

GUIDE TO TENANT CONSTRUCTION

Logan International Airport

2016 Interim Edition



Prepared for
Massachusetts Port Authority
by
AECOM USA of Massachusetts, Inc.

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Massachusetts Port Authority GUIDE TO TENANT CONSTRUCTION

Preface

Millions of dollars each year are spent at Massport's facilities on new construction, alterations and upgrades. Much of this is the work of the Massachusetts Port Authority, but a great deal is accomplished by the airlines, concessionaries, and other tenants without whose financial investment, experience and talent the airport would not be the vital place it is. The Tenant Alteration Application process is a necessary and effective way to manage and monitor these improvements in tenant leased spaces and public areas of the airport.

Massport appreciates the investment made by tenants in our facilities, and is committed to doing everything possible to support the investment of our tenant partners in the built environment we share. Through the Tenant Alteration Application process, we will give all suggestions and proposed improvements our consideration, and offer our agency's assistance and cooperation throughout planning, design, construction, and beyond. Tenants are encouraged to establish ongoing communication with Massport staff during their projects' design and construction phases, to help ensure that the project complies with Massport's design and construction criteria and standards.

This Guide was prepared to assist airport tenants in the planning and construction of their projects. This edition updates the previous version of the Guide (1995) and will be updated periodically as requirements are added, deleted or changed. To be added to the mailing list or for updates, or for clarification on any information in this Guide, please contact:

**Capital Programs Department
Massachusetts Port Authority
1 Harborside Drive, Suite 200S
East Boston, MA 02128**

**Telephone: (617) 561-1851
Facsimile: (617) 568-3515**

NOTE: Throughout this document, the names of all available forms and documents are indicated with an underline. All forms are available by contacting Capital Programs at the contact numbers above.

Section 1

Tenant Alteration Application Process

1.01 Introduction

- A. Tenant construction projects are subject to review and approval through the Tenant Alteration Application (TAA) process. Massport's prior written approval is required for all new construction and alterations as described hereinafter. The Capital Programs Department will resolve questions of applicability when unique circumstances occur. Throughout this Guide, the terms "Tenant" and "Applicant" are used interchangeably. Also, any requirements imposed on a contractor performing work permitted under the TAA process are obligations of the entity signing the TAA form.

1.02 Applicability of the TAA Process

- A. Review the list below to determine if a proposed project requires a review through the Tenant Alteration Application process. Generally, all new construction, alterations and improvements require a TAA, whereas certain repair work does not. The following list includes typical airport construction projects, but is not meant to be all-inclusive. In the case of conflict between the Tenant's lease and the requirements of this manual, the terms of the lease shall govern.

TAA's are required for:

- Alterations which by lease obligation require Massport's written approval.
- Any demolition or modification of existing structures, utilities, or equipment on Massachusetts Port Authority property.
- Any new free-standing structure or structural building addition including trailers, modular buildings and temporary structures of any kind.
- New construction of any type, interior or exterior.
- Additions or modifications to the following building systems: electrical, communications, plumbing, HVAC, fueling systems, baggage handling, public address, and fire detection/suppression.
- Rehabilitation/refinishing of an area exposed to public view in a material or finish different from existing.
- All site work, excavation, fencing and landscaping projects.
- Installation of underground or above-ground storage tanks, associated piping and equipment.
- New or replacement carpet, wall covering, draperies, furniture, upholstery or other finishes including any approved under a previous TAA.
- New, modified or relocated signs or graphics in any area visible to the public.
- Installation of all satellite dishes, outdoor antennas, electronic systems, equipment or cabling.
- All airfield and apron work including replacement or rehabilitation of aircraft loading bridges, hydrant fueling system installation, repair or replacement, grounding rods, or related work.
- Changes to aircraft parking layouts.
- Investigative site work (subsurface drilling, monitoring wells, etc.)

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TAA's are NOT required for:

- Emergency repairs (Massport reserves the right to request the submission of a retroactive TAA for certain repair work).
- Routine maintenance of structures, building systems, or landscaping.
- Identical replacement or repair of worn, defective or inoperative systems or equipment, components which are the responsibility of the Tenant.
- Temporary construction trailers for projects which are the subject of TAA process.

1.03 TENANT ALTERATION APPLICATION PROCESS OVERVIEW

Step 1 - TENANT SUBMITTALS TO CAPITAL PROGRAMS DEPARTMENT

FOR ALL PROJECTS, the Tenant must submit to the Capital Programs Department Tenant Construction Office:

1. Signed Tenant Alteration Application Form
2. Plans and Specifications, signed and sealed if required (7 copies)
3. Record Drawing Deposit Form and Check

Step 2 - Distribution/Action by Massport

1. Tenant Alteration Application and project documents are numbered and distributed to designated Massport staff for review.
2. Record Drawing Deposit is deposited in a designated account.
3. Reviewers reply with comments to Capital Programs Department by a designated due date, which is generally 3-4 weeks from the time of receipt and distribution of the TAA package.
4. Conditions of project approval are provided to the Tenant or its designee.

Step 3 - Action by Tenant

1. Tenant provides a written agreement to comply with all project-specific and general conditions of TAA approval.
2. For qualifying projects, Tenant submits a State Building Permit Application and required attachments to Massport for pre-review and approval. Once approved, Massport submits the application package to the State Building Inspector's office, requesting issuance of the State Building Permit if such is required. In some cases a plan examination meeting will be required and will be arranged by the Inspector, Massport, and Tenant.

Step 4 - Permitting and Pre-Construction

1. Capital Programs and tenant schedule a pre-construction conference for the project team to review project documentation and work logistics.
2. Tenant prepares pre-construction submittals according to the requirements of the Project Startup Checklist
3. Capital Programs Department issues Massport Permit for Tenant Alteration.
4. All other permits shall be obtained by the Tenant or its contractors, and copies provided to Massport.
5. If so agreed, the schedule for periodic project meetings is arranged for the duration of construction.

Step 5 - Close-Out

1. When construction is nearing completion, Tenant notifies the Capital Programs Department.
2. Tenant prepares the Closeout Package according to requirements of the Project Closeout Checklist.

3. Massport reviews the closeout materials and recommends to the State Building Inspector and Massport Fire Marshal that final inspections be scheduled.
4. Capital Programs Department returns Record Drawing Deposit to Tenant conditional upon provision of the following:
 - a. Evidence of Certificate of Occupancy issued by State Building Inspector
 - b. Provision of all relevant items noted on Project Closeout Checklist
 - c. Record drawings or disks with record documents as specified by Massport Design Technologies Integration Group (DTIG).

1.04 Notes on TENANT ALTERATION APPLICATION PROCESS OVERVIEW

Step 1 – TENANT SUBMITTALS to CAPITAL PROGRAMS DEPARTMENT

1. Completed Tenant Alteration Application Form

7 copies are required, one with original signature. Tenant Alteration Application forms are available in hard copy or electronic format upon request to the Capital Programs Department. The form may be submitted electronically and must include all three pages, including the General Terms and Conditions. However, an original form with an original inked signature must also be submitted.

Please read the form and its associated General Terms and Conditions carefully. Be certain to include a full scope of work for the project in the appropriate section. “Estimated Construction Cost” shall reflect the total construction value of the work covered by the application. The name of the contractor, if not known at the time of application, must be submitted at a later date.

Sub-lessees proposing construction must submit the TAA designating the prime Tenant as Applicant, and signed by both the prime Tenant and the sub-lessee.

Address for submittal of TAA permit and drawings:
Capital Programs Department
Massachusetts Port Authority
1 Harborside Drive, Suite 200S
East Boston, MA 02128

2. Plans and Specifications – number and format

7 copies are required. Plans shall be printed in a format larger than 11” x 17” but no larger than 24” x 36”. Submittals of plans must be in accordance with Massachusetts State Building Code (780 CMR) and bear the seals and signature required per that regulation. Drawings and specifications shall completely identify the work being proposed, and must include, without exception, the following information:

- a) a site/location plan with respect to existing conditions (include column numbers, coordinates, dimensions to existing structures, or other contextual information);
- b) descriptive plans of both demolition and construction work, which may include demolition plans, floor plans, roof plans, exterior/interior elevations, sections, door/hardware/finish schedules, and trade drawings, including structural drawings or analyses, electrical riser diagrams, plumbing and mechanical drawings, and sprinkler and fire alarm drawings;
- c) complete specifications of all materials, which may be included in the drawings or separately bound.

Any requested variance(s) to or waiver of any applicable submittal or other code requirements shall require advance Massport consent. For variances being sought from other authorities having jurisdiction, Massport must consent to the variance request prior to Tenant’s submission of such requests to that authority, and must be notified of any communications or meetings scheduled on the topic with other authorities.

3. Deposit Form and Check

Most Tenant Alteration Applications, at the time of submittal, must be accompanied by a monetary deposit to insure submittal of record documentation and satisfactory completion of other project requirements at the close of the project. Deposits are returned to the applicant upon successful closure of the project as detailed in Step 7. Massport may waive the deposit requirements for projects with a total project cost of less than \$5,000.00, for those projects for which the record drawing submittal requirements does not apply, or in other defined circumstances.

Checks shall be made out to “Massachusetts Port Authority”, and returned with the completed Deposit Form to the Capital Programs Department according to the following schedule:

ESTIMATED TOTAL PROJECT COST	DEPOSIT AMOUNT
\$20,000 or less	No deposit required
\$20,000 - \$49,999	\$2,500
\$50,000 - \$99,999	\$5,000
\$100,000 - \$249,999	\$10,000
\$250,000 - \$499,999	\$15,000
\$500,000 - \$999,999	\$20,000
\$1,000,000 and over	\$20,000 for first million + \$10,000 per subsequent million up to \$50,000 MAXIMUM

Deposits in Massport’s possession which remain unclaimed after a period of 90 days after completion of the project shall be deemed abandoned by the Tenant and shall become the property of Massport. “Completion of the project” shall be defined as the date of issuance of the Certificate of Occupancy, if applicable; otherwise by the date of beneficial occupancy of the project by the Tenant.

Step 2 - Distribution/Action by Massport

1. TAA and project documents are distributed to Massport staff for the evaluation of the project’s physical design, business and lease implications, code compliance and operational viability. Tenant Alteration Application packages may be distributed to the following departments: Fire Department, Facilities Maintenance, Utilities Management, Airport Business Office (Leasing/Properties), Airport Operations, Capital Programs, Legal Department, Real Estate & Asset Management, Environmental Management, Risk Management, Transportation Services, and/or others. The documentation is reviewed, and reviewers recommend approval or disapproval of the project with specific conditions by the Review Due Date.
2. **The TAA review period ordinarily requires two to five weeks from the time the TAA and documentation are received by the Capital Programs Department, dependent upon the following: a) the size and scope of the project with respect to the complexity and estimated construction value; b) the extent of a project’s impact to adjacent buildings and neighboring sites; c) the project’s impact on the airport’s landside and or airside operations; and d) the quality, clarity, and completeness of the submitted documents.** Tenants should be sure to make an allowance for this review time when ordering materials and scheduling the construction program. Certain limited or routine projects may qualify for an expedited review procedure resulting in a shorter turnaround time. Project participants will be advised if their projects qualify. Submission of incomplete or inadequate TAA documentation will delay the review turnaround time for the project.
3. Massport, in its sole discretion, reserves the right, in accordance with its TAA review process, to require the Tenant, its contractors or subcontractors to demonstrate, to Massport’s satisfaction, that the contractor or subcontractor(s) proposed for the work possess the experience, qualifications, skill,

ability, competent workmanship, integrity, and financial soundness to satisfactorily perform the work. The Tenant, its contractor or subcontractor(s) shall, upon Massport's request, submit such information or documentation necessary for Massport to perform its review or evaluation. On all questions of acceptance or rejection of a contractor or subcontractor under this provision, Massport's decision shall be final.

4. Record drawing deposit is held in Massport account. (See Step 1, above.)
5. Conditions of project approval are forwarded to the Tenant for its response and agreement.

Step 3 - Action by Tenant

1. Conditions of project approval are forwarded to the Tenant for its response and agreement. If the Tenant cannot comply with one or more of Massport's requirements, or if clarification is needed, the Tenant must so advise Massport. Massport will review and approve the TAA response before issuing its final approval and permit. NOTE: All review comments generated by Massport's TAA process must be reflected in revisions to the Tenant's construction documents (if prior to bidding), or in addenda to the documents.
2. Upon issuance of review comments, the Tenant will have 180 days to submit its response to comments and revised ("conformed") plans or drawings. If there is no resubmission or response from the Tenant during this period, the TAA application will expire, and the Tenant will be required to submit a new application.
3. Virtually all vertical construction projects at Massport properties are subject to review and approval by the Commonwealth of Massachusetts Department of Public Safety's Building Inspector. A State Building Permit application, along with accompanying plans and related submittals, shall be submitted to Capital Programs for pre-review and approval, after which they will be transmitted to the State Building Inspector for his action. Upon review of the completed Application for Building Permit package, the State Building Inspector will make the determination of approval or denial of the package, and will inform Massport. The State Building Inspector may require any such changes to the project as required to bring the design into conformance with the Commonwealth of Massachusetts Building Code, 780 CMR. Once issued, the building permit shall be valid for six months from date of issuance. The fee for the permit is one half of one percent of total estimated project cost, which shall be paid by check made out to "Commonwealth of Massachusetts".

Step 4 - Permitting and Pre-Construction

1. A pre-construction conference will be scheduled to take place at Massport's offices. The Tenant's representative, general contractor, and design consultants are required to attend the meeting.
2. Please reference the Project Start-Up Checklist for required submittals at the pre-construction conference.
3. The Capital Programs Department shall issue the Permit for Tenant Alteration at this meeting. There is no fee for this permit. This permit is valid for one year (365 days) from date of issuance. If permitted work does not commence within one year of the permit date, the Permit for Tenant Alteration will expire and become null and void; the Tenant will then be required to resubmit the permit application and plans to Massport for re-review and approval.
4. Arrangements for electrical (high and low voltage), plumbing, gas, fire department and other permits, if the project includes such work, are the responsibility of the Tenant and its trade contractors. Electrical permits are issued by the City of Boston Inspectional Services Department; plumbing permits are issued by the State Board of Plumbing Examiners. Board of Health signoff for food

service projects shall be through the City of Boston and is the responsibility of the Tenant. Copies of all permits shall be provided to Massport upon receipt.

5. Certain projects will require a weekly or bi-weekly progress meeting for the duration of the project. Schedule of dates and meeting places will be arranged with all participants at the pre-construction conference.

Step 5 - Project Closeout

1. When construction is nearing completion, Tenant notifies the Capital Programs Department.
2. Closeout documentation is very important and must be submitted to the Capital Programs Department before Massport considers the project to be complete. Tenant teams shall request a Project Closeout Checklist from Massport, which must be completed and submitted as part of a closeout book at the time the project is concluding. The closeout process will be reviewed in detail with the Tenant at the pre-construction conference.
3. The Capital Programs Department returns the record drawings deposit to Tenant conditional upon the Tenant's completion of the closeout requirements, as noted above. In addition, Tenant must submit record drawings, stamped and signed by the architect/engineer/professional of record attesting to their accuracy AND in the format specified in Section 7.04) of this Guide, or as formally approved by prior agreement with Massport, within 90 days of the date of substantial completion.

1.05 Project Development

- A. The Guide to Tenant Construction is not intended to address every type of condition or detail which individual Tenants may encounter in the course of their projects. It is the responsibility of the Tenant to establish familiarity with the base building design and with individual building elements peculiar to its leasehold(s) prior to initiating design and construction.
- B. Certain projects may require that the Tenant tie-in to base building or site systems (mechanical, electrical, fire protection, utility, etc.) at a location beyond the Tenant's leased area. Any such action must be approved by the Massport through the TAA work plan process and shall be accomplished by the Tenant's contractor. Work Plan Forms are available upon request.
- C. For some areas of the Airport, base building drawings are available upon request and for inspection by the Tenant's project representatives. Drawings and specifications may not reflect complete existing or as-built conditions. Massport will make reasonable efforts to inform the Tenant of existing conditions; however, it shall remain the responsibility of the Tenant and its consultants to verify current documents and perform site surveys as necessary to verify field conditions.
- D. Projects to be constructed in certain areas of the Airport may be subject to design and development guidelines for that area. The Tenant will be advised of its need to consult such requirements during the project development phase.
- E. The Tenant shall engage a qualified architect or engineer, or other professional as appropriate, licensed in the Commonwealth of Massachusetts, in the preparation of the design, working drawings, calculations, specifications, and construction contract documents as required by the Massachusetts Building Code, 780 CMR. The Capital Programs Department will provide, upon request, a partial list of architectural, design and engineering consultants who have previously participated in tenant projects at our facilities. The Tenant, at its option, may contact these or any other consultants and retain their services. No endorsement by Massport of any consultant on this list is intended or should be inferred.

