td>Blue</td>
</tr>
<tr>
<td>Chilled water return</td>
<td>CWR</td>
<td>Blue</td>
</tr>
<tr>
<td>Plant air</td>
<td>A</td>
<td>Yellow</td>
</tr>
<tr>
<td>De-ionized water</td>
<td>DI</td>
<td>Blue</td>
</tr>
<tr>
<td>Condensate drain</td>
<td>CD</td>
<td>Green</td>
</tr>
<tr>
<td>Irrigation water</td>
<td>ITT</td>
<td>Blue</td>
</tr>
<tr>
<td>Precondition air supply</td>
<td>PCAS</td>
<td>Blue</td>
</tr>
<tr>
<td>Precondition air water return</td>
<td>PCAR</td>
<td>Blue</td>
</tr>
</tbody>
</table>
This chapter defines hatch patterns utilized by SFIA. These hatch patterns can be used for both cross-section and plan views. Every hatch pattern described in this chapter is a standard hatch pattern that can be found in AutoCAD. The scale of following hatch patterns is set to 1, unless otherwise stated.

**SFIA Hatch Pattern**

<table>
<thead>
<tr>
<th>Cross Section</th>
<th>Plan View</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASPHALT CONCRETE</strong></td>
<td><strong>RIGID AIRCRAFT PAVEMENT</strong></td>
</tr>
<tr>
<td>ANSi31</td>
<td>AR•CONC</td>
</tr>
</tbody>
</table>

| **CEMENT TREATED BASE** | **FLEXIBLE AIRCRAFT STRUCTURAL PAVEMENT** |
| FLEX | DOTS |

| **DIRT** | **FLEXIBLE AIRCRAFT SHOULDER PAVEMENT** |
| EARTH | ANSi56 |

| **PORTLAND CEMENT CONCRETE** | **FLEXIBLE ROADWAY & BUS LANE** |
| AR•CONC | CROSS |

| **CRUSHED AGGREGATE BASE** | **FLEXIBLE VEHICLE PARKING** |
| GRAV1 (USE DYNAMIC HATCH) | ANSi34 |

| **LEAN CONCRETE BASE** | **FLEXIBLE PAVEMENT OVERLAY** |
| SAND | DOTS (SCALE=2) |

| **COLD PLANKING** | **COLD PLANE PAVEMENT REMOVAL AREA** |
| SOLID | SOLID |

In addition to the above hatch patterns, SFIA also adapts hatch patterns defined in the Construction Specifications Institute’s (CSI) Reference Symbol Standard. If conflicts occur, SFIA defined hatch pattern should always prevail.
CSI Hatch Pattern

The following hatch patterns were taken directly from the CSI Reference Symbol Standard.

Division 3 – Concrete

- **CAST-IN-PLACE CONCRETE**
  
  AR-CONC

- **PRECAST CONCRETE**
  
  AR-CONC & ANSI31

- **GROUT**
  
  AR-SAND

Division 4 – Masonry

- **BRICK MASONRY**
  
  ANSI31

- **GLAZED BRICK MASONRY**
  
  ANSI31

- **STRUCTURAL CLAY TILE UNIT MASONRY**
  
  ANSI31 & AR-SAND

- **GLAZED STRUCTURAL CLAY TILE UNIT MASONRY**
  
  ANSI31 & AR-SAND

- **CONCRETE UNIT MASONRY**
  
  ANSI37

- **GLAZED CONCRETE UNIT MASONRY**
  
  ANSI37

- **GYPSUM UNIT MASONRY**
  
  AR-SAND
Division 5 – Metals

STEEL
ANSI52

ORNAMENTAL METAL
ANSI53

Division 6 – Wood & Plastics

CONTINUOUS WOOD FRAME

WOOD BLOCK

Division 7 – Thermal & Moisture protection

FOAM INSULATION
AR=SAND

EXTERIOR INSULATION & FINISH SYSTEM
LINE & AR=SAND
LINE PROPERTIES (SCALE=2, ANGLE=90°)

FIBROUS FIRE SAFING
NET

Division 8 – Doors & Windows

GLASS
LINE
(SCALE=0.5)
Division 9 – Finishes

- **GYPSUM BOARD**
  - AR=SAND

- **TERRAZZO**
  - LINE & AR=CONC

- **RESILIENT FLOORING**
  - LINE
This chapter identifies the Standard Detail Drawings used by SFIA. Standard Detail Drawing is a collection of static design details that are referenced throughout Airport projects. A Standard Detail Drawing is similar to a regular design drawing, except it does not have a title block. Unlike contract drawings that get random numbers on the fly, all Standard Detail Drawings have a constant drawing number.