- F. For certain complex projects, including those to be submitted in phases, a pre-design conference may be required. The Tenant will be notified of this as early as possible in the lease negotiation or project development process

(End of Section)

Section 2

Terms and Conditions

The terms and conditions below apply to all Tenant construction projects. Please read them carefully. The Tenant's signature on the TAA form constitutes agreement to comply with and be bound by all conditions of project approval stated in this Guide, on the TAA form, and/or otherwise required through the TAA review process. Applicant acknowledges that in addition to this TAA form there is a Right of Entry or Lease Agreement by and between the Authority and Applicant providing Applicant with entry upon the work area. It is intended that the terms and conditions of the TAA supplement the terms and conditions relating to Tenant alterations and other Tenant obligations under the Right of Entry Agreement or the Lease Agreement between the Applicant and the Authority. In the event of conflict between this TAA form and the Right of Entry or Lease Agreement, the terms of the Right of Entry or Lease Agreement shall control.

In these terms, "The Authority" references the Massachusetts Port Authority.

2.01 General Terms and Conditions

A. The Applicant shall obtain prior to, and keep in full force and effect during construction, any and all permits, licenses and approvals relating to the work that is the subject of this TAA as required pursuant to applicable federal, state and local laws, statutes, ordinances, rules, regulations, directives and orders.

B. The Applicant shall perform all construction under this TAA in accordance with all federal, state, and municipal laws, statutes, orders, ordinances, rules, regulations, and directives, if any, as may be legally applicable to the work or the performance thereof. Applicant shall consult with the Authority with respect to the applicability of any and all laws, statutes, enactments, ordinances, resolutions and regulations and as to the procedures to be followed before taking any other action with respect thereto, and shall follow the instructions and procedures prescribed by the Authority with respect thereto. Applicant shall be solely responsible for assuring compliance with the Massachusetts Environmental Policy Act and all other laws.

C. Approval by the Authority of the work described herein shall not create any liability on the part of the Authority for the design sufficiency of such work or its compliance with any applicable laws, statutes, ordinances, rules, regulations, directives or orders, nor does it relieve the Applicant of its responsibility for assuring compliance.

D. Approval by the Authority of the work described herein shall not waive any rights of the Authority under M.G.L. Ch. 21E, Sec. 1 et. seq., or any other local, state or federal law, statute, ordinance, rule, regulation, directive or order to compel Applicant to assess, contain, remove, remediate, clean-up or take any other response action on connection with any oil or hazardous waste or material that:

1. Has been released or threatens to be released on or from the Premises on which the work subject to this TAA is performed, or
2. Is released or threatened to be released in connection with the work subject to this TAA or to seek payment for or reimbursement of any damages, costs and liabilities of the Authority or any third party for such assessment, containment, removal, remediation, clean-up or response action.

E. The Applicant shall also observe and obey and direct its officers, employees, agents, consultants, vendors, and contractors to observe and obey the rules, regulations, and directives of the Authority now in effect which are applicable to the performance of the work, and such further applicable rules, regulations and directives which may from time to time during the said performance be promulgated by

the Authority for reasons of safety, security, health, preservation of property or maintenance of a good and orderly appearance of the facility, or for the safe and efficient operation of the facility.

F. The Applicant shall procure and maintain bodily injury and property damage liability insurance on an occurrence basis in its own name in at least the limits specified on the TAA, the Right of Entry Agreement or the Lease Agreement, and worker's compensation insurance, as required by law; or if the work is to be done by an independent contractor, the Applicant shall require such contractor to procure and maintain such insurance in the contractor's name. A certificate evidencing such insurance shall be furnished to the Authority prior to the commencement of the work.

G. Based on information submitted by Applicant in the TAA, the Authority will consider whether the proposed project has the potential to result in the discovery or generation of asbestos containing materials, oil-contaminated media, or other hazardous materials, or to impact any known areas of contamination. Prior to commencement of project construction, Applicant may be required to conduct pre-characterization studies of structures, soil, groundwater, and/or other relevant media as the Authority, in its reasonable judgment, deems necessary to determine the scope and nature of the potential for discovery or generation of asbestos-containing materials, oil-contaminated media, or other hazardous materials. Any such hazardous materials discovered or generated during the course of the work approved by this TAA must be reported immediately to the Authority and must be handled and disposed of in accordance with the terms and conditions of the Right of Entry Agreement or the Lease Agreement.

H. The Applicant shall pay all claims lawfully made against it or against the Authority by contractors, subcontractors, material personnel and workers, and all claims lawfully made against it by other third persons arising out of or in connection with or because of the performance of the work; and shall cause all contractors and subcontractors to pay all such claims lawfully made against them.

I. All approved construction shall be performed in a professional manner, using only first-class materials. Quality control is the responsibility of the Applicant. Work shall be done in accordance with the drawings and specifications described in Part 1 of the TAA form and approved by the Authority, to the satisfaction of and subject to the inspection of the Authority's representatives. The Applicant shall re-do or replace at its expense, any work not approved by the Authority's representatives.

J. Prior to the commencement of the work and throughout the performance thereof, the Applicant shall erect and maintain at its own expense in or about the space such barriers, shields, and other suitable protective devices for the protection of the public and others and their property as in the opinion of the Authority may be necessary or desirable for the purpose. The work shall be performed in such manner as will cause the minimum inconvenience to members of the public and others at the facility. During the performance of the work, the Applicant shall not permit the accumulation in or about the space of any debris, rubbish, or litter, of any sort, resulting from the work, and shall make such arrangements for the frequent and controlled removal thereof from the facility, by means to be furnished by the Applicant, as may in the opinion of the Authority be necessary to prevent such accumulation.

K. In the performance of the work covered by this TAA, the Applicant shall not employ any contractor nor shall the Applicant or any of its contractors employ any persons or use or have any equipment or materials or allow any condition to exist if any such shall, or in the opinion of the Authority, cause or be conducive to any labor troubles at the facility which interfere, or in the opinion of the Authority, are likely to interfere, with the operation of the facility by the Authority or with the operations of others at the facility or with the progress of other construction work thereat. The determinations of the Authority shall be conclusive on the Applicant and upon notice from the Authority, the Applicant shall immediately remove such contractor or withdraw or cause its contractors to withdraw from the facility the persons, equipment, or materials specified in the notice and replace them with unobjectionable contractors, persons, equipment and materials and the Applicant shall or shall cause its contractor to immediately rectify any condition specified in the notice.

In the event of failure by the Applicant or any of its contractors to immediately comply with the requirements of this paragraph, 2.01.M, whether or not such failure is due to the Applicant's fault, the

Authority shall have the right to suspend Applicant's work under this TAA, and the permission thereby granted, without prior notice. When the labor troubles shall be so settled that such interference or the danger thereof no longer exists, the Authority, by notice to the Applicant, shall permit recommencement of the work on all the same terms and conditions, as before the suspension. "Labor troubles" shall mean and include strikes, boycotts, picketing, work stoppages, slowdowns, complaints, disputes, controversies or any other type of labor trouble regardless of the employer of the persons involved or their employment status, if any. No allowance of any kind will be made for suspension of work by order of the Authority, and the Authority shall not be liable for delay damages arising out of the suspension of the work.

L. The Applicant shall notify the Authority not less than two days prior to the commencement of the work, and shall complete the work fully and acceptably within the number of days specified in Part 1 of the TAA, and upon completion shall notify the Authority in writing, and shall provide as-built documentation as specified by the Authority. In the event the work performed pursuant to this TAA does not require a building permit, then at the completion of such work, the Authority reserves the right to request that the Applicant provide the Authority with a closeout certificate and all associated backup documentation.

M. The Authority's approval of the TAA shall not imply the existence of any lease or leasehold interest of the Applicant in any space at the Airport.

N. The Authority reserves the right to require a performance bond to ensure compliance with all terms and conditions of the TAA, as it may be approved.

2.02 Alteration of Terms and Conditions

A. It is intended that the terms and conditions of the TAA supplement the terms and conditions relating to Tenant alterations and other Tenant obligations under the existing lease between Tenant and the Authority. In the event of any inconsistency between the terms and conditions of this TAA and the terms and conditions of the existing lease, the more restrictive and stringent provision as applied to the Tenant shall control and govern.

(End of Section)

Section 3

Insurance Requirements

3.01 Insurance Requirements - General

- A. The contactor and subcontractor(s) shall not commence work under their contract until each has obtained all the insurance required by these specifications and/or provisions.
- B. The types and minimum amounts of the insurance to be provided for by the contractor and subcontractor(s) shall be as defined hereinafter.
- C. Each policy of insurance required herein shall be in a form and by a company reasonably satisfactory to Massport. Each insurer shall be authorized to do business in Massachusetts and shall have a so-called A. M. Best rating of "A-" or better.

3.02 Worker's Compensation Insurance

- A. The contactor and subcontractor(s) shall, before commencing performance of the work, provide Workers' Compensation insurance as required by law, including Employers Liability insurance with a minimum limit of One Million Dollars (**\$1,000,000.00**), or evidence of satisfactory compliance with the regulations of the Commonwealth of Massachusetts regarding self-insurance, for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws, as amended, to all persons to be employed under the contract, and shall continue such insurance in full force and effect during the term of the work itself.

3.03 Public Liability (Bodily Injury and Property Damage Liability Insurance)

- A. Comprehensive General Liability – Tenant shall ensure that the contractor and subcontractor(s) shall provide a Comprehensive General Liability Policy, including products/completed operations coverage, with a combined single limit provision for bodily injury and/or property damage of a minimum of One Million Dollars (**\$1,000,000.00**), and written on an occurrence basis, and including XCU coverage (explosion, collapse, underground).
- B. Comprehensive Automobile Liability and Property Damage – The contractor and subcontractor(s) shall provide comprehensive automobile liability insurance for bodily injury and property damage with a minimum combined single limit of not less than **\$1,000,000**, written on an occurrence basis, covering all owned vehicles, or non-owned vehicles for all damages arising out of bodily injuries, death or destruction of property.

Contractors and subcontractors that need **airside access** to perform the proposed work are required to obtain comprehensive automobile liability insurance for bodily injury and property damage with a combined single limit of not less than **\$10,000,000** covering all owned, hired, and non-owned vehicles for all personal and property damages arising out of bodily injuries, death or destruction of property. Such airside access shall be obtained only after completing the requisite Application for Ramp and Aerodrome Vehicle Permit with Aviation Security.

NOTE: Massachusetts Port Authority shall be named as an additional Insured on all policies of liability insurance.

- C. Property Insurance – The contractor and subcontractor(s) shall provide property insurance to cover contractor and subcontractor(s) business personal property and property in the contractor and subcontractor(s) care, custody and control as regards the entire work at the site to the full insurable interest thereof and shall with respect to said property insurance designate the Tenant and Massport as Additional Insureds and Loss Payee as their interest may appear.

For insurance purposes, the size of work and/or the project site includes not only the limited physical work areas involved but also certain other areas of operations set up for utility, sanitary, electrical, water pollution control, disposal, and cleaning purposes; to furnish materials for the work including storage and stockpile areas; and all routes between and among them.

Contractor and subcontractor(s) shall also provide Builders Risk coverage for projects that involve the construction of facilities separate and apart from existing structures.

- D. All limits of liability and coverage are subject to review and change based upon the nature and scope of work to be performed.

3.04 Pollution Liability Insurance

- A. When projects involve oil and hazardous materials (i.e. tank, pipeline removals), they shall carry appropriate pollution liability insurance, as determined by Massport.

3.05 Procedures

- A. A certificate of insurance recognizing the Massachusetts Port Authority as an additional insured and specifically endorsed to recognize the Tenant's obligations pursuant to the lease agreement, shall be provided to Capital Programs prior to the issuance of the Massport Permit for Tenant Alteration and/or the Building Permit.
- B. Insurance certificates shall contain an agreement that such policies of insurance shall not be altered or cancelled by the insurer during its term without giving at least thirty (30) days written notice to Massport.
- C. Massport shall receive annually updated certificates indicating insurance coverage.
- D. Insurance certificates shall reference the project's TAA number, and shall be submitted for every TAA project.
- E. Questions on Massport's insurance requirements should be directed to the Massport Risk Management Department.

(End of Section)

Section 4

Design, Materials and Standards

4.01 General Design Construction Standards

A. General Construction Standards

1. Tenant projects are generally subject to the construction standards indicated herein. Any proposed deviation from these standards shall be subject to review and approval by the Capital Programs Department.

4.02 Architecture

4.02.1 General Requirements

- A. Gypsum wall board must be minimum 5/8" thick, fire-resistant Type X per American Society of Testing Materials Designation C36, latest edition.
- B. Metal door frames in new construction must be welded. Knock-down types are not permitted.
- C. All restroom and bathroom facilities are required to include a three foot high (minimum) knee wall from the floor base, completely around the entire wall perimeter outline to prevent possible damage from cleaning processes and allow less deflection to bathroom carrier rods. Under no circumstances should substitutions be allowed.
- D. All HVAC, electrical and plumbing conduit and piping cored holes must be sealed from both the top and bottom of penetrations once the pipe is installed in order to achieve a waterproof condition. The top seal must include a three-inch collar, either epoxy sealed or welded to the floor with a rubber seal to the pipe that will not allow water to follow the pipe path to the floor below. The bottom opening must be sealed in the event of a breach of the top seal.
- E. For sites located under a metal pan roof deck, nothing shall be hung from the roof deck, including drop ceilings, light fixtures, conduit, ductwork, or pipe. Everything must be supported from Unistrut (or similar), to be run between the bar joists. Anything hung directly from the structure must be designed and specified by the engineer of record (EOR) and submitted to Massport for approval.

4.02.2 Carpet Material

- A. All new carpet material must reflect an acceptable Critical Radiant Flux Test Criteria as specified in 780CMR 7th Edition, "State Building Code".
- B. A minimum Critical Radiant Flux Test rating of 0.22 watts centimeter squared or better is acceptable within a building with 100% sprinkler protection throughout.

- C. A minimum Critical Radiant Flux Test rating of 0.45 watts per centimeter squared or better is acceptable within a building without sprinkler protection, if approved by Massport's Fire Marshal's Office.
- D. Carpet material must be installed only by methods defined in applicable test reports and presented to Massport's Fire Marshal's Office for review and approval. If a carpet is tested as direct glue down installation, then it must be installed in the same manner, without any type of padding and/or underlayment.
- E. Carpet Material Test Reports from an approved testing laboratory must be submitted to Massport's Fire Marshal's Office for review and approval prior to carpet installation. Specification data sheets from the manufacturer will not be accepted in lieu of an actual material test report.
- F. Massport's Fire Marshal's Office reserves the right and authority to oversee and further regulate the installation of any and all carpet installation within Massport's facilities and Tenant areas. New carpet installation in any areas that are not regulated by 780CMR State Building Code will be evaluated for use on the basis of either Critical Radiant Flux Test Criteria and/or flame spread, fuel contribution, or smoke development test criteria.

4.02.3 Other Interior Finishes

- A. Interior finish and materials installed within building areas must comply with both 780CMR, State Building Code and 527CMR State Fire Prevention Regulations latest edition requirements.
- B. All materials used for interior finish and/or for decorative purposes must be approved for use prior to actual installation. Flammability Test Report Data, Manufacturer Specification Data, etc. must be submitted to Massport's Fire Marshal's Office for review and approval prior to material installation.
- C. Interior finish material must be installed on non-combustible surfaces. If new finish material is to be installed on existing surfaces, then all finish materials, glues, bonding agents, etc. must be removed prior to installation of any new material.
- D. Interior finish material must be installed in accordance with approvals issued by designated testing agency.
- E. Acoustical type ceiling tiles must have a Class A Flame Spread Rating. Suspended ceilings and their support systems must be listed by Underwriters Laboratories, Inc. as non-combustible construction. Combustible construction and building components are not permissible above any ceiling areas. Insulation for pipes and duct-work (including duct liners) and their adhesives must be non-combustible and listed by Underwriters Laboratories, Inc. as non-combustible building materials.

4.02.4 Decorative Material

- A. All types of decorative materials to be utilized within Massport buildings must satisfy all requirements regulated by 527CMR, Section 21.00 "Decorations, curtains, draperies, blinds, and other window treatment", latest edition. Manufacturer data sheets must be submitted to Massport's Fire Marshal's Office for approval.

4.02.5 Furniture

- A. Upholstered furniture, molded seating and re-upholstered furniture must comply with State of California, Bureau of Home Furnishing and Thermal Insulation Technical Bulletin Number 133 (Cal. 133) entitled "Flammable Test Procedures for Seating for "Use in Public Occupancies", dated 1991 as amended as regulated by 527CMR, Section 29.
- B. The following label shall be attached to every article of regulated furniture complying with Technical Bulletin Cal. 133.

NOTICE: THIS ARTICLE IS MANUFACTURED FOR USE IN PUBLIC OCCUPANCIES AND MEETS THE FLAMMABILITY REQUIREMENTS OF CALIFORNIA BUREAU OF HOME FURNISHING TECHNICAL BULLETIN 133. CARE SHOULD BE EXERCISED NEAR OPEN FLAME OR WITH BURNING CIGARETTES.

4.02.6 Laminated Glass

- A. New glass installed in areas accessible to public (non-security areas) shall be laminated glass.
- B. Laminated glass shall be two lights of heat-strengthened glass with a .060 inch inter-layer sandwiched between the glasses to form monolithic panels, manufactured to meet or exceed quality standards established by ASTM C 1035, CPSC 16 and ANSI Z97.1

4.02.7 Door Locks

- A. Access to Tenant doors may be required by Massport and such necessity will be determined during the review of the project. Accordingly, when preparing door hardware specifications, the Tenant should review locking requirements with the Massport's Lock Shop as coordinated through the Capital Programs Department.

4.02.8 Roof System Design

- A. Massport generally specifies a Sarnafil roof system designed for FM-120 wind uplift. If it is a component of the project, the Tenant should review the roof system design with the Capital Programs Department.

4.02.9 Aircraft Loading Bridges

- A. Any new loading walkway and all work associated with the installation and/or the repair or alterations of any type of aircraft loading walkway must be in compliance with NFPA-415, "Standard for Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways".

4.03 Mechanical Systems

4.03.1 Mechanical HVAC systems

- A. All mechanical system contract documents (drawings and specifications) shall be designed and stamped by a Massachusetts registered professional engineer (P.E.)
- B. The design of HVAC systems must meet all applicable manufacturer standards, SMACNA, ASHRAE, state, and local minimum codes. The Tenant's project designer, as part of the TAA submittal, shall provide Massport with complete information on the characteristics of all HVAC equipment components proposed for the work in electronic tabular form, and shall update this information at the completion of construction should any of the components be altered during the construction period.

- C. For both indoor and outdoor installations and modifications, all equipment identified under the TAA (whether new or existing) must be clearly marked with a permanent, weatherproof label indicating the tenant name, equipment ID, and TAA#. All piping and duct labeling should be added or maintained in tenant space, such as GAS, DOMESTIC COLD, HOT WATER SUPPLY / RETURN, CHILLED WATER SUPPLY / RETURN, MAKE-UP AIR, EXHAUST AIR, SUPPLY AIR, etc.
- D. All HVAC equipment, including but not limited to AHU's, FCU's, RHC's, VAV's, and FPB's,, requiring maintenance and repair, must have adequate access both to equipment and components such as fans, motors, coils, dampers, fire dampers, etc., and shall not negatively affect the access to adjacent tenant areas or building systems.
- E. Where Tenant plans require the use of existing equipment and systems, the Tenant is responsible for the evaluation, repair or replacement, or to restore the system to working order. (Note: Typically, tenants operate and maintain the equipment in their spaces; therefore, Massport may not be aware of maintenance requirements, repair frequency or equipment reliability.)
- F. Equipment and systems being installed with the intention to be maintained by Massport shall be controlled electronically down to the space sensor utilizing MPA's proprietary HVAC network controls (EMS). Terminal AT & AS and some other locations require that branch zones be on the MPA HVAC Energy Management System (EMS) "Carrier CCN", regardless of the M&R. Supplemental systems are not required to be on the MPA HVAC EMS.
- G. Typical filter configurations for units requiring direct "field side" outdoor air are: 35% pre-filter, 65% to 85% secondary, and carbon box or tray final (may require dusting filter).
- H. Base building HVAC systems for Primary conditioning - 1cfm/ft² is the maximum allowed for supply and return for the space. Additional heating or cooling will require supplemental equipment provided by the Tenant project.
- I. Where exhaust is being used, an equal amount of make-up air shall be provided by the Tenant project. An Interlock between the Exhaust Fan and Make-up Air Unit shall be used. This will prevent the EF from being run without the MAU.
- J. Outdoor remote condensers should be used to reduce heat gains, where possible. If remote condensers cannot be used, the additional gains must be included in the load calculations
- K. Massport will review TAA's as submitted but does not necessarily have accurate knowledge of tenant heating and cooling loads, the number of occupants for required minimum outdoor air CFM, or distribution and control. The Engineer is assumed to have done all of the required design and implementation calculations. The Engineer shall verify that tenant equipment is of adequate size and is operating according to specification, and may be requested to provide these calculations to Massport.
- L. Where the installation of roof-top equipment is required, the contract documents shall depict all roof penetrations and associated equipment mounting and support details and structural loadings.
- M. Unused equipment and materials shall be removed. Abandonment of equipment is not allowed.

4.03.2 Modifications to Base Building HVAC Systems

The following requirements apply to those TAA areas which are serviced by base building HVAC systems such as chilled water, hot water, HTHW, steam or pre-conditioned air.

Base building HVAC systems include but are not limited to: Constant volume with zone reheats, Constant Volume Hot/Cold deck single duct, Constant Volume Hot/Cold deck dual duct, Constant

Volume single zone with reset DAT, Variable Air Volume w/single zone reset DAT, Variable Air Volume w/VAV master reset, Variable Air Volume constant temperature w/zone VAV and reheat, Variable Air Volume with Fan Powered Terminal Boxes with and or without reheat.

Base building heating systems vary also (Steam, HTHW, HW, GHW, Gas, Oil, or Electric heat).

Note: Use of building pneumatic air will not be allowed for the Tenant's new or modified control systems.

- A. A minimum of one electronic space sensor monitored by Massport's proprietary network (HVAC EMS) shall be located in an area that will best represent the average space temperature. Large spaces may require multiple sensors.
- B. Air and water test and balance reports are required: CFM and GPM, design vs. actual. Balance reports are verification that the air from base building systems does not exceed 1cfm/ft², that required make-up air is sufficient for the amount of exhaust air, and that the new system does not affect current adjacent tenants,
- C. If High Temperature Hot Water (HTHW) and/or Chilled Water (CW) systems are being utilized, the project is required to update and submit CW & HTHW flow diagrams. Massport will provide current flow diagrams in electronic format, and the Tenant shall revise and return the flow diagrams in the same format.
- D. Isolation valves, dampers, disconnects, etc., shall be installed to isolate the system, to facilitate convenience of service and maintenance.
- E. Massport's involvement in the contractor's functional and performance testing shall be limited. The contractor shall demonstrate that installed or modified HVAC systems are capable of maintaining a temperature within 2 degrees of the design set-point in all zones.
- F. If dedicated local control of HVAC systems is proposed by the TAA (for tenant operation and maintenance), systems will be designed, installed, tested and balanced in a way that will not adversely affect building pressure or loads in general areas or base building systems outside of the tenant space (i.e. exhaust fans, make-up air units, etc.).
- G. Terminal A and A Satellite buildings (and other future locations) are VAV systems with electronic network boxes. Any modifications to these systems require the involvement of Massport's proprietary HVAC EMS control contractor.
- I. HVAC systems within Massport buildings are not all the same in all locations. Prior to designing an HVAC system, The Tenant must determine the type of existing system(s) in the proposed location so that a compatible system can be designed. This can be done by visiting the space and base systems, or the MPA HVAC department can assist. Do not assume that the equipment installed by former tenants is proper or adequate.

4.03.3 Mechanical Insulation

- A. All horizontal insulated piping below 6 feet above the finish floor level must be equipped with a metal jacket with integral metal banding.
- B. Rigid or semi-rigid insulation on HVAC equipment must be attached using welded pin and speed washer assemblies.

4.03.4 Kitchen Hood System

- A. Kitchen hood and kitchen hood suppression systems shall be designed, installed and tested per NFPA-96, "Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations," 2004 Edition. Suppression systems shall be interconnected to the building fire

alarm system. Tenants shall maintain adequate cleaning of kitchen hood systems and testing of suppression systems in accordance with 527CMR "Fire Prevention Regulations" and as directed by Massport's Fire Marshal's Office. Tenants shall provide copies of a contractual testing, cleaning and maintenance agreement prior to final inspections.

4.04 Electrical Systems

4.04.1 Electrical Systems - General

- A. The requirements of the Massachusetts Electrical and Building Code, as currently amended, shall be fully met and shall be used as the minimum basis of design.
- B. Once approved by Massport, no significant changes shall be made by the contractor unless these changes are submitted to, and approved in writing by Capital Programs and by the Massport Electrical Department. Any shut-down of the electrical system requires the approval of the Massport Electrical Department. Application shall be made using the Electrical Shutdown Form (available upon request).
- C. All work is subject to the inspection and approval of the Wiring Inspection representative of the Division of Inspectional Services of the City of Boston and by Massport. Contractors are responsible for the acquisition of any and all necessary permits.
- D. All work shall be performed by competent licensed electricians as required by the applicable code, using the quality and quantity of materials at least equal to those specified in the approved contract documents.
- E. After the construction of any electrical system, the installing contractor shall prepare and submit complete certified As-Built Drawings showing all parts of the work as actually installed prior to Massport's acceptance of that system. As-Built Drawings shall be prepared as provided under RECORD DRAWINGS Section of this document.
- F. All wiring 600 volt and below shall be copper conductors with No. 12 AWG minimum size, type THW, THHN, THWN, or XHHW, 600 volt insulation as required. A separate green grounding conductor shall be furnished and installed for each feeder and/or branch circuit.
- G. All wiring above 600 volt shall be called high-voltage wiring and comply with the following:
 - 1. A contractor working on Massport's high voltage system shall be an electrical contractor that specializes in the installation and maintenance of high-voltage (5KV and 15KV) systems with a minimum of ten (10) years continuous experience as a qualified high-voltage contractor.
 - 2. The Contractor shall submit a list of names of personnel certifying that their employees are qualified in the specialty of high-voltage wiring, splicing and cable terminations with a minimum of five (5) years recent experience in the installation of conventional built-up hand taped splicing and cable terminations.
- H. No aluminum conductors or conduit are permissible except upon special application and with Massport's approval.
- I. The minimum conduit size for homeruns shall be 3/4".
- J. All wiring installed over removable panel ceilings shall be MC. No other cable shall be used.
- K. All switches and receptacles, etc., shall be heavy duty, UL-listed and of specification grade.

- L. Outlet/junction boxes exposed to weather shall be cast boxes, watertight.
- M. All electrical equipment and systems shall be tested for acceptance and the resulting tests shall be in conformance with the contract documents. Coordinate the testing procedures with Massport's designated site personnel and comply with their requirements.

Minimum Testing Requirements:

- a. The electrical contractor shall be required to perform operating testing and certification of test results that demonstrate the electrical equipment and/or systems installed operate within design intent and comply with the Massachusetts Electrical Code.
- b. Equipment and/or systems that require testing are High Voltage Switches and wiring, transformers, secondary switchboards, motor control centers, generators, transfer switches, regulators, starters and low-voltage power circuit breakers and panel-boards.
- c. Within five (5) working days after the testing and submission of certified reports, the system may be energized with the approval of Massport.
- N. All lighting systems shall incorporate sufficient local switching to permit maximum economy in the use of energy. They shall, where possible, also utilize energy saving lamps and ballasts.
- O. All power and lighting distribution panel-boards shall be provided with a typewritten index of the circuits before the final inspection is performed. Panel-boards shall be equipped with bolt-on type breakers with copper busses, separate insulated neutral and ground buss, connected only at the point of service entrance, and with interrupting capacity ratings as required by fault current calculations developed by the electrical engineer.
- P. Color coding and phasing shall be required on all new and/or altered electrical work. All conductors shall be identified at all points of termination by color-coded conductors and/or by colored, gummed or plastic tape applied to the conductors as follows:

<i>Voltage</i>	<i>15Kv</i>	<i>5Kv</i>	<i>480/277V</i>	<i>208/120V</i>
		Phase A		
Tracer	Red	Blue	--	--
Band/s	1 Black	1 Black	1 Brown	1 Black
		Phase B		
Tracer	Red	Blue	--	--
Band/s	2 Red	2 Red	2 Orange	2 Red
		Phase C		
Tracer	Red	Blue	--	--
Band/s	3 Blue	3 Blue	3 Yellow	3 Blue

Emergency – DC, Yellow

Emergency + DC, Gray

All neutral conductors shall be white.

All equipment ground wires shall be green.

The same colors shall be used for the same phases throughout the entire project.

- Q. Emergency generator equipment, all emergency power distribution panel-boards, and all primary and secondary distribution systems shall be separately enclosed within two-hour fire rated construction.

4.04.2 Electrical Distribution / Manhole System

- A. Any person entering a high voltage substation, electric room, and/or manhole shall do so only with the knowledge and permission of the site's Facility Manager, Electrical Supervisor and/or Electrical Foreman, who will assign a Massport electrician to be present to observe the contractor's work.
- B. Under no conditions will a person be allowed to work in a High Voltage substation or manhole alone.
- C. The contractor shall be responsible for securing any and/or all substations, electrical rooms, manholes, etc. against unauthorized entrance during their work, and at the end of each working day. The contractor shall notify Massport's designated site representative when leaving the area.
- D. All work to be performed on Massport's electrical distribution system must be fully documented and submitted for approval to Massport's Capital Programs Department. Examples of required documentation shall be one-line diagrams, revised Manhole Data Sheets (indicating ducts utilized) and design calculations to indicate the work's projected effects on Massport's Distribution Network.
- E. Electric service will be energized by Massport only after the required tests, inspections, and certificates have been obtained by the contractor, submitted to Massport, and verified and approved by the site facility manager or his designee.
- F. The phasing of conductors by the contractor shall ONLY be allowed in the presence of a designated Massport representative who shall be required to certify that it was accomplished properly.
- G. Sub-standard workmanship and materials will not be acceptable.
- H. Life safety is a primary consideration. The use of rubber mats, gloves, boots, all other safety equipment and precautions for the work required, shall be provided by the contractor. All persons requiring access to the manhole system must comply with the Confined Space Entry Regulations, 29 CFR 1910.146.
- I. All cable and circuit runs shall be tagged in each manhole, handhole, junction box and/or enclosure in accordance with Massport's standards.
- J. All new and existing manholes wherein work is to be accomplished on the street side of buildings at Logan Airport shall have lockable manhole covers, specified as LeBaron catalogue # LBW-288B/MPA, or equal with Neenah Foundry Co. modified DCAC-24. All such manhole covers shall be modified to Massport's requirements. Existing manhole covers that are not lockable will require modifications to existing grade, chimney and patching to finish pavement. Massport will provide manhole identification numbers upon request to the Engineering Department Records Drawing Manager. Acceptable or equal manhole frames and covers can be manufactured by Neenah Foundry Co., Neenah, WI and McKinley Iron Works, Ft. Worth, TX. New manholes shall not be spaced more than 350 feet apart.
- K. Underground duct banks shall contain a concrete envelope with #4 reinforcing rods and ties. Duct banks shall contain one spare duct for each active duct.