SFIA has reserved drawing numbers between 00001 and 01000 for Standard Detail Drawings. These drawing numbers are organized and distributed by disciplines. The following table contains listing of all Standard Detail Drawings currently used in SFIA.

<table>
<thead>
<tr>
<th>DISCIPLINE</th>
<th>DRAWING NUMBER</th>
<th>STANDARD DETAIL DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>00001-00400</td>
<td>To be assigned at later time</td>
</tr>
<tr>
<td>Civil</td>
<td>00401</td>
<td>Manhole Details</td>
</tr>
<tr>
<td></td>
<td>00402</td>
<td>Catch Basin Details</td>
</tr>
<tr>
<td></td>
<td>00403</td>
<td>Runway and Taxiway Marking</td>
</tr>
<tr>
<td></td>
<td>00404</td>
<td>Cross Sections and Details</td>
</tr>
<tr>
<td></td>
<td>00405</td>
<td>Airfield Painting and Marker Details</td>
</tr>
<tr>
<td></td>
<td>00406</td>
<td>Miscellaneous Cross Sections and Details</td>
</tr>
<tr>
<td></td>
<td>00407</td>
<td>Raising and Lowering of Utilities Details</td>
</tr>
<tr>
<td></td>
<td>00408</td>
<td>Chain Link Fence Details</td>
</tr>
<tr>
<td></td>
<td>00409</td>
<td>Drainage Details</td>
</tr>
<tr>
<td></td>
<td>00410</td>
<td>New Helipad Striping</td>
</tr>
<tr>
<td>Mechanical</td>
<td>00551</td>
<td>Ductile Iron Pipe Joint Bonding Detail (Mechanical Type)</td>
</tr>
<tr>
<td></td>
<td>00552</td>
<td>Pipecase Detail</td>
</tr>
<tr>
<td></td>
<td>00553</td>
<td>Single Pipe Trench Detail</td>
</tr>
<tr>
<td></td>
<td>00554</td>
<td>Double Pipe Trench Detail</td>
</tr>
<tr>
<td></td>
<td>00555</td>
<td>Ductile Iron Pipe Joint Bonding Detail (Push_On Type)</td>
</tr>
<tr>
<td></td>
<td>00556</td>
<td>Fire Hydrant Detail</td>
</tr>
<tr>
<td></td>
<td>00557</td>
<td>Cooling Coil Drain Pan Detail</td>
</tr>
<tr>
<td></td>
<td>00558</td>
<td>Air Vent Detail</td>
</tr>
<tr>
<td></td>
<td>00559</td>
<td>Air Release Valve Detail</td>
</tr>
<tr>
<td></td>
<td>00560</td>
<td>Anode Test Station</td>
</tr>
<tr>
<td></td>
<td>00561</td>
<td>Anode Test Station Terminal Board</td>
</tr>
<tr>
<td></td>
<td>00562</td>
<td>Backflow Preventer Assembly</td>
</tr>
<tr>
<td></td>
<td>00563</td>
<td>Pressure Cleanout Detail</td>
</tr>
<tr>
<td></td>
<td>00566</td>
<td>Exothermic Weld Detail</td>
</tr>
<tr>
<td></td>
<td>00567</td>
<td>Ceiling Supply Diffuser Installation Detail</td>
</tr>
<tr>
<td></td>
<td>00568</td>
<td>Seismic Flexible Joint Detail</td>
</tr>
<tr>
<td></td>
<td>00569</td>
<td>Flange Joint Detail</td>
</tr>
<tr>
<td></td>
<td>00570</td>
<td>Ground Hydrant Detail</td>
</tr>
<tr>
<td></td>
<td>00571</td>
<td>Insulation Joint Detail</td>
</tr>
<tr>
<td></td>
<td>00572</td>
<td>Insulation Test Station</td>
</tr>
<tr>
<td></td>
<td>00573</td>
<td>Insulation Test Station Terminal Board</td>
</tr>
<tr>
<td></td>
<td>00574</td>
<td>Mechanical Joint Detail</td>
</tr>
<tr>
<td></td>
<td>00575</td>
<td>Mechanical Detail</td>
</tr>
<tr>
<td></td>
<td>00576</td>
<td>Test Station Housing</td>
</tr>
<tr>
<td></td>
<td>00577</td>
<td>Valve Box Detail</td>
</tr>
<tr>
<td></td>
<td>00578</td>
<td>Wire Identifier Detail</td>
</tr>
<tr>
<td>Electrical</td>
<td>00901</td>
<td>Wire and Cable Connections and Splices</td>
</tr>
<tr>
<td></td>
<td>00902</td>
<td>Wire Diagram and Details</td>
</tr>
<tr>
<td></td>
<td>00903</td>
<td>Light Pole Detail</td>
</tr>
<tr>
<td></td>
<td>00904</td>
<td>Hold Bar, Blast and Shoulder Light Pad Detail</td>
</tr>
<tr>
<td></td>
<td>00905</td>
<td>Raise (E) L-850 RW Light to (N) Grade</td>
</tr>
<tr>
<td></td>
<td>00906</td>
<td>Raise (E) L-852 Class II T/W Light to (N) Grade</td>
</tr>
</tbody>
</table>
**Discipline** | **Drawing Number** | **Standard Detail Drawing**
---|---|---
00907 | | Semiflush Runway Bidirectional Edge Light L-850C
00908 | | T/W Centerline Light Installation Detail
00909 | | Taxiway Edge Light (L-861T) Installation Details
00910 | | Panelboard Schedule
00911 | | Runway Centerline (L-850A) Installation and Details
00912 | | Transformer Housing and Details

**Airport** All detail drawings are organized by disciplines and stored in the network. One should always retrieve them through the customized SFIA program in AutoCAD or through Contract Management System (CMS). If you have any problem accessing these Standard Detail Drawings, please contact EIS for assistance.

**Consultant** Please follow instructions stated in Appendix C, Map Request and Release to obtain a copy of SFIA Standard Detail Drawings.
APPENDIX
A

CONTACT INFORMATION

The development of the Airport CAD Standard is the result of a collaborated effort among Airport engineers, architects, EIS, and Airport consultants. The content within this documentation was written based on their inputs and needs at the time of publishing. The Airport does recognize the need to revise the Standard to accommodate future needs. If you have any comments or questions, please contact the following personnel.

- To request map drawings or submit comments about the Airport CAD Standard, please contact,
  Eric Yee  CAD Administrator  Eric_Yee@ci.sf.ca.us  (650) 794-5511
  Engineering Information Services
  Facilities, Operations and Maintenance
  San Francisco International Airport
  PO Box 8097
  676 McDonnell Rd
  San Francisco, CA 94128
  (650) 794-5511

- To locate archived drawings, please contact
  Tai Chong  Civil Engineering  Tai_Chong@ci.sf.ca.us  (650) 737-7738
This chapter applies to Airport consultants and contractors only. Information provided within the floppy
disk must be incorporated into your project environment and drawings.

This appendix addresses the contents and usage of the accompanying floppy disk. This floppy
disk contains default settings and customized information that make up the SFIA CAD Standard.
Information about the prototype drawing, title sheets, keymap, and symbols can all be found in
this floppy disk. If SOFTDESK is used, a set of instructions on how to incorporate the SFIA CAD
Standard into SOFTDESK products is provided.

There are six directories within this floppy disk: Keymap, Linetype, Sfiaprot, Symbol, Titleblk and
Softdesk. Each directory may contain additional subdirectories. Note: most of directories were
compressed with the recursive subdirectory option.