- L. Massport's services, utilities, operations, and use of spaces and facilities shall not be interrupted or affected without prior consent. Contractors shall make prior arrangements with Massport for all operations of this nature, shall abide by all such arrangements, and shall provide and pay for all overtime operations and special equipment required for these purposes.
- M. All equipment shall be provided with nametags and/or nameplates, to be furnished and installed in accordance with the following guidelines:
1. Identification shall be accomplished by use of a nameplate having a black background for equipment up to 600V; blue background for 5KV; and red background for 15KV. Nameplates shall be of white core laminated bakelite with engraved letters, securely attached with two Phillips head brass screws or machine bolts with locknuts for all enclosures. Adhesives shall not be used for the mounting of nameplates. Nameplates shall be a minimum of 3 inches long by 1-1/2 inches wide and shall bear an identification code acceptable to Massport or as specified. Letters shall be 1/4 inch high minimum.
 2. All new, upgraded or repaired feeders shall be identified by means of a laminated phenolic feeder or branch circuit nametag incised to show 1/2 inch high white lettering on a red (13.8 KV.), blue (5 KV.) or black (600V. and below) background. The background color shall be indicated in accordance with the operating voltage of a given feeder and/or branch circuit. Nametags shall be fastened to wiring by means of two plastic cable ties per nametag. Feeders modified by the work shall have their nametags relabeled accordingly.
- N. Cable fireproofing shall be two layers of half-lapped tape wrapping for all new and/or repaired exposed feeders in switchgear, trenches, approved boxes, handholes or manholes. Fireproofing tape shall be listed by Factory Mutual (FM labeled), such as Irvington 7700, as manufactured by the Minnesota Mining and Manufacturing Company or Plymouth Brand Ply-Arc 30, and held in place using Scotch Brand No. 27 or Plymouth Brand 3456, 3/4 inch wide, glass cloth tape or approved equal.
- O. Testing:
1. After the equipment has been installed, but before its transfer to Massport's system for its acceptance, and at other times as directed by Massport, the contractor shall conduct operating tests for approval. All electrical equipment shall be demonstrated to operate in accordance with the pertinent requirements of Massport.
 2. The electrical contractor shall employ the services of an Independent Recognized Testing Company, other than the manufacturer of the wiring or equipment, to perform specified tests. The name of the contractor's testing company shall be submitted to Massport for approval as part of the TAA document submittal, and shall not be changed without the approval. The testing company shall be a member of NETA and all test results shall be submitted on National Electrical Testing Association forms. Test results shall indicate recommended action for sub-par test results. Results shall list recommended test values that should be obtained for a new or repaired installation. Massport shall be furnished with a minimum of two copies of all test results.
 3. The testing company shall be required to certify in writing that the work as installed is approved and shall recommend to Massport its authorization to energize the equipment, wiring or system being tested.
- P. There are presently in use at the Logan Airport site both 5Kv and 15Kv cables that consist of the following:

1. Type I - 15Kv or 5Kv, cross-linked thermosetting polyethylene, 133% insulated, shielded, thermoplastic jacketed power cable.
2. Type II - 15Kv and/or 5Kv, ethylene-propylene elastomer (EPR), extruded 133% insulation screen, copper shielding tape and oil resistant thermoplastic jacketed power cable.

The minimum size wiring for 15Kv Intertie wiring connecting substations is 3-1-C 500 MCM, 15Kv copper cables with 1# 1/0, 600V ground. The minimum size for feeders is 3-1/2 #4/0 and 1 & 2, 600V, unless otherwise noted.

Q. All underground conductors shall be type U.S.E. insulation.

4.04.3 High Mast Lighting Units

- A. Massport has established detailed specifications for high mast type exterior lighting pole/fixture systems. When projects require a new installation of such free-standing exterior lighting devices, consult with Massport's Capital Programs Department to obtain specifications and drawing standards, and comply therewith.

4.04.4 Feeder Selector Switching Units

- A. Consult Massport's Capital Programs Department for detailed specifications and construction standards for feeder selector switching units.

4.04.5 Standard Electrical / Electronic System Color Coding

System	Color Code
Emergency	Yellow
Energy Management System (EMS)	Orange
Access Control System	Blue
Mechanical System	Black
Fire Alarm	Safety red
Electronic Switchgear Control (ESC)	Brown
Sound	Green
Telephone	White
Security	No standard

4.05 Plumbing Systems

4.05.1 Plumbing Systems – General

All plumbing work must comply with the current and applicable Commonwealth of Massachusetts State Plumbing Code 248 CMR 1.0 – 10.00 Regulations in effect at the time of construction.

The plumbing contractor must obtain all required plumbing permits from the Commonwealth of Massachusetts State Plumbing Inspector, pay all fees, and arrange all inspections as required to comply with 248 CMR 1.0 – 10.0.

- A. All toilet rooms shall have floor drains located away from main circulation areas, preferably under toilet partition dividers.

- B. Each public toilet room shall be equipped with one hose bib with ball cock handle only. Provide trap primers with shut-off valves at accessible priming devices.
- C. Carriers shall be provided for all plumbing fixtures. Concrete masonry unit walls should be installed behind tile board partitions from the floor up to and through the waste carrier.
- D. Automatic faucets and flushometers shall be specified for public toilet room fixtures.
- E. The contract documents associated with the TAA shall depict where vent, waste and cold water pipes tie into existing piping systems. Notes such as 'Tie into nearest available line' are not permitted.
- F. The capacity of existing plumbing lines to accept additional flow generated by the TAA work shall be verified by the plumbing engineer. Any plumbing hydraulic calculations shall be stamped by the Plumbing Engineer and submitted to the Capital Programs Department along with applicable drawings.
- G. Shut-off valves shall be provided at all plumbing fixtures and at branch take-off locations. Clean-outs shall be provided at all piping changes-in-direction as well as at 45-degree changes.
- H. If work involves tie-ins to existing water and/or sewer lines, this work will need to be completed during 'off-peak' hours in coordination with Massport's Facilities Department. The contractor will be responsible for ALL costs associated with 'off-peak' shift work.

4.05.2 Backflow Preventers

- A. Unprotected cross connections are in violation of Section 22 of the Drinking Water Regulations of Massachusetts. A cross connection is defined as any actual or potential connection between a distribution pipe of potable water from a public water system and any waste pipe, soil pipe, sewer, drain or other unapproved source. Without limiting the generality of the foregoing, the term cross connection shall also include any by-pass arrangements, jumper connection, removal section, swivel or changeover devices, and other temporary or permanent connections through which backflow can occur.
 - 1. Where backflow preventers are required, the Tenant shall submit plumbing diagrams as part of the TAA process, which must include:
 - a. A single line schematic diagram indicating water lines, the separation of domestic and process water, the type, size and model number of the backflow preventer to be used, and all clearances involved in the installation of the backflow device.
 - 2. The reduced pressure backflow preventer and shut-off valves shall be installed in a horizontal line with the following minimum clearances:
 - a. 3 to 4 feet above the floor.
 - b. 12 inches from the wall.

Under no circumstances will a vertical installation of a reduced pressure backflow preventer or double check valve assembly be approved, regardless of manufacturer's suggestions or specifications.
 - c. Reduced pressure backflow preventers shall not be installed outdoors. The backflow device must be installed on a building or structure in order to protect the device from

flooding, snow and ice embedment, freezing, or mechanical damage due to normal activities in the vicinity of the device.

- d. When the plumbing diagrams are submitted for approval, they shall be accompanied by a Device Design Data Sheet which has space provided for the Master Plumber's License Number and Plumbing Permit Number. Backflow devices must be installed and inspected under a permit issued by the State Board of Plumbing Examiners.

4.06 Fire Protection Systems / Safety

4.06.1 Fire Protection Sprinkler and Standpipe Systems - General

- A. All new construction and alterations shall incorporate fire protection sprinkler systems throughout with water flow switches connected to a zoned annunciator.
- B. Inspection test ports shall be provided and locations indicated on the drawings.
- C. Exposed standpipe systems shall be color coded, color galvanized.
- D. Schedule 10 pipe is not allowed for sprinkler system construction. Piping shall be minimum schedule 40.
- E. Provide fire department connection with cast bronze identification plate to identify service designated: Viz. – "AUTOSPKR", "OPEN SPKR", "STANDPIPE" OR "AUTOSPKR and STANDPIPE".

4.06.2 Automatic Sprinkler Systems and Protection

A. Automatic sprinkler systems must be installed in all areas (100% protection) of all new and existing buildings and portions of existing buildings being renovated regardless of size in accordance with NFPA-13, 2002 Edition, Installation of Sprinkler Systems.

Exceptions:

- 1. No sprinkler protection shall be required in elevator shafts and elevator machine rooms as regulated (not permitted) by 524CMR "Elevator Regulations", latest edition and 780CMR, State Building Code, Memorandum dated March 14, 2003.
 - 2. Requests for the omission or removal of sprinkler protection for any building, portion or area of a building must be made, in writing, to Massport's Fire Marshal's Office with a statement of reason, including what alternative protection will be provided for consideration.
- B. All automatic sprinkler systems must be designed, installed and tested in accordance with NFPA-13, "Installation of Sprinkler Systems," 2002 Edition and any applicable NFPA Standard referenced therein.
 - C. All sprinkler and standpipe systems, and related equipment and components, such as standpipes, fire pump systems, etc. shall be provided with protection against damage subject to earthquakes in accordance with NFPA-13, "Installation of Sprinkler Systems," 2002 Edition.
 - D. All fire protection equipment and devices shall be Factory Mutual (FM) approved.

- E. All sprinkler heads shall be Quick Response Type. Sprinkler head spacing and protection shall not exceed 130 sq. ft. For each sprinkler head unless approved otherwise by the Massport Fire Marshal's Office.
- F. The design approach for all buildings, portions of buildings and tenant spaces, except warehouses, aircraft hangars, high-rise buildings, residential occupancies shall be as follows:
 - 1. All automatic wet-type sprinkler systems shall be hydraulically calculated in accordance with NFPA-13, "Installation of Sprinkler Systems," 2002 Edition and the following system design criteria:
 - a. .19gpm per sq. ft. over a 2000 sq. ft. design area, or
 - b. .18gpm per sq. ft. over a 2500 sq.ft. design area, or
 - c. .17gpm per sq. ft., over a 3000 sq. ft. design area.

Automatic dry-type sprinkler systems shall have their design area increased in accordance with the applicable requirements of NFPA-13, 2002 Edition, unless approved otherwise by Massport's Fire Marshal's Office.

 - 2. Automatic pre-action sprinkler systems, when proposed, shall be double interlock type and designed per the above noted criteria and manufacturer's requirements.
 - 3. The hose stream allowance shall be a minimum of 250 gpm.
- G. The fire department pumper connection at Logan Airport shall be a single inlet 4" dia. Storz Type with screen, cap, lock and chain. The fire department pumper connection shall be arranged for adequate and unobstructed access by the fire department and located within fifty (50 ft.) of a fire hydrant and as directed by Massport's Fire Marshal's Office. The Fire Marshal's Office shall be consulted as to the type and style of fire department pumper connection, off airport.
- H. All sprinkler system test valves must discharge to the outside of the building and/or to a drain receptacle not subject to overflow/water damage and be accessible without the use of ladders, hoses and or special tools.
- I. All sprinkler system flow alarm devices must be set to activate an alarm between 30 to 45 seconds upon water flow and connected to the fire alarm system as an alarm (evacuation) signal.
- J. All sprinkler system control valves shall be provided with a lock (lock to be provided by Massport's Fire Marshal's Office) and chain and tamper switches, and connected to the fire alarm system as a supervisory signal.
- K. All automatic dry pipe systems shall be provided with high/low air alarm supervisory switches and connected to the fire alarm system.
- L. All sprinkler systems shall be steel piping and satisfy the material specifications requirements per NFPA-13, 2002 Edition. No CPVC shall be permitted in any sprinkler system installation unless approved otherwise by Massport's Fire Marshal's Office.

4.06.3 Underground Fire Mains and Hydrants

All underground fire mains and fire hydrant systems shall be designed, installed and tested in accordance with NFPA-24, 2002 Edition. Fire hydrants shall be located within fifty feet (50 ft.) of a fire department pumper connection. The final location of all fire hydrants shall be determined by Massport's Fire Marshal's Office. The type and style of fire hydrants shall be determined by the Massport's Facilities Department.

4.06.4 Standpipe System

A standpipe system, if required by 780CMR, 7th Edition, shall be designed, installed and tested per NFPA-14, 2003 Edition. The Fire Marshal's Office shall be consulted relative to all requirements and approvals of operational flow and pressure requirements, location, type and style of fire department hose valves and if a 1-1/2" diameter fire hose station will be required for a specific building or occupancy. The standpipe system must be designed to provide 100 psi residual pressure at all fire department hose valve outlets when supplemented through the fire department pumper connection at 150 psi in-let pressure. The Fire Marshal's Office reserves the right to require additional fire department hose valves during site inspections or at time of final inspection due to unforeseen building conditions requiring accessibility of fire department hose valves.

4.06.5 Fire Pump System

A fire pump system, if required as part of an automatic sprinkler system and/or standpipe system, shall be designed, installed and tested per NFPA-20, 2002 Edition. The Fire Marshal's Office shall be consulted relative to requirements and approval of type of fire pump(s) to be used and location of all equipment and operational features.

4.06.6 Kitchen Hood Systems

Kitchen hood systems and kitchen hood food suppression systems shall be designed, installed and tested per NFPA-96, "Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations," 2004 Edition. The suppression system shall be interconnected to the building fire alarm system. Tenants shall maintain adequate cleaning of kitchen hood systems and testing of suppression systems in accordance with 527 CMR, "Fire Prevention Regulations" and as directed by the Fire Marshal's Office.

4.06.7 Extinguishers

Fire extinguishers with visible signage as to their location are required to be installed in all building areas. The specifying architect/engineer or installing contractor shall review NFPA-10, "Standard for Portable Fire Extinguishers", 2002 Edition requirements and make recommendation as to the appropriate type for the hazard. The Fire Marshal's Office shall be consulted as to final requirements and approval of type, size and location of all fire extinguishers.

4.06.8 Smoke Control System

A smoke control system, if required per 780CMR, 7th Edition or as a construction alternative, shall be reviewed by the Fire Marshal's Office relative to specific design, operational requirements and final approval.

4.06.9 Fire Suppression System

Clean agent fire suppression systems, when provided in addition to automatic sprinkler protection, must comply with NFPA-2001 "Standard of Clean Agent Fire Extinguishing Systems", 2004 Edition. Automatic sprinkler system protection cannot be eliminated unless approved by the Fire Marshal's Office.

4.06.10 Fire Alarm System

- A. All fire alarm systems, components, equipment and operational features shall be made by Simplex, which is a proprietary equipment supplier to Massport. (This requirement is specific to Logan Airport projects only).
- B. Fire alarm system design, installation and testing shall be in accordance with NFPA-72 Fire Alarm Code, and NFPA-70 Electrical Code (Massachusetts Edition) and as amended by 527CMR, Section 12, Fire Prevention Regulations. The design shall also be in accordance with the current Massachusetts State Building Code, the Americans with Disabilities Act (ADA), Massport's Fire Marshal's Office and the requirements of the local authority having jurisdiction.
- C. All fire alarm system circuit wiring shall be installed in conduits and/or MC fire alarm cable with red markings.
- D. The performance and design of initiating device circuits (IDC) shall be Class A (Style D), unless approved otherwise by the Fire Marshal's Office.
- E. The performance and design of signaling line circuits (SLC) shall be Class A (Style 7), unless approved otherwise by the Fire Marshal's Office.
- F. The performance and design of notification appliance circuits (NAC) shall be Class A (Style 2) unless approved otherwise by the Fire Marshal's Office. All notification appliances shall have speaker/paging capabilities.
- G. Notification (visual/strobe) appliance candela ratings shall be identified on all construction documents and shall comply with location and spacing requirements per NFPA-72, Chapter 7, Table 7.5.4.1(a) "Wall mounted" or Table 7.5.4.1.1(b) "Ceiling mounted" or Section 7.5.4.3 "Performance Based Alternative". All visual/strobes shall be synchronized.
- H. Smoke detection shall be provided in all electrical rooms and/or electrical closets, fire alarm control and remote panel locations, notification appliance power booster panel locations and in the immediate vicinity of transformers located above suspended ceilings, all storage rooms regardless of size, and all locations specified by 525CMR "Elevator Regulations".
- I. Double action pull-boxes (stations) shall be provided at all required building exit doors and exit doors with an exit sign. Pull-boxes (stations) shall be provided so that the travel distance to any pull-box does not exceed 200 ft. All pull-boxes (stations) shall be provided with protective stopper covers with built-in local alarm devices.
- J. HVAC duct smoke detection shall be provided in all HVAC units over 2000 cfm in the air supply side and located per manufacturer's (Simplex) recommendations and instructions and be provided with a remote test switch in the vicinity of the duct-smoke detector and be readily accessible for testing. All HVAC duct detectors must be properly labeled and coordinated with remote test switches, HVAC units on roof, fire alarm control panels and remote annunciators.
- K. Fire alarm system evacuation signals shall have a synchronized three-pulse temporal pattern in accordance with NFPA-72 "Fire Alarms". No pre-recorded evacuation instruction messages shall be provided unless approved otherwise by the Fire Marshal's Office.

- L. Fire alarm control panel and remote annunciators with manual voice paging capability shall be provided and located as directed by the Fire Marshal's Office. Location of panels and annunciators shall be determined during the plan review process.
- M. The designer of the fire alarm system shall indicate on plans, the location of all fire alarm system equipment and devices, location of all other fire and life safety system devices connected and integrated with the fire alarm system (such as sprinkler, HVAC, fire suppression devices, etc.) All circuitry location and wiring type must be identified on fire alarm as-built plans prior to requesting a final inspection. When occupied premises transfer from former to present tenant, the new tenant (or master tenant) is required to engage Simplex to readdress the fire alarm and signal system.
- N. All fire alarm systems shall be connected to an approved central station as follows:
 - 1. Facility Building control center at Logan International Airport.
 - 2. Boston Fire Department and/or local fire department, depending on location of site.
 - 3. When direct connection to a local fire department is unavailable, a central station shall be provided by a Fire Alarm Service Company that is acceptable to both Massport and the local Fire Department.

4.07 Telecommunication Systems

4.07.1 Telecommunications - General

- A. Applicable Publications Standards
 - 1. Except where otherwise noted, all material and workmanship must conform to the most current industry standards. All equipment must operate in conformance with these standards as designated for each cable component including:
 - a. EIA/TIA Commercial Building Telecommunications Wiring Standard.
 - b. EIA/TIA Commercial Building Standard for Telecommunications Pathways and Spaces.
 - c. EIA/TIA Administration Standard for Telecommunications Infrastructure of Commercial Buildings.
 - d. EIA/TIA - Commercial Building Grounding and Bonding Requirements for Telecommunications.
 - e. ASTM Fire Tests of Through-Penetrations Fire Stops.
 - f. NFPA National Electrical Code.
 - g. ANSI/IEEE Std. - Recommended Practice for Powering and Grounding Sensitive Electronic Equipment in Industrial and Commercial Power Systems.
 - h. Appropriate Federal, State and local building codes and ordinances.
- B. Materials and Equipment List: The contractor shall submit for approval, where applicable, a complete list of all materials, equipment and accessories proposed for his work in accordance with these requirements. The list shall include complete catalog identification numbers and model

or system designator, quantities, options and catalog "cuts."

2. Documentation:

- a. Provide operation, maintenance and service manuals for systems and equipment provided under this contract prior to final acceptance of the system. The manuals shall include the following:
 - i. Complete operating instructions.
 - ii. Complete maintenance instructions and wiring diagrams.
 - iii. Complete parts list.
 - iv. Manufacturers' warranties.
 - v. Complete technical specifications for the system and all components.
 - vi. Name, address and telephone number for system service.

B. Record Drawings: The contractor shall provide and keep up-to-date a complete record set of drawings which shall be corrected and shall show every change from the original specifications and Contract Drawings. These drawings will include:

1. Inter-building paths.
2. Conduit and cable detail.
3. Entrance facility and equipment rack layouts.
4. All splice points and cross connect/patch panel points.
5. Fiber and copper cable lengths installed.
6. Fiber cable and individual fiber routes.
7. Copper cable and individual twisted pair routes.
8. Acceptance Testing.
9. A complete description of acceptance testing procedures as outlined by product below.

C. Identification of Cables and Fibers

1. All cables and individual fibers are to be identified and labeled in the terminating enclosures and at the breakout point on each cable. All labels shall be machine printed.
2. The method of identification and labeling at all termination and breakout locations must be logical and permanent. Each cable breakout point label shall have, at a minimum, the number and type of fibers and its destination. Outside plant cables shall be identified by placing a cable warning type label every 5 feet on each cable. These labels must be pre-printed and able to withstand the environmental conditions of the facility.

4.07.2 Telecommunications - Products

- A. Outside Fiber Cable installations require the use of "FutureFLEX" Air Blown Fiber throughout Massport's properties. Exceptions can only be authorized by the Telecommunications Department. Installations must use any authorized/licensed FutureFLEX contractor (hereafter referred to as the contractor) to supply equipment, materials, labor, and services to provide the air blown fiber telecommunications distribution system including, but not limited to:

1. Indoor Tube Cables.
 2. Outdoor Tube Cables.
 3. Fiber Bundles.
 4. Tube Distribution Units.
 5. Fiber Termination Units.
 6. Optical Fiber Patch Cables.
 7. Connectors.
- B. Design, manufacture, test, and install air blown fiber telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code), state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards:
1. ANSI/TIA/EIA-568-A Commercial Building Telecommunications Cabling.
 2. ANSI/TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces.
 3. ANSI/TIA/EIA-606 The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
 4. ANSI/TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications.
 5. ANSI/TIA/EIA TSB-72 Centralized Optical Fiber Cabling Guidelines.
 6. ANSI/TIA/EIA TSB-75 Additional Horizontal Cabling Practices for Open Offices.
 7. ANSI/TIA/EIA-526-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
 8. ANSI/TIA/EIA-526-7 Measurement of Optical Power Loss of Installed Single-mode Fiber Cable Plant.
 - a. I/IEEE C-2 National Electrical Safety Code.
- C. Install cabling in accordance with the most recent edition of BICSI publications:
1. BICSI Telecommunications Distribution Methods Manual.
 2. BICSI Cabling Installation Manual.
 3. Federal, state, and local codes, rules, regulations, and ordinances governing the work are as fully part of the specifications as if herein repeated or hereto attached. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of Massport in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

D. Quality Assurance

1. The contractor shall be an authorized/licensed FutureFLEX Cabling System installer and shall provide documentation proving such.
2. The contractor shall have worked satisfactorily for a minimum of 1 year on systems of this type and size.
3. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.
4. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.
5. Specifications for all cables, connectors, and equipment as specified below.

a. Indoor tube cables:

Unless otherwise specified, tube cables shall provide at least three times the number of tubes needed to complete the initial fiber bundle installation requirements. All tube cables shall be composed of dielectric materials. The tube cable shall be suitable for installation in cable tray, plastic or metallic conduit, and conventional innerduct. During installation, tube cable ends are to be completely sealed to prevent ingress of contaminants, including water. The maximum bending radius shall be 20 times the cable diameter during installation and 10 times the cable diameter after installation. Upon completion of tube cable installation, all tubes shall pass the standard 150 psi pressure test and 5 mm ball bearing test per the cable manufacturer's recommended procedures. All unoccupied tubes shall be plugged on both ends.

b. Outdoor tube cables:

Unless otherwise specified, tube cables shall provide at least three times the number of tubes needed to complete the initial fiber bundle installation requirements. Tube cables may be composed of dielectric and metallic materials. The tube cable shall be suitable for underground, buried, and aerial applications. Tube cables for buried applications shall be steel armored for rodent protection, and conductive material(s) shall be bonded and grounded. During installation, tube cable ends are to be completely sealed to prevent ingress of contaminants, including water. The maximum bending radius shall be 20 times the cable diameter during installation and 10 times the cable diameter after installation. Upon completion of tube cable installation, all tubes shall pass the standard 150 psi pressure test and 5 mm ball bearing test per the cable manufacturer's recommended procedures. All unoccupied tubes shall be plugged on both ends.

c. Fiber bundles:

Fiber bundles shall not be spliced or patched at transition points from indoor to outdoor environments. Fiber bundles shall be installed end to end or home run from MC to work area outlet whenever possible to minimize splicing and patching. Zero tensile stress shall be placed upon the fiber bundles during installation to eliminate micro-fractures within the glass fiber that result from pulling the optical fiber cable through innerduct systems.

- i. Multimode 62.5/125 □m diameter c
drawings, shall have the following specifications:
 - a. Dual window, 850 nm and 1300 nm.
 - b. Minimum bandwidth – 220 MHz-km at 850 nm, 600 MHz-km at 1300 nm.
 - c. Maximum attenuation – 3.5 dB/km at 850 nm, 1.5 dB/km at 1300 nm.

- i. Multimode 50/125 mm diameter optical fiber, with fiber counts as indicated on drawings, shall have the following specifications:
 - a. Dual window, 850 nm and 1300 nm.
 - b. Minimum bandwidth – 500 MHz-km at 850 nm, 500 MHz-km at 1300 nm.
 - c. Maximum attenuation – 3.0 dB/km at 850 nm, 1.0 dB/km at 1300 nm.

- iii. Single-mode 8.7 □m to 10 □n c
on drawings, shall have the following specifications:
 - a. Dual window, 1310 nm and 1550 nm.
 - b. Maximum attenuation – 0.50 dB/km at 1310 nm, 0.50 dB/km at 1550 nm.

- d. Tube Distribution Units (TDUs)

A NEMA-type enclosure, suitable for the site environmental conditions (i.e. NEMA 1 for indoor use) shall be provided for tube distribution, routing, and termination. TDUs shall be installed as shown in the drawings, wherever several cables enter the same location or where cable type transitions take place. The contractor is responsible for selecting the TDU hardware to meet site conditions. Choose TDU size based on the number of tubes to enter the unit. TDUs shall be wall-, floor-, rack-, or ceiling-mounted to provide better protection and geometry for distribution. If rack-mount fiber termination hardware is required, wall-mount a TDU near the rack and use individual tube cabling (provided with the fiber termination unit) to route and connect fiber bundle passing through the TDU to the fiber termination hardware.

- e. Fiber Termination Units (FTUs)
 - i. A suitable enclosure shall be provided at all locations where fiber is to be terminated. FTUs shall provide for strain relief of incoming tube cables as well as providing connector panels and connector couplings adequate to accommodate the number of fibers to be terminated.
 - ii. All FTUs shall incorporate radius control mechanisms to limit bending of the fibers to the manufacturer's recommended minimums or 1.2", whichever is larger.
 - iii. All terminated fibers shall be mated to specified couplings (ST / SC) mounted on patch panels.
 - iv. Couplers shall be mounted on a panel that, in turn, snaps into the housing assembly. Panels shall be available to accommodate a changing variety of connector types.
 - v. All FTUs shall have a common key lock that opens all FTUs installed for the project.

- f. Optical Fiber Patch Cables
 - i. Optical fiber jumpers shall incorporate Massport's specified connectors. The connector body shall be of materials similar to that used in the proposed couplings. Channels shall be of equal length.
 - ii. The optical fiber patch cables shall be (62.5/125 □m multimode, 50/125 □n

multimode, singlemode) fiber utilizing tight buffer construction. The optical fiber patch cables shall be a minimum of 1 meter long.

g. Connectors

- i. The connector type(s) shall be ST or SC (as specified).
- ii. The attenuation per mated pair shall not exceed 0.75 dB (individual) and 0.5 dB (average).
- iii. Connectors shall sustain a minimum of 200 mating cycles per EIA/TIA-455-21 without violating specifications.
- iv. Connectors shall meet the following performance criteria:

<u>Test Change (dB)</u>	<u>Procedure</u>	<u>Maximum Attenuation</u>
Cable Retention	FOTP-6	0.2 dB
Durability	FOTP-21	0.2 dB
Impact	FOTP-2	0.2 dB
Thermal Shock	FOTP-3	0.2 dB
Humidity	FOTP-5	0.2 Db

4.07.3 Telecommunications – Execution and Installation

A. Outside Fiber Optic Cable Plant Installation

1. Pre-Installation Site Survey

- a. Prior to the start of systems installation, meet at the project site with Massport’s representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the general contractor shall be necessary to plan the crucial scheduled completions of the equipment rooms and telecommunications closets.
- b. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.
- c. Exact location of tube cable terminations shall be field verified with Massport.

2. Installation

- a. Tube Cable Installation: prior to pulling tube cable, thoroughly swab conduits to remove foreign material before pulling cables.
- b. Beginning installation means contractor accepts existing conditions.
- c. Contractor shall furnish all required installation tools to facilitate cable pulling without damage to the cable jacket. Such equipment is to include, but not be limited to, sheaves, winches, cable reels, cable reel jackets, duct entrance funnels, pulling tension gauges, and similar devices. All equipment shall be of substantial construction to allow steady progress once pulling has begun. Makeshift devices which may move or wear in a manner to pose a hazard to the cable shall not be used.
- d. Cable pulling shall be done in accordance with cable manufacturer’s recommendations

and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and bending radii shall not be exceeded. Any tube cable bent or kinked to a radius less than recommended shall not be installed.

- e. During pulling operation, an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as to feed cable and operate pulling machinery.
- f. Pulling lubricant shall be used to ease pulling tensions. Lubricant shall be of a type which is non-injurious to the cable material used. Lubricant shall not harden or become adhesive with age.
- g. Avoid abrasion and other damage to cables during installation.
- h. Cable slack shall be provided in each cable. Follow recommended procedures from the manufacturer regarding length of slack cable ensuring a minimum of 5 meters (approximately 15 feet) of cable which shall be coiled and secured at each termination location. This slack is exclusive of the length of fiber that is required to accommodate termination requirements and is intended to provide for cable repair and/or equipment relocation. The cable slack shall be stored in a fashion as to protect it from damage. The use of suitable enclosures designed for this purpose is encouraged.
- i. All exposed tube cable shall be labeled at 35-foot (maximum) intervals with tags indicating ownership, cable type, and fiber type installed.
- j. Tube cable shall be riser-rated or plenum-rated if required by the installation environment.
- k. Where not installed in a continuous length, tube cable segments shall be spliced using couplings designed for that purpose.
- l. Pressure testing and obstruction testing shall be performed prior to fiber bundle installation.

3. Fiber Bundle Installation

- a. Fiber bundles shall be installed according to manufacturer's recommendations.
- b. Optical fiber cable bundles shall be continuously inserted and propelled or blown into the individual tubes or cells utilizing a compressed gas such as nitrogen as the propellant per the manufacturer's instructions. The blowing installation process and the fiber bundles must also be designed to allow removal, replacement, and reuse of the fiber bundles at any time in the future as deemed necessary by Massport.
- c. Slack in each fiber bundle shall be provided as to allow for future re-termination in the event of connector or fiber end-face damage. A minimum of 3 meters (approximately 10') of slack shall be retained in equipment rooms and telecommunications closets.