The detail drawings for each discipline maybe obtained upon request from the EIS group.
Because there are too many detail drawings for each discipline, the drawings could not be
included on the accompanying floppy disks.

Keymap

The Key Map serves as a reference map of the Airport. It contains general outline information that
makes up the Airport. This drawing may be used when requesting additional contract related
drawings, e.g. if your work involves the terminals, then you would submit this map by highlighting
the related area around the terminals. A key map is contained in the SFIA CAD Standard
diskette.

Linetype

This directory has only one file called SFIA.LIN, that contains the Airport Custom linetypes. To
use it, you may either load it directly from within AutoCAD by typing linetype or get it from
SFIAPROT.DWT, the Airport default prototype.

Sfiaprot

SFIAPROT.DWT is the default AutoCAD prototype drawing created and used by the Airport.
Always use this prototype when working with Airport contract drawings. The following is a list of
preset settings that can be found in this drawing:

- The world coordinate system is set to SFO-B along with other Airport approved coordinates
  systems
- Airport approved custom linetypes and default AutoCAD linetypes
- Units are set to decimal units with a precision of 4 decimal points
Symbol

This directory is organized into five subdirectories: Civil, Elec, Fire, General, and Mech. Civil, Elec (Electrical) and Mech (Mechanical) subdirectories contain symbols used by the engineers of the specified discipline. Fire contains fire and life safety symbols and General contains common symbols such as north arrows, scales, etc. Note: The Airport uses architectural symbols provided by SOFTDESK.

Titleblk

This directory contains the approved title blocks. See Chapter 3 - Cover Sheet and Title Block for more information.

Softdesk

Information located in this directory address how SOFTDESK products need to change to accommodate the SFIA CAD Standard. If you are not obligated to use SOFTDESK products for your contract, you may skip this section.

There are two subdirectories, SDKPROT and SYMDBASE, located in this directory. SDKPROT contains SFIA’s customized version of the SOFTDESK prototypes; SYMDBASE contains the database files that describe SFIA symbols.

To incorporate these two subdirectories into SOFTDESK, you must change the SDK.DFM file settings. You should familiarize yourself with this file before proceeding. The following are instructional steps for incorporating Airport CAD Standard into your SOFTDESK:

- Create a subdirectory called SFIA under your SOFTDESK prototype directory (typically C:\SDKPROT or check the PROT setting in your SDK.DFM)
- Copy all files and directories from the default SOFTDESK prototype directory (usually SOFTDESK) into the newly created SFIA subdirectory
- Decompress and copy A:\SOFTDESK\SDKPROT\CIVIL\SFIA from the floppy disk into SFIA subdirectory. If you are working with SOFTDESK Civil/Survey products; or copy A:\SOFTDESK\SDKPROT\AEM\SFIA if you are working with SOFTDESK Architectural or Building Services Products;
- Decompress and copy the files in the A:\SOFTDESK\SYMDBASE directory into your choice of drive path; and then make sure the following lines are included in SDK.DFM:
  
  [SystemPaths]
  SFIA=\%your_specified_drive_path\%, SFIA Symbols Database

  [SymbolFiles]
  SFD_ARCH=\%sfia%sf_arch.dbf, Architectural
  SFD_CIVL=\%sfia%sf_civil.dbf, Civil
  SFD_ELEC=\%sfia%sf_elec.dbf, Electrical
  SFD_FIRE=\%sfia%sf_fire.dbf, Fire and Life Safety
  SFD_REFR=\%sfia%sf_refr.dbf, Reference
  SFD_MECR=\%sfia%sf_mech.dbf, Mechanical

- The slide ("*.SLD") files must then be created for each of the symbol drawings before they can be used through the Symbol Manager. Refer to AutoCAD documentation for instructions on creating slide files.
To better manage Airport CAD data, all Airport contract related drawings and maps should always be filtered through EIS. EIS cannot provide any information to any individual or company without the proper documentation as stated in this appendix.

Before EIS can process any map request, three documents must be received by EIS: a copy of the written request memo (herein called Memo), the signed original copies of the Geographic Information System Data License Agreement (herein called Agreement), and an outlined copy of the Keymap (herein called Map). A copy of the Agreement and Map are attached at the end of this appendix.

Once EIS has received these documents and obtained the necessary approvals, the request will then be processed and released accordingly. Please allow a turnaround time of five working days for all requests.

**Memo**

A written memo by the requester is needed for every single request without any exceptions, even for subsequent related requests. The content of this Memo must indicate or explain the following:

- Address the memo to Jackson Wong, Deputy Airport Director, FOM
- The name of the requesting company along with the primary contact person, telephone number and address
- The name of the project involved and/or purposes, i.e. Contract Number and Title
- General description of the area(s) requested
- Listing of feature(s) that you are requesting
- The preferred deliverable media, i.e. floppy disk, zip disk, CD-ROM
- Carbon copy to Engineering Information Services and the Airport Contract Coordinator (if applicable) and mail/fax it to:

  Engineering Information Services  
  Facilities, Operations and Maintenance  
  San Francisco International Airport  
  PO BOX 8097  
  Building 676, McDonnell Rd  
  San Francisco, CA 94128  
  Fax: (650) 876-2258

**Agreement**

Every requesting party or entity must sign and date the attached Agreement. An Agreement is needed for every contract and should be renewed every calendar year.
Keymap

Graphically indicate the area of interest on the Airport key map contained in the SFIA CAD Standard diskette.

Media Fee

If the requested information exceeds the storage of five 3-½” floppy disks or 7.2 MB, a ZIP disk or CD-ROM disk will be used. To cover the cost of the media, the requester must pay a charge of $20.00 in advanced. Please make checks payable to the City and County of San Francisco.
This chapter pertains to Airport employees only.

This chapter explains the standard and procedure for obtaining a drawing number for a contract drawing. The current drawing number standard has gone through an overhaul to accommodate changes made in the Airport Title Sheets. The following is the list of changes made:

- The Contract Management System, (CMS), is used to issue drawing numbers. Everyone has access to CMS to obtain drawing numbers. For further details on this process, refer to the Contract Procedures Manual.

- Only one drawing number at a time can be issued on a first-come-first serve basis. Blocks or a series of drawing numbers cannot be reserved in advance.

- A drawing number can be issued only after the completion of design.

- Once a drawing number is issued, it cannot be reused. If this drawing is no longer valid or needed, instead of deleting the drawing number, the drawing name must be changed to CANCEL.

- To obtain a drawing number, one must provide the following information to the drawing librarian: sheet size, contract number, contract title, project manager, and draft person.

- The naming and description of a drawing number has been changed. The name of a drawing number consists of a letter, a dash and five digits. This single letter represents the sheet size of the drawing. See Table D-1 for detail.

<table>
<thead>
<tr>
<th>DRAWING NUMBER</th>
<th>SHEET SIZE</th>
<th>DIMENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-xxxxx</td>
<td>A</td>
<td>8½ x 11</td>
</tr>
<tr>
<td>B-xxxxx</td>
<td>B</td>
<td>11 x 17</td>
</tr>
<tr>
<td>C-xxxxx</td>
<td>C</td>
<td>18 x 24</td>
</tr>
<tr>
<td>D-xxxxx</td>
<td>D</td>
<td>24 x 36</td>
</tr>
<tr>
<td>E-xxxxx</td>
<td>E</td>
<td>30 x 42</td>
</tr>
<tr>
<td>J-xxxxx</td>
<td>J</td>
<td>36 x 48</td>
</tr>
</tbody>
</table>

Table D-1: Drawing Number

- Drawing numbers between 00001 and 01000 are reserved for standard detail drawings. Thus, the first drawing number that can be issued for any sheet size drawing is 01001.
The Facility Naming System is the method of assigning names to sites, rooms, and doors that are commonly commissioned in the San Francisco International Airport. This is an absolute system with the intention of promoting data consistency among various Airport electronic database systems and achieving consistent communications throughout Airport operations.

Three naming formats are developed from this system: Site Name, Room Number and Door Number. Each format is defined differently and operated independently. However, as you will see, components that formulate these three formats are closely related.