B. In-Building Fiber Cable Installation

- 1. All singlemode fiber cable used will have the following characteristics:
 - a. Size: Core/Cladding - 8 to 9/125um
 - b. Attenuation: 3dB/km at 1310nm 1.0dB/km at 1550nm

2. All multimode fiber cable used will have the following characteristics:
 - a. Size: Core/Cladding - 62.5/125um
 - b. Attenuation: 3.75dB/km at 850nm 1.0dB/km at 1310nm
3. All fiber cable shall be rated by the manufacturer for use in FDDI, ATM, and SONET applications.
4. All multimode and singlemode interior riser cable shall be Siecor LSZH Mini-Bundle cable or approved equal.
5. Contractors shall use industry standard means and methods for all splices. The preferred method of splicing, however, is to use the fusion splice.
6. Innerduct for use with fiber optic cable in conduits shall be Fire-Flex Plenum Duct, by Pyramid Industries or approved equal with a pull rope.
7. Splice closure shall be Siecor SCN-OO3 series or approved equal. All splice cases and closures must be specified and approved by the manufacturer for use in inside or outside plant facilities and direct buried environments.
8. All cabinets used for terminating outside plant and inside building fiber optic cables shall be of the distribution type.
9. All cabinets must have both termination bays and splice bays, with the proper number of ST panels with stainless steel couplers and splice organizer trays plus 20% for expansion. All distribution and patching equipment will be installed for the appropriate fiber type and count, as shown on Drawings.
10. Fiber distribution centers at the Main Distribution Frame (MDF) shall be Siecor FDC series, or approved equal, with the following features:
 - a. Siecor type CP8P 8 position connector panels or approved equal.
 - b. Siecor-type splice trays or approved equal
11. Fiber distribution centers used in IDF telephone closets shall be Siecor FDC series, or approved equal.
12. ST compatible connector couplings must be able to accommodate ceramic or plastic ST compatible connectors. The contractor shall use couplings specifically rated by the manufacturer for FDDI, ATM and SONET.
13. Multimode and singlemode fiber connectors shall be stainless steel ST compatible, epoxy type, with ceramic tips. The maximum average attenuation specifications shall be as follows:
 - a. Singlemode: .8dB/connector
 - b. Multimode: .5dB/connector

C. Testing

1. The contractor shall provide pressure test and obstruction data for each tube installed.
2. The contractor shall provide the cable manufacturer's test report for each reel of fiber

bundle provided. These test reports shall include manufacturer's on-reel attenuation test results at both 850 nm and 1300 nm for multimode and 1310 nm and 1550 nm for single-mode for each optical fiber of each reel prior to shipment from the manufacturer.

3. The contractor will perform an attenuation test with an OTDR of each optical fiber of each fiber bundle reel prior to installation. The contractor shall supply this test data to the engineer prior to installation.
4. The fibers utilized in the installation shall be traceable to the manufacturer. On-the-reel bandwidth performance as tested at the factory shall be provided upon request.
5. Optical fiber bundle shall be tested before utilization as follows:
 - a. Test equipment – The contractor is responsible for supplying all equipment and personnel necessary to conduct the acceptance tests. The bidder should detail the proposed test plan for each cable type including equipment to use, test frequencies, and wavelengths, etc.
 - b. Contractor responsibility – The contractor shall conduct acceptance testing according to a schedule coordinated with Massport, whose representatives may be in attendance to witness the test procedures. The contractor shall offer adequate advance notice (at least one week) to Massport as to allow for such participation.
 - c. Procedures – The contractor is to describe how they will conduct the tests and provide copies of all test results to the architect/engineer.
 - d. All fibers shall be initially tested with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14A: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA-526-7: OFSTP-7 Measurement of Optical Power Loss of Installed Single-mode Fiber Cable Plant. Measured results shall be plus/minus 1 dB of the submitted loss budget calculations. If loss figures are outside this range, test cable with an optical time domain reflectometer to determine cause of variation. Correct improper splices and replace damaged fiber at no charge to Massport.
 - e. Fibers shall be tested at 850 nm and 1300 nm for multimode optical fiber bundles. Fibers shall be tested at 1310 nm and 1550 nm for single-mode optical fiber bundles.
 - f. Testing procedures shall utilize "Method B" – One jumper reference.
 - g. Bidirectional testing of optical fibers is required.
 - h. Test results shall include a record of wavelength, fiber type, fiber and bundle number, test equipment and model number, date reference setup, and operator (crew members).
 - i. The contractor shall provide written reports of all test data in written form to Massport.
 - j. Three (3) record copies of all test data shall be submitted to Massport for approval. The contractor shall notify the Massport at least one week in advance of the test date so that its representatives may be present.

D. Copper Cable

1. The copper cable will be in compliance with the following standards and material requirements:

- a. EIA/TIA standard for UTP Category three (3) cable.
 - b. Any riser distribution system will consist of plenum rated riser cable. The cable shall be compliant with the EIA/TIA Commercial Building Wiring Standard.
 - c. Voice riser cables and voice lateral twisted pair cables will interface through the use of 110 type connector blocks.
 - d. Any MDF & IDF shall consist of AT&T 110A wiring blocks, or approved equal, mounted on a plywood backboard. Install sufficient quantity to cross connect riser and lateral CAT 3 cables plus 20% for growth.
2. Telephone Copper Cable
- a. All copper telephone cable used shall be AT&T ASP Cable, 25-1,800 pair AFMW Product Code, or approved equal.
 - b. All termination blocks shall be AT&T 100 AW1-X00 100 and 300 termination blocks or approved equal.
 - c. All external cables which enter a building shall conform to the bonding and grounding requirements described in NEC 800-30, 800-33 and 800-40.
- E. Video/Broadband Outside Plant Cable
1. Wangnet/CATV - Duplex coaxial cable, solid bare copper steel conductor, polyethylene insulation, bare copper woven shield, 95% coverage, black PVC jacket as manufactured by Belden, or an approved equal.
 2. CCTV - RG6/U coaxial cable 18 AWG solid bare copper center conductor, foam polyethylene insulation, bonded foil and 40% aluminum braid shield with black PVC jacket. 75 ohms nominal impedance, UL style CATV.
- F. Conductor Termination and Splices (Copper Cable)
1. Cable termination and splicing material shall be as manufactures by Raychem, 3M Corp., Elastimold, or approved equal. All material used in termination and splicing shall be as recommended by the cable manufacturer.
 2. Cable shall be terminated with stress relief connections.
 3. Low voltage signal and communications cables shall be spliced as detailed on the drawings.
- G. General Instructions
1. All work shall be done at such times as Massport and the Tenant shall agree to be appropriate.
 2. Cables shall be run along all routes as shown on the Contract Drawings.
 3. All splices will be enclosed in closures that are properly sealed and mounted on racking in all manholes or in distribution frames in accordance with manufacturers specifications.

4. All cables shall be terminated at each end as shown on the Contract Drawings.
5. The contractor shall install all provided and furnished materials in accordance with manufacturer's specifications, recommendations and guidelines.
6. Install all wiring and cabling in accordance with the National Electric Code (NEC) where the provisions of the NEC are applicable.

H. Copper Cable Plant Installation

1. Route Preparation

- a. The contractor shall coordinate the drilling of holes in the concrete slab, sheet rock walls and any other required building penetrations with Massport and the Tenant. Field coordination shall be required prior to installing cable trays (where specified), sleeves, wall or floor penetrations and/or cables.

2. Termination

- a. The contractor shall terminate all cables. Each outside plant copper cable pair shall be terminated contiguously on each 110 block. Terminations shall be in color code sequence from left to right and from top to bottom on each block for each cable.
- b. Fiber strands shall be field terminated in ST connectors according to the specification of the manufacturer except where noted otherwise. Only tool kits and consumables that are specified by the manufacturer shall be utilized. Completed ST connectors shall be placed into the sleeve of the fiber termination panel from left to right in color code sequence. Strands shall be protected and secured within the fiber panel to ensure both strain relief and bend radius. The fiber cable shall be tie wrapped (this means the total cable with all strands inside of outer jacket) at the point of entry of the patch panel to prevent strain on the strands. Where required to secure the fiber optic cable from pulling tension, the Kevlar strength members shall be separated from the fiber strands and attached to the panel by a clamp. Fiber connectors shall be terminated on ST connectors using manufacturer-approved methods.

I. Site Survey

1. Prior to placing any cable tray, feeder, lateral, riser, outside plant cable, or penetration, if required, the contractor shall survey the site to see that job conditions do not impose any obstructions that would interfere with the safe and satisfactory placement of the cables, and arrange to remove any obstructions.
2. For outside plant, duct bank installations, the contractor shall pull a mandrel through the duct to clear the duct of obstructions.

J. Inspection

1. The cable shall be inspected as it is pulled of the reel for any obvious defects. If defects are observed, further use of the cable from this reel will be halted.

K. Placing Cable In Conduit

1. The contractor shall verify that any conduits to be employed are clear of obstructions unless an exception has been approved in writing. For fiber, innerduct shall be placed in conduit.

2. A fish line and mandrel shall be used to clear the conduit of obstructions and as a guide for pulling the cable through. A nylon drag line shall be pulled along with each conduit run installed so that future cables may be pulled in that conduit. Conduit bushings shall be used to protect the cable jacket from abrasion as it is pulled through conduit and at each exposed end.
3. The cable strength members shall be affixed to the pulling medium or, a properly sized Kellem type grip shall be employed to make the pull. Cable pull tension shall be monitored during the pull with a tension meter as necessary and if mechanical pulling equipment is used, a clutch set at the cable manufacturer's maximum pulling tension shall be used.

L. Bend Radii

1. All cables shall be installed with a bend radius greater than recommended by the manufacturer.

M. Slack

1. The contractor shall install sufficient slack prior to termination and patching.
2. Prior to cutdown, the contractor shall be required to leave slack for riser cables to provide some degree of flexibility and for service rearrangement.

N. Tie Wraps

1. Tie wraps shall be used at appropriate intervals to secure cable in cable trays and to provide strain relief at termination points.

O. Pulling Tension

1. No cable shall be installed with a pulling tension exceeding the maximum recommended by the manufacturer. Pulling tension should be monitored with a tension gauge.
2. If multiple cables are to be pulled at one time, the contractor shall make the necessary allowances to back-off the pulling tension of the bundle.
3. Cable pulls shall be protected by means of an overload cutoff or breakaway clutch set at somewhat less than the cable manufacturer's maximum recommended pulling tension.

P. Lubrication

1. As necessary, for cable pulls in conduit, the contractor shall use only an approved lubricant compatible with the cable's outer jacket insulation.

Q. Securing Methods

1. The contractor shall provide tie wraps, riser cable support grips, vertical and horizontal cable ladders, D-rings and strain relief based upon field conditions to maintain orderly cable organization.
2. The contractor shall be responsible for securing all cabling in a way to satisfy any structural engineering requirements.
3. The contractor shall obtain required structural engineering for any item which may affect the infrastructure of the building and submit this to the project engineer for prior review and

approval.

4. All equipment installed in duct banks and manholes shall be specified by the manufacturer for use in outside plant environments and submergence in water.

R. Cable Routes and Clearances

1. Unshielded twisted pair cable shall be routed so as to maintain the following minimum distances from power sources:
 - a. 6 inches from power lines of 2 KV or less.
 - b. 12 inches from high voltage lighting (including fluorescent).
 - c. 36 inches from power lines of 5 KV or greater.
 - d. 40 inches from transformers and motors.

S. Cable Termination

1. The contractor shall terminate the copper cables on high density (110) type punch down blocks wall mounted on plywood backboard in the IDF as show on Contract Drawings. All pairs in all cables shall be terminated contiguously in color coded sequence. The contractor shall terminate voice cables on separate 110 blocks from data cables. Each cable shall have all pairs contiguously terminated on one row of the 110 block. Labels are to be placed so as to remain legible upon completion of termination.
2. The fiber optic cable shall be terminated in a 19" equipment rack or in NEMA boxes in the Utility Tunnel as shown on the Drawings.
3. Refer to contract drawings for specific termination instructions.

T. Grounding

1. All metallic sheathed cables shall be bonded and grounded. Outside plant cables shall be bonded to the termination frame. The termination frame shall be grounded to building ground in accordance with local practice. Cable trays are to be grounded and bonded for safety per NEC standards.
2. Each MDF will have a single ground point. This point is bonded to the integral building grounding system or to the local structural steel. All grounding and bonding in each room will be connected to that point either directly or through the use of ground buss connections.
3. All cables with a metallic component which enter the MDF from outside the building shall be grounded at the point of entrance by 4B1E-W type gas tube protectors.
4. All external cables which enter a building shall conform to the bonding and grounding requirements described in NEC 800-30, 800-33 and 800-40.

U. Splicing

1. No splicing of any cables will be performed unless otherwise explicitly noted in Contract Drawings or pre-approved in writing.

V. Materials Management

1. Equipment and materials shall be properly stored, adequately protected and carefully handled to prevent damage until acceptance.

W. Fire Protection

1. The contractor shall use only fire-rated cables in accordance with USA NEC in all plenum and vertical riser spaces.

X. Firestopping

1. The contractor shall suitably firestop all riser shaft openings; horizontal sleeve penetrations, both ends of any horizontal conduits and all slot cuts in walls and under the raised access floors which are needed to facilitate cable access/egress.
2. The contractor is responsible for firestopping of all cable tray openings through fire rated structures (i.e. walls, partitions, pressurized access floors, etc.) throughout the facility upon completion of cabling.

Y. Protection/Restoration of Premises

1. During installation, and prior to final acceptance, the contractor shall protect finished and unfinished work against damage and loss. In the event of such damage or loss, the contractor shall replace or repair such work at no additional cost to Massport. As cable is installed, care must be taken to avoid nicks, kinks or other damage to the cable. Cable is to be labeled at each end as specified. Provide strain relief at each termination point and enough slack to easily re-terminate the cable, if required later.
2. The contractor shall, as required, during the progress of work, remove and properly dispose of resultant dirt and debris, hang protective plastic sheathing when specified and keep outside plants clean. Upon completion of work, the contractor shall remove equipment and unused material provided for work.

Z. Quality Assurance

1. The work shall be executed in full accordance with the current rulings of the latest applicable standards and all rulings by state, utility, and local authorities. Where codes conflict, the more stringent shall apply. Where the specification requirements exceed the requirements of these authorities, codes, and standards, the specification requirements shall prevail.
2. The contractor shall replace any imperfect or rejected work with work conforming to the requirements of the specification and shall be satisfactory to the Engineer without extra cost to Massport.
3. The contractor shall report promptly in writing, whenever plans or specifications are believed to be at variance with these requirements, and shall not proceed with such work until further instructed in writing by the Tenant and/or Massport.

AA. Physical Inspection

1. Prior to the conduct of any transmission testing, the following visual inspections shall be performed:
 - a. Verify that cable has been installed to comply with contract documents.

- b. Check for physical damage to Distribution Panels and Termination Blocks.
- c. Check that all cabling is properly jacketed, installed and labeled at both ends.
- d. Verify that all cable bends are within the manufacturer's minimum bend radius allowed.
- e. Check and demonstrate that all cable shields have been correctly grounded or bonded.
- f. Verify that the cable is properly supported for termination and long-term placement (approvals must be obtained from the Engineer).
- g. Verify that all cables are properly supported and independent of any other support/hanger rods in the ceiling space.

Verify that cables have been terminated properly and in proper color code sequence.

4.08 Signage

4.08.1 Signage Review and Coordination

- A. Signage standards and guidelines have been adopted by Massport for all projects. These guidelines provide an overview of the wayfinding signage systems, design criteria, graphic standards and typical sign types that will assist designers and users to meet all signage requirements.
- B. The noted signage guidelines are available from Massport's web site at <http://www.massport.com>. Once at the web site, navigate to <http://www.massport.com/business-with-massport/capital-improvements/resource-center/> and scroll to Massport Wayfinding Guideline and Sign Standards.

4.08.2 Fire Protection Signage

- A. All storage rooms shall be provided with visible, permanently mounted signs to read "No Storage within 24" of ceiling or within 36" of any electrical equipment". Signs shall be red background with 1" high white letters.
- B. All fire protection system equipment shall be properly identified as to their function.
- C. Massport's Fire Marshal's Office reserves the right to request additional signage to assist the fire department personnel in locating fire protection equipment, fire hydrants, emergency equipment, etc.

4.09 Security / Access Control

4.9.1 Overview

- A. Optional Design Review

For those renovations or expansions of Tenant spaces approved through the TAA process which may necessitate changes to the airport's Access Control System, the Tenant may request a design review session as part of the TAA process to review the need to integrate security-sensitive doors and portals into Massport's Access Control System (ACS).