Site Name

\[
\text{Site Sector}
\]

The Site Name identifies every operational-specific sites or areas in the Airport. The number consists of the Site Identifier and the optional Sector Identifier. The Site Identifier is the primary identifier that designates either a distinctive physical structure or a class of locations in the Airport. The Sector Identifier is the as-needed secondary identifier that future differentiates a class of locations into distinctive sites. For example: the Site Identifier for Airport security checkpoints is "CHK" and a Sector Identifier of "B", "C", "R", "Q", etc distinguishes a specific checkpoint.

The combination of the Site Identifier and Sector Identifier identifies a unique site in the Airport. The minimum length of a Site Name is two characters: the first two characters of the Site Identifier. The maximum length is nine characters: four-character Site Identifier, a dash as the separator, and four-character Sector Identifier. See Table E-1 for the current list of all valid Airport Site Names.

---

1 The contents of this document supersede all other previous document.

2 If there is any Site or Sector Identifiers not mentioned in Table 1, you must submit them to Engineering Information Systems of FOM for approval and update prior to adoption.
<table>
<thead>
<tr>
<th>SITE</th>
<th>SECTOR</th>
<th>APRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apron</td>
<td>Apron and Boarding Area Ramp</td>
<td>1 - 999</td>
</tr>
<tr>
<td>Building</td>
<td>TWA Hangar</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Pan Am Annex</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>UAL Service Center</td>
<td>526</td>
</tr>
<tr>
<td></td>
<td>UAL Cargo</td>
<td>585</td>
</tr>
<tr>
<td></td>
<td>Cargo Building #7</td>
<td>632</td>
</tr>
<tr>
<td></td>
<td>Signature Aviation</td>
<td>640</td>
</tr>
<tr>
<td></td>
<td>#8A HRC</td>
<td>648</td>
</tr>
<tr>
<td></td>
<td>Engineering Building</td>
<td>676</td>
</tr>
<tr>
<td></td>
<td>Maintenance Building</td>
<td>682</td>
</tr>
<tr>
<td></td>
<td>Maintenance Annex</td>
<td>692</td>
</tr>
<tr>
<td></td>
<td>Shuttle Bus Building</td>
<td>790</td>
</tr>
<tr>
<td></td>
<td>UAL Maintenance Operations Center</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Industrial Waste Treatment Plant</td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>Water Quality Control Plant</td>
<td>918</td>
</tr>
<tr>
<td></td>
<td>Airport School</td>
<td>928</td>
</tr>
<tr>
<td></td>
<td>JAL Cargo</td>
<td>944</td>
</tr>
<tr>
<td></td>
<td>Federal Express Cargo</td>
<td>958</td>
</tr>
<tr>
<td></td>
<td>New Firehouse #1</td>
<td>1016</td>
</tr>
<tr>
<td></td>
<td>Old Firehouse #1</td>
<td>1022</td>
</tr>
<tr>
<td></td>
<td>Air Cal</td>
<td>1044</td>
</tr>
<tr>
<td></td>
<td>Firehouse #2</td>
<td>1070</td>
</tr>
<tr>
<td></td>
<td>Field Lighting Building #2</td>
<td>1080</td>
</tr>
<tr>
<td></td>
<td>Field Lighting Building #1</td>
<td>1090</td>
</tr>
<tr>
<td></td>
<td>East Terminal (old Int'l Terminal)</td>
<td>1E</td>
</tr>
<tr>
<td></td>
<td>International Terminal (New)</td>
<td>1IT</td>
</tr>
<tr>
<td></td>
<td>North Terminal</td>
<td>1NT</td>
</tr>
<tr>
<td></td>
<td>South Terminal</td>
<td>1ST</td>
</tr>
<tr>
<td></td>
<td>Boarding Area A</td>
<td>1BA</td>
</tr>
<tr>
<td></td>
<td>Boarding Area B</td>
<td>1BB</td>
</tr>
<tr>
<td></td>
<td>Boarding Area C</td>
<td>1BC</td>
</tr>
<tr>
<td></td>
<td>Boarding Area D</td>
<td>1BD</td>
</tr>
<tr>
<td></td>
<td>Boarding Area E</td>
<td>1BE</td>
</tr>
<tr>
<td></td>
<td>Boarding Area F</td>
<td>1BF</td>
</tr>
<tr>
<td></td>
<td>Boarding Area G</td>
<td>1BG</td>
</tr>
<tr>
<td></td>
<td>Boarding Gates</td>
<td>1GATE</td>
</tr>
<tr>
<td></td>
<td>Gateway</td>
<td>1GATE</td>
</tr>
<tr>
<td></td>
<td>Runway</td>
<td>1RW</td>
</tr>
<tr>
<td></td>
<td>Taxiway</td>
<td>1TW</td>
</tr>
<tr>
<td></td>
<td>Airport Rail Transit</td>
<td>1ART</td>
</tr>
<tr>
<td></td>
<td>Concourse H Station</td>
<td>1CHS</td>
</tr>
<tr>
<td></td>
<td>Guideway</td>
<td>1GW</td>
</tr>
<tr>
<td></td>
<td>Lot D Station</td>
<td>1LD</td>
</tr>
<tr>
<td></td>
<td>Maintenance Facility Station</td>
<td>1MFS</td>
</tr>
<tr>
<td></td>
<td>Domestic Terminal Station</td>
<td>1TSD</td>
</tr>
<tr>
<td></td>
<td>Domestic Terminal Station</td>
<td>1TSF</td>
</tr>
<tr>
<td></td>
<td>Domestic Terminal Station</td>
<td>1WCS</td>
</tr>
<tr>
<td></td>
<td>Road 1 to Road 18</td>
<td>1RD</td>
</tr>
<tr>
<td></td>
<td>McDonnell Road</td>
<td>1MC</td>
</tr>
<tr>
<td></td>
<td>North Access Road</td>
<td>1NA</td>
</tr>
<tr>
<td></td>
<td>South Airport Blvd.</td>
<td>1SA</td>
</tr>
<tr>
<td></td>
<td>Plot</td>
<td>1PLOT</td>
</tr>
<tr>
<td></td>
<td>Gateway</td>
<td>1PLOT</td>
</tr>
</tbody>
</table>
### Room Number