4.9.2 Proprietary Access Control System

A. Proprietary ACS Integrator

Massport monitors all changes and additions to the Access Control System throughout Logan International Airport. Tenants are required to retain the services of Massport's proprietary ACS integrator to specify, acquire, install and integrate all ACS hardware and software which may be required as part of their projects. Once installed and activated, all ACS doors and portals will be maintained and administered by Massport. Tenants shall be required to comply with process for securing changes to Access Control System in accordance with the Access Control Procedures which shall be provided to the Tenant upon request.

4.10 Environmental

4.10.1 Overview

A. Regulatory Compliance

Massport conducts an ongoing program to assess environmental compliance and pollution prevention practices on Massport's properties, including those operated by Tenants. Massport not only works with federal and state agencies and airport Tenants to meet mandated regulations, it is proactive with its own initiatives, and with facilitating Tenant initiatives, in an effort to exceed regulatory requirements and reduce the environmental impact of airport operations.

Information on environmental programs at the airport can be found in the Environmental Management section of Massport's web site, www.massport.com/business.

While Massport will make every effort to assist Tenants in maintaining regulatory compliance, it is fully the Tenant's responsibility to ensure its construction and operation activities meet, or exceed, all applicable environmental regulations. Massport is not liable for a Tenant's failure to comply with regulations.

B. Sustainable Design

Massport considers the three components of sustainability: environmental stewardship, social responsibility, and economic development, important corporate values in line with the Massport's mission. Massport measures and mitigates the impact of our facilities and operations with regard to these values.

Massport has demonstrated its commitment to sustainability in its built environment. Terminal A was the first LEED certified airport terminal in the world. Massport has developed Sustainable Design Standards (launching in April 2009) that are tailored for Massport's diverse facilities and has voluntarily adopted the sustainability goals set forth in Massachusetts Governor Deval Patrick's Executive Order 484 – Leading by Example.

Massport encourages its tenants to embrace sustainability while working and building on Massport property. We expect that all new buildings are designed so as to qualify for a LEED certification should one be sought. Tenants are encouraged to adopt sustainable design strategies for all projects as outlined in the Sustainable Design Standards, and certain projects may be required, under the TAA process, to complete Massport's sustainability rating form and to jointly establish goals for sustainable design. Tenants are also encouraged to pursue LEED certification for their fit-outs and facilities. In so doing, our Tenants will experience the benefits of lower costs, a smaller environmental footprint, and public recognition that accompany these

efforts. Massport personnel are available to consult with our tenants on the strategies, costs, and benefits of implementing sustainable design concepts.

4.10.2 Existing Conditions Survey

The Tenant shall contact the Environmental Management Unit to request available information on existing hazardous materials, storage tanks and environmental conditions within the proposed project area. Any information provided by Massport shall be verified by the Tenant and supplemented as needed to ensure a complete survey of existing conditions. The Tenant shall provide an existing conditions report that addresses the items below as part of the TAA.

A. Asbestos Containing Material and Lead-Based Paint

The Tenant is required to survey the proposed project area for the presence of asbestos using an Asbestos Inspector trained in accordance with EPA regulations and licensed by the Massachusetts Department of Labor and Workforce Development (DLWD).

B. Hazardous Materials and Storage Tanks

The Tenant shall provide an inventory of all hazardous materials and storage tanks within the proposed project area, and shall provide a plan describing how they will be managed during construction.

C. Subsurface Contamination

The design of a project involving foundation and/or utility excavation shall include an assessment of potential subsurface contamination within the construction area. The Tenant shall engage the services of a Licensed Site Professional (LSP) to conduct the assessment.

4.10.3 Subsurface Investigation

The following procedures shall apply when a Tenant project involves work to accomplish test borings, test pits or other forms of subsurface investigations.

A. Investigation Plan

The TAA shall include an Investigation Plan that states the purpose and scope of the investigation, delineates the specific test locations and depth of borings, and describes the sampling and analyses to be conducted.

B. Utility Clearance

The Tenant shall contact Massport's Capital Programs Department to request available information on existing utilities. The Tenant shall verify the location of utilities and follow the required Dig Safe notification procedures. Vacuum excavation shall be conducted at all test locations prior to drilling or excavating to a depth of 10 feet below ground surface.

C. Management of Investigation-Derived Waste

All excess soil generated during subsurface investigations, and water from monitoring well development, shall be drummed and promptly removed by a licensed waste transporter.

D. Data Submittal

The Tenant shall provide Massport with all subsurface data including boring/test pit logs and locations, laboratory analytic results and information on any utilities encountered. The geographical data shall be provided in an electronic format using the latest version of AutoCAD.

4.10.4 Construction Excavation and Dewatering

A. MCP Requirements

The Massachusetts Contingency Plan (MCP) is administered by the Massachusetts Department of Environmental Protection (DEP) in accordance with 310 CMR 40.0000 and applies to subsurface work within known or suspected areas of contamination. The Tenant shall be responsible for complying with all requirements under the MCP.

Due to nature of the existing “urban fill” material at the airport, the Tenant shall include an LSP on its design team to address issues associated with potential soil and groundwater contamination within the proposed project area. If work is to be conducted within a DEP listed “Disposal Site”, the Tenant’s LSP shall prepare and submit required plans to the DEP, with copies provided to Massport during the TAA review process. The LSP shall oversee all subsurface construction work within area of subsurface contamination.

B. Stormwater Pollution Prevention

For any project that disturbs one or more acres of land surface, the Tenant must submit a Notice of Intent (NOI) to the U.S. Environmental Protection Agency (EPA) requesting coverage under the Construction General Permit. The Tenant shall comply with all applicable National Pollution Discharge Elimination System (NPDES) regulations and shall provide Massport with a copy of the NOI, the acknowledgement letter issued by the EPA, and the Stormwater Pollution Prevention Plan (SWPPP) for the project. These documents shall be provided prior to Massport’s issuance of the TAA Permit.

During construction, copies of the weekly stormwater management inspection reports shall be provided to Massport upon request.

C. Soil Management

Subsurface soil at the airport is typically characterized as “urban fill”, and as such commonly contains low levels of contaminants such as heavy metals, polycyclic aromatic hydrocarbons, and petroleum hydrocarbons. Therefore, all soil transported offsite must be managed in accordance with the MCP.

Prior to issuance of a TAA Permit for a project involving excavation and removal of soil, the Tenant shall submit a Soil Management Plan detailing characterization of the soil and listing potential offsite receiving facilities for Massport’s review and approval and DEP’s Policy (COMM-97-001) on soil reuse and disposal at Massachusetts landfills.

D. Groundwater Management

For projects involving excavation, the Tenant shall submit an Excavation Dewatering Plan that details how groundwater will be managed. Water pumped during dewatering must be recharged onsite or treated prior to discharging to the stormwater drainage system. Minimum treatment shall include a sedimentation tank. For proposed dewatering within a contaminated area, the Tenant must submit an NOI to the EPA requesting coverage under the Remediation General Permit. The NOI shall provide details for treating pumped groundwater, and a water sampling and analysis program.

E. Health and Safety Plan

Excavation within a contaminated area requires a Health and Safety Plan (HASP) in accordance with 29 CFR 1910.120. The HASP must be prepared and implemented by a Certified Industrial Hygienist, and be available to Massport upon request.

F. Solid Waste Disposal

Disposal of solid waste shall comply with 310 CMR 19.00. Tenant shall abide by prohibitions of materials specifically banned from landfills. Refer to www.mass.gov/dep/recycle/laws/bansreg for a complete list of prohibited materials.

4.10.5 Storage Tank and Fueling System Installations and Removals

A. Regulations and Permits

Applicable regulations are to be found at 40 CFR 280, 527 CMR 9.00 and 310 CMR 7.00. The Tenant shall obtain a permit from Massport's Fire Marshal's Office prior to installing or removing a tank or fueling system, and shall provide at least 48 hours advance notice to the Environmental Management Unit.

B. Plans and Specifications

Any TAA which proposes a tank installation or fueling system (e.g. fuel hydrant, distribution pipe) shall provide specifications prepared by a Professional Engineer that include, but are not limited to, the following: tank/piping size and construction, location, product, foundation and anchoring, piping layout, corrosion protection, spill overflow protection, leak detection and alarm systems.

All new installations of underground storage tanks on Massport's property shall be double-wall fiberglass. All related underground piping shall also be double-wall fiberglass or other industry-approved reinforced flexible piping.

Storage tanks containing volatile organic compounds shall comply with the Massachusetts Air Pollution Control regulations found at 310 CMR 7.00, and shall be outfitted with the required vapor control equipment.

For a tank or fueling system removal, the Tenant shall submit a work plan that includes: a schedule, methods and operations for tank/piping closure (excavation, purging of tank and piping, tank removal, confirmatory soil sampling), and notification and emergency response procedures in the event of a leaking storage tank or pipe. The Tenant shall identify proposed receiving facilities for the tank and piping, product and any excess excavate. Work shall not be conducted unless a Fire Marshal's Office representative is present to observe the tank or fueling system removal.

C. Document Submittals

For releases of oil or hazardous materials encountered during a tank removal, the Tenant shall be responsible for implementing all Spill Response and Notification Procedures (see Section 6.10.6), and for submitting all documents required under the MCP and prepared by and LSP. Copies of the documents shall be submitted concurrently to the DEP and Massport. Within two (2) weeks of removing a tank, the Tenant shall submit to copies of the confirmatory sampling data and manifest documents for the tank and product to Massport.

4.10.6 Spill Response and Notification Requirements

A. Sudden Release of Oil or Hazardous Material (OHM)

A Tenant shall respond to any spill of OHM resulting from its construction activities or other operations and shall be prepared to contain and clean up waste materials in an expeditious manner. The Tenant shall immediately notify Massport's Fire Marshal's Office of any spill of OHM, and shall be responsible for complying with the DEP notification requirements particularly as they pertain to spills requiring notification within two (2) hours.

B. Notification for Exceedance of Reportable Concentration or Reportable Quantity

If the Tenant obtains data during subsurface investigations or construction excavation indicating that a Reportable Concentration and/or a Reportable Quantity has been exceeded (as defined in 310 CMR 40.0300), then the Tenant shall notify Massport's Environmental Management Unit and shall be responsible for notifying the DEP and submitting a Release Notification Form to the DEP. The Tenant shall consult with an LSP regarding proper notification procedures and subsequent response actions.

4.10.7 Air Quality

All proposed projects shall comply with the Massachusetts Air Pollution Control Regulations found at 310 CMR 7.00, sections of which are summarized below.

A. Construction and Demolition

Proposed projects shall comply with 310 CMR 7.09, and the TAA shall describe measures to prevent excessive emission of particulate matter during construction or demolition. The Tenant shall be responsible for advance notification to the DEP and shall submit form BWP AQ 06 at least 10 working days prior to construction or demolition, with a copy provided concurrently to Massport.

B. Asbestos and Lead Abatement

The Tenant shall be responsible removing asbestos and/or lead as required to facilitate proposed demolition and renovation projects. Projects requiring the removal of asbestos-containing material (ACM) must comply with 310 CMR 7.15, and the TAA shall detail the quantity of ACM to be removed, how it will be contained, and shall identify the transporter and disposal site. The Tenant shall be responsible for submitting form ANF-001 (also known as BWP AQ-04) to the DEP, with a copy provided concurrently to Massport.

4.10.8 Wastewater

In order to ensure that Massport and Tenants comply with the Sewer Use Regulations (360 CMR 10.0000) and Drinking Water Regulations (310 CMR 22.00) Tenants should determine applicability of the regulations during the Tenant Alteration Application Process. This will include examining the following items.

A. If the project will include adding or altering an existing storm drain or sanitary sewer connection a permit may be required. In order to connect to a Municipal Sewer or a Massachusetts Water Resources Authority Sewer it may be necessary to obtain a Department of Environmental Protection (DEP) Sewer Connection and Extension Permit (360 CMR 10.006(5)).

B. Identify any additional permits that are required in accordance with 360 CMR 10.007. These could include: Sewer Use Discharge Permit; Septage Discharge Permit; Direct Connection

Permit; Municipal Permit; Landfill Permit; Temporary Construction Site Dewatering Permit; Group Permit or a General Permit.

- C. If the project will include the addition or removal of a backflow prevention device the Drinking Water Regulations (310 CMR 22.00) must be adhered to. Installation approval for a backflow prevention device must be obtained from the local water department. Notification also must be provided if a device is being removed.

4.10.9 Wetlands Permitting

All Tenant projects within a wetland resource area or a buffer zone must comply with the requirements of the Massachusetts Wetlands Protection Act (310 CMR 10). If an application to the local Conservation Commission is required, the Massport Environmental Management Unit must review and sign the Tenant application's and represent Massport, as the property owner, at any public hearing.

4.11 Fuel Farms and Storage Tanks

4.11.1 Fuel Farms, Fuel Pipe Lines, Fuel Hydrant Pits and Fueling Ramp Drainage

- A. Any and all work associated with the installation, repair and/or alteration of any fuel farm storage area, fuel pipeline, fuel hydrant system pit, aircraft-terminal ramps, etc. must be accomplished in full compliance with all applicable codes and regulations including but not limited to, state codes and state fire prevention regulations. NFPA-415, "Standard of Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways", 2002 Edition, American Petroleum Institute Standards, Environmental Protection Agency (EPA) Regulations, Codes of Federal Regulations, etc. and as directed by Massport's Fire Marshal's Office.
- B. In addition to the above, any and all work associated with fuel systems on the airport must be conducted in full compliance with Mass port's Rules and Regulations as well as the requirements of the Airport Certification Manual.

4.11.2 Storage Tanks

- A. All underground and above ground storage tanks and associated piping systems must be designed, installed and maintained in full compliance with M.G. L. Chapter 148 "Fire Prevention Laws" and 527CMR "Fire Prevention Regulations," latest edition.
- B. Prior to any and all new storage tank(s) going into operational service, said tank(s) must be properly leak tested by an approved tank testing company. Properly documented test reports along with a completed FP-290 Form must be submitted to Massport's Fire Marshal's Office for required tank registration.
- C. Storage tank removal must be accomplished in full compliance M.G.L. Chapter 148 "Fire Prevention Laws" and 527CMR "Fire Prevention Regulations", latest edition the Massachusetts Contingency Plan 310 CMR, latest edition. Application for appropriate Tank Removal and Transportation Permit (see attached Form FP-292) must be received by Massport's Fire Marshal's Office at least one week prior to scheduled tank removal work. The Fire Marshal's Office approval must be obtained prior to advancing removal work.
- D. Upon removal of a registered storage tank(s), the owner, operator, lessee, etc, of said tank(s) must submit a revised FP-290R Tank Closure Form to the Massport's Fire Marshal's Office (see

attached 290R Form / Notification for Removal or Closure of Storage Tanks Regulated by 527CMR, latest edition.

4.11.3 Flammable, Combustible Liquid and Fuel Storage Tanks

A. Massport's Fire Marshal's Office shall be consulted as to the design, installation and specifications for fire protection and fire prevention requirements for all proposed above ground storage tanks regardless of liquid or fuel type. Massport's Fire Marshal's Office shall determine all requirements.

4.11.4 Fuel Islands

All facilities, public and private dispensing of gasoline or other motor fuel shall be equipped with appropriate automatic fire suppression and detection system and supervised for automatic alarm re-transmission for emergency response. This requirement applies to Massport's operations and the operations of its Tenants (for example, car rental/leasing operations, airline service vehicles, bus transportation, etc.) The Massport's Fire Marshal's Office shall be consulted as to all design requirements.

4.12 Utilities Control

4.12.1 Electric Metering

A. All prospective and existing Tenants shall be required to submit both the Service Activation/Deactivation Request Form and an Electrical Load Data and Meter Specification Form for each project with all pertinent data filled out with TAA. The Tenant and its Electrical Engineer of Record shall be responsible to complete these forms and be responsible for its accuracy. The Tenant shall include in the design documents, the specifications for meters, meter sockets and if applicable, the current transformers (CT's) and potential transformers (PT's).

B. Spec Section 16052, Polyphase Meters or Section 16051, Single Phase Meters shall be included in the documents as applicable. MPA' s Meter Socket Specifications shall be used to determine rate and style of meter and meter socket, as well as any other equipment, shall be required. For new primary rate customers with interior switchgear, metering shall be on the secondary side of the transformer with transformer loss compensation. For exterior switchgear, metering may be located on the primary side with permission of Massport. Electrical connections shall be made consistent with the requirements of the MPA electric construction specifications.

C. Meter sockets, CT's and PT's shall be specified by the design consultant and paid for by the electrical contractor. Meters shall be programmed by the MPA Utilities Department. Refer to Electrical Load Data and Meter Specifications document. Both the Service Activation/Deactivation Request Form and the Electrical Load Data and Meter Specification Form are mandatory submittals. Contact the Utilities Management Department at (617)568-3605.

4.12.2 Water Metering

- A. The plumbing contractor shall provide a water meter, located in an accessible area, with remote read capabilities via an R 300 radio frequency board, such as Itron or equivalent. The location of the meter, if concealed, shall be readily identifiable. Contact the Massport Utilities management Department, 617-568-3605.
- d.

(End of Section)

Section 5

Codes, Laws and Compliance

5.01 Regulatory Construction Permits and Certificate of Occupancy

- A. All new construction, renovations to existing buildings and rooms and/or spaces within existing buildings including associated demolition are subject to the requirements of 780CMR State Building Code and requires review, approval and issuance of appropriate permits by Commonwealth of Massachusetts agencies, City of Boston Inspectional Services, Massport's Fire Marshal's Office, State Board of Plumbing Examiners, and others that may apply. All construction documents shall be reviewed and approved by the State Building Inspector and proper permits obtained prior to start of any construction.
- B. All construction is subject to:
 - 1. 780CMR, Section 107, "Registered Architectural and Professional Engineering Services-Construction Control" requirements.
 - 2. M.G.L. Chapter 143, Section 54A "Certain Plans or Specifications not to be Approved in Absence of Seal of Registered Architect or Engineer"
 - 3. 250CMR "Registration of Engineers, Professional Services and Conduct"
 - 4. 231CMR, "Registration of Architects, Professional Services and Conduct"
- C. The State Building Inspector will review all construction documents subject to regulatory permits or may direct how construction documents are to be reviewed and approved prior to the issuance of a building permit, which may include the review of plans with design professionals or contractors.
- D. All construction is subject to periodic inspections during construction by any authorized inspection authority, and is subject to final inspection prior to the issuance of a Certificate of Occupancy by the permitting authorities.
- E. Permits and inspections are the responsibility of the following agencies and entities:

Logan International Airport Projects and off- Airport Projects within the City of Boston:

- 1. Building Permit - Department of Public Safety State Building Inspector.
- 2. Plumbing and Gas Permit: Board of State Examiners of Plumbing and Gas Fitters, State Plumbing Inspector.
- 3. Elevator Permit: Department of Public Safety Elevator Board, State Elevator Inspector.
- 4. Electrical Permit: City of Boston Inspectional Service Department, Electrical Inspector.
- 5. Cross-connection (Backflow Preventer/Sprinkler Systems) Permit: Boston Water and Sewer Commission.
- 6. Restaurant/Food Establishment: City of Boston Inspectional Services, Health Department Inspector.
- 7. Fire Protection, Fire Prevention Permits: Massport's Fire Marshal's Office

5.02 Massport's Fire Marshal's Office Permits

- A. Applications for the following activities must be made in person at the Office of the Fire Marshal:
- Automatic sprinkler standpipe systems
 - Fire alarm systems
 - Fire suppression systems
 - Smoke control systems
 - Fire mains and hydrant systems
 - Fire extinguishers
 - Flammable and/or compressed gas storage
 - Hotwork
 - Open flame – miscellaneous cooking equipment

5.03 State Building Permits

- A. Application for construction and demolition permits and requests for Certificates of Occupancy shall be made through the Capital Programs Department, which shall coordinate such applications with the State Building Inspector.
- B. All projects involving alteration to or new construction on leased premises require approval by Massport through the Tenant Alteration Application process. In addition, certain of those projects require the issuance of a building permit in accordance with Massachusetts regulation 780 CMR (called hereafter "State Building Code"). All applications shall be made according to the provisions of this code.
- C. Building Permit Application

The Application for Building Permit is available from the Capital Programs Tenant Construction Office. It is to be completed by the Tenant or its agent and submitted to Massport for to be reviewed and recommended. This submittal shall contain:

- A completed original Application for Building Permit, signed by the applicant and including original seals and signatures of the project design professionals.
- A check made out to Commonwealth of Massachusetts for permit fee. See page one of the Application for Building Permit for instructions on calculation of this fee.
- One set of the project plans, with original architect or engineer's stamp and signature on every page.
- Other associated materials, including fire protection and detection narratives, existing building evaluation, energy studies, flammability test reports, structural narrative, and other items which are produced as part of the design package or required by 780 CMR.
- A Construction Control affidavit ("Construction Document") from each construction control professional (architect or engineer(s) who is providing stamped drawings.

- A Certificate of Workman's Compensation ("Workers Compensation Affidavit") for the general contractor in standard state format.
- Evidence of current workers compensation insurance coverage for the general contractor, usually provided with a standard Certificate of Insurance form.
- A verification of the waste disposal facility ("Waste Disposal Affidavit") to which any construction debris will be taken, in standard state format.
- One CD containing all materials (plans, forms, affidavits, building permit application, the check for permit fee, and any/all other application documents as noted above).

Capital Programs will review and approve the permit application for completeness and will transmit the application package to the State Building Inspector. The State Building Inspector shall review the plans and application and approve the application and issue a building permit, or deny the application and request additional information, analysis or corrections. Please be aware that the State Building Code allows thirty days for the State Building Inspector to review and issue building permits, so plan accordingly. No construction may commence until the building permit has been issued.

Please note also that should the Tenant's architect intend to request a variance from 780 CMR (or from any other applicable regulation), or request a hearing before any appeals board, for any reason, this intention shall be made known to and approved by Massport prior to any formal application for such variance or appeal.

E. Inspections During Construction

As construction progresses, the project's general contractor is responsible for notifying Capital Programs with any requests for scheduling rough and other interim inspections by the State Building Inspector.

F. Project Acceptance and Certificate of Occupancy

The Tenant team shall prepare a preliminary copy of a Project Closeout Manual approximately two weeks prior to the anticipated completion of the project. The preferred form of the manual is a ring-bound document no larger than necessary to accommodate the required materials.

The Project Closeout Manual will be reviewed by Capital Programs with the Tenant's project representative for status and completion, and an anticipated timeline for final inspection will be agreed on.

Once all required permit signoffs, affidavits, and test reports have been obtained, the Tenant will produce one manual with original documents and two manuals of copies. The Tenant's project representative shall contact Capital Programs to assert that the project is ready for final inspection by the State Building Inspector. Massport and the Tenant team will work together to expeditiously schedule all final inspections.

Once inspections have taken place, and the project is deemed to be ready for occupancy, the State Building Inspector will issue a Certificate of Occupancy to the Tenant, and will retain the closeout manual with original documents. Copy manuals shall be submitted to Massport, along with a schedule for completion of any and all punch list items.

Each project shall provide record drawings of the completed project within 90 days in accordance with Tenant Alteration Application requirements.

5.04 Laws, Regulations, Standards and Massport's Fire Marshal's Office Fire Protection and Fire Prevention

- A. Massport's Fire Marshal's Office reserves the right through the Massachusetts Port Authority's enabling Legislation, Regulations and Certification Manuals to exceed minimum State Regulatory fire protection, fire prevention and construction safety requirements for the protection of all its properties and the safeguarding of the general public, employees, tenants and emergency response personnel.
1. At a minimum, the following regulatory documents must be complied with for all construction and construction installation activities at all times:
- a) M.G.L. Chapter 143, "Inspection and Regulations of and Licenses for Buildings, Elevators", latest edition
 - b) 780CMR, (all amendments), "State Building Code"
 - c) 524CMR "Elevator Regulations", latest edition
 - d) 521CMR, "Architectural Access Board", latest edition
 - e) M.G.L. Chapter 148, "Fire Prevention Laws", latest edition
 - f) 527CMR, "Fire Prevention Regulations", latest edition
 - g) 310CMR, "Department of Environmental Protection", latest edition
 - h) 105CMR "Dept. of Public Health", latest edition
 - i) 248CMR "Board of State Examiners of Plumbers and Gas Fitters", latest edition
 - j) 237 CMR "Board of State Examiners of Electricians and Board Electricians Appeal", latest edition
 - k) 528CMR "Bureau of Pipefitters, Refrigeration Technicians and Sprinkler Fitters", latest edition
 - l) Federal Regulation, Americans with Disabilities Act, latest edition
 - m) Federal Regulation, Occupational and Health Administration (OSHA), latest edition

5.05 Accessible Facilities

Compliance with State and Federal Accessibility Requirements

Massport is committed to developing and maintaining accessible facilities for the traveling public, and encourages its tenants and vendors to commit to the same. All new construction and alterations undertaken by the Applicant must fully comply with all state and federal accessibility regulations and codes. All work performed in existing facilities, other than certain limited maintenance, qualifies as an alteration.

5.05.1 Compliance with Americans with Disabilities Act (ADA) Requirements

- A. Massport is a public entity subject to Title II of the Americans with Disabilities Act (42 USC 12101, et seq. and regulations at 28 CFR part 35 et seq.). To the extent permitted by law, Massport's obligations under Title II of the ADA shall be assumed by and become obligation of the Applicant.
- B. Private entities are covered under Title III of the ADA. Title III prohibits discrimination on the basis of disability by private entities in places of public accommodation (facilities that provide products and services to the public) or commercial facilities (facilities that provide products and services to other businesses.)
- C. Applicants are required to comply with all obligations related to construction and alterations under the ADA, including without limitation the 2010 ADA Standards for Accessible Design:
http://www.ada.gov/2010ADASTandards_index.htm

- D. Employee common use areas (e.g. lounges, toilet and locker rooms, and emergency egress routes) are required to be fully accessible. Employee-only work areas must be designed and constructed so that a person with a disability can approach, enter, and exit. Under Title I of the ADA, any employer with 15 or more employees is required to make reasonable accommodations for specific individual employees with disabilities.
- E. Readily Achievable Barrier Removal. Some tenants may have architectural and communication barrier removal requirements even though they are not engaged in alteration. Public accommodations have an obligation to remove architectural barriers and communications barriers within existing facilities. The deadline for compliance was January 26, 1992 and is an on-going obligation. This barrier removal obligation is equivalent to an affirmative action requirement.

5.05.2 Compliance with Massachusetts Architectural Access Board Requirements (521 CMR)

- A. The Applicant is subject to all provisions of the Massachusetts Architectural Access Board (AAB), 521 CMR 1.1, et. seq. <http://www.mass.gov/eopss/architectural-access-board.html>. The rules and regulations of the AAB are NOT superseded by the ADA. It is important to note that the AAB applies a broader definition of “public” than does the ADA. AAB may consider business-to-business activities as public. This is important when determining whether AAB applies to an alteration project. AAB regulations do not apply to alterations in employee-only areas (but the ADA Standards do). It is important to note that alterations initiated to comply with the readily achievable barrier removal requirement of the ADA must also comply with AAB.

The AAB has stated its intention to bring the state regulations into a substantial equivalency with the ADA Standards. Until this is achieved, compliance with AAB’s regulations, as well as the 2010 ADA Standards, for all alterations to public areas is required.

(End of Section)

Section 6

Construction Controls

6.01 Preparation for Construction

- A. The Tenant Alteration Application process requires that for all projects, without exception, a preconstruction conference be held prior to the initiation of any construction activity. Scheduling shall occur by request to the Capital Programs Department. Project teams must come prepared with all applicable pre-construction submittals as detailed in the Project Startup Checklist including:
1. Contractor Insurance Certificate (See Section 3 - Insurance).
 2. Copy of Massachusetts Building Permit and all other applicable permits which have been issued to the project.
 3. A completed Emergency Contact List
 4. Project schedule in bar graph format, if applicable.
 5. Confirmation of executed lease, lease amendment or concession agreement for the proposed improvement.

- B. The Tenant's contractor, before commencing work, shall verify all governing dimensions and field conditions at the work site and shall examine, to the extent reasonable, all adjoining work, systems and substrates on which its work is in any way dependent according to the approved project documents.

As may be required, the Tenant's contractor shall employ imaging technology (X-ray, ground-penetrating radar or similar) and/or vacuum excavation methods to survey buried or concealed conditions.

- C. If the Tenant's contractor or any of its subcontractors of any tier knows or reasonably should have known, by virtue of knowledge of construction industry standards, that any of the approved project documents are at variance with applicable laws, statutes, building codes, regulations, or ordinances, in any respect, the Tenant's contractor shall promptly notify the Capital Programs Department and the Tenant, in writing, of any necessary changes which shall be accomplished by the Tenant or its design consultant.
- D. The Tenant should anticipate, in its scheduling, procurement and cost estimating, that its work may be interfered with or delayed from time to time by the acts, omissions, or scheduling of other contractors engaged in work in adjacent areas by Massport or by other tenants for work in adjacent areas.
- E. The Tenant's contractor(s) are responsible for securing all permits which may be required for the proposed work.
- F. The term "coordinate" or "notify" shall be understood to mean the presentation of complete information (to include any drawings or sketches where appropriate) to fully define the nature and duration of the proposed actions. The presentation shall include disclosure of any potentially hazardous or weather-vulnerable consequences of the activity when applicable. The Tenant / Contractor shall not proceed with such activity unless specifically approved by Massport.

6.02 Safety During Construction Activities

- A. It is the policy of Massport to protect site personnel, occupants and the public from potential safety hazards created by any construction activity.

All Tenant contractor work activities must comply with all applicable occupational and environmental safety and health laws, regulations, standards, ordinances, codes and other similar requirements. Such requirements shall serve as minimum guidelines for all activities of the contractor and all other parties entering Massport premises in connection with work.

Prior to the start of construction, the Tenant contractor shall provide Massport with a written Health and Safety Plan (HASP) for review. The HASP shall include procedures to control all hazards created by the construction. Example hazards include, but are not limited to, housekeeping, fall hazards, noise, dusts and odors, fires and explosions due to hot work, chemical and solid waste storage, electrical hazards/lockout tagout, trenching, crane activities, aerial lift and overhead hazards, confined space entry, lead and asbestos.

A contractor found to be not in compliance with applicable occupational and environmental safety and health laws, regulations, standards, ordinances, codes and other similar requirements, or project safety and loss prevention requirements, will be notified in writing and given a specific time period in which it must correct the unsafe condition(s) and/or unsafe acts. Failure to correct the identified condition(s) in a timely manner may result in the shutdown of the activity. Regardless, Massport project staff and Massport's designated representatives shall have the authority to immediately shut down any construction operation deemed by Massport to represent a condition imminently dangerous to the life and health of employees, occupants or the public.

All construction accidents involving personal injuries resulting in a workers' compensation claim, property damage, a chemical spill, fire, crane, automobile or mobile equipment vehicle must be reported to Massport within twenty-four hours. An accident investigation must be completed by the contractor or designated representative within fourteen days of the incident. Completed reports shall be forwarded to Massport, and must identify cause(s) of the accident, the corrective actions proposed/completed and a timeframe for implementation.

6.03 "Dig-Safe"

- A. "Dig-Safe" is the name of the Utility Underground Plant Damage Prevention Authority within the Commonwealth of Massachusetts. They can be contacted at (888) 344-7233 or through their website at www.digsafe.com.
- B. Contractors must notify "Dig-Safe" of contemplated excavation, demolition, or explosive work in public or private ways, or in any Utility Company Right of Way or easement.
- C. This notification must be made at least 72 hours prior to the work, but not more than 60 days before the contemplated work. Such notice shall set forth the name of the street or the route number of said way, and an accurate description of the location and nature of the proposed work.
- D