The Room Number identifies enclosed spaces architecturally designed to serve as offices or storage areas. An area serve as a passageway that leads to other rooms or areas is not defined as a room, even if workstation occupies it. For example, the office of the Deputy Director is a room, but the hallway leading to his room (where his secretary works) is not.

```
  _ _ _ _ [\- _ _ _ _ \] / _ _ _ _ _
Site  Sector  Room
```

The Room Number is comprised of the Site Name and the Room Identifier. In other words, a room number is composed of the Site, Sector, and Room Identifiers. The Room Identifier is a four-character code with an optional fifth character. The first character of the Room Identifier identifies the floor where the room is located; the second, third, and forth characters represent the room number in relative sequential order; the fifth character indicates any unique characteristics possessed by a room that needs special attention. For example: "ST/1100E" means that room number 100 on the first floor of the South Terminal is an electrical room.

The minimum length of the Room Number is seven characters; the maximum length is fifteen characters. The separator in between the Site Name and the Room Identifier is a slash. See Table E-2 for the complete list of possible Room Numbers.

The application of the Room Number in the electronic data format is different from the actual room labeling. In practice, the Room Identifier is the only part of the Room Number that should be placed on every access door of the associated room. For example, the room number sign on the office door of the FOM Deputy Director is "1105", but the value entered into every digital database system is "676/1105".

<table>
<thead>
<tr>
<th>Site Sector</th>
<th>Room Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPS Drainage Pump Station</td>
<td>1 - 99 or AA - ZZ</td>
</tr>
<tr>
<td>IWS Industrial Waste Station</td>
<td>A - Z</td>
</tr>
<tr>
<td>SLS Sewage Lift Station</td>
<td>1 - 99 or AA - ZZ</td>
</tr>
<tr>
<td>Parking Garage</td>
<td>CP Central Terminal Parking Garage</td>
</tr>
<tr>
<td>Parking Lot</td>
<td>UA - UH Utility Tunnel</td>
</tr>
<tr>
<td>Parking Garage</td>
<td>1A - 1H Level 1 parking area core A to Core H</td>
</tr>
<tr>
<td>Parking Lot</td>
<td>2A - 2H Level 2 parking area core A to Core H</td>
</tr>
<tr>
<td>Parking Garage</td>
<td>3A - 3H Level 3 parking area core A to Core H</td>
</tr>
<tr>
<td>Parking Lot</td>
<td>4A - 4H Level 4 parking area core A to Core H</td>
</tr>
<tr>
<td>Parking Garage</td>
<td>5A - 5H Level 5 parking area core A to Core H</td>
</tr>
<tr>
<td>Parking Lot</td>
<td>6A - 6H Level 6 core A to Core H</td>
</tr>
<tr>
<td>Parking Garage</td>
<td>7A - 7H Level 7 core A to Core H</td>
</tr>
<tr>
<td>North International Parking Garage</td>
<td>NPG</td>
</tr>
<tr>
<td>South International Parking Garage</td>
<td>SPG</td>
</tr>
<tr>
<td>United Parking Garage</td>
<td>UPG</td>
</tr>
<tr>
<td>VIP Parking Garage</td>
<td>VPG</td>
</tr>
<tr>
<td>Security Checkpoint</td>
<td>CHK</td>
</tr>
<tr>
<td>R-16 Checkpoint</td>
<td>16</td>
</tr>
<tr>
<td>R-18 Checkpoint</td>
<td>18</td>
</tr>
<tr>
<td>Bravo Checkpoint</td>
<td>B</td>
</tr>
<tr>
<td>Cargo Checkpoint</td>
<td>C</td>
</tr>
<tr>
<td>Coast Guard Checkpoint</td>
<td>CG</td>
</tr>
<tr>
<td>Romeo Checkpoint</td>
<td>R</td>
</tr>
<tr>
<td>Quebec Checkpoint</td>
<td>Q</td>
</tr>
<tr>
<td>Ground Transportation Center</td>
<td>GTC</td>
</tr>
</tbody>
</table>

---

**Table E-1: Site Name Standard**
Door Number

In general, there are three types of doors in the Airport: room door, hallway door, and facility entrance/exit door. Room's Door Number consists of the Room Number and the Door Identifier. In contrast, hallway door and facility entrance/exit door comprises the Site Name and the Door Identifier.

\[
\text{\underline{\text{Site}} \quad \underline{\text{Sector}} \quad \underline{\text{Room}} \quad \underline{\text{Door}}}
\]

The Door Number exists only in the electronic data format but not in Airport day-to-day operations with the exception of the Airfield Operation Area (AOA) access doors. Airport room doors should be labeled with their associated room numbers, not their door numbers. The facility entrance/exit door is usually labeled by its associated Site Name with or without the descriptive name, and the hallway access door is either left blank or descriptively labeled with what it leads to. For example: “676” should appear on every entrance/exit door of the Engineering Building along with the building name; the hallway doors that lead to the Deputy Director's office are left blank.

The Door Identifier has a maximum length of three characters and a period is the door separator. The minimum length of the Door Number is four characters; for example, “BA.1” - the first entrance/exit door of the Boarding Area A. The maximum length is nineteen characters. See Table E-3 for the list of the Room, Entrance/Exit and Hallway Door Numbers.

There is an exception to this standard. Due to the security interests of the Airport, all access doors that lead to the AOA must be easily referenced and remembered so airport security personnel can swiftly respond to emergencies. The Airport has already adopted a numbering scheme for identifying these AOA access doors, and the scheme can not be altered without the consent of the Airport Operations department. Thus, all AOA access doors are the exception to the rule in day-to-day response operations. To achieve connectivity and data consistency, the numbers designated from this Facility Naming System are the only ones to be used for referencing among Airport Electronic Database Systems. For a copy of the designated AOA door numbers and locations, please contact the Airport Operations department.

---

3 The corresponding Site Name is omitted for simplicity.

4 The corresponding Site Name and/or Room Number is omitted for simplicity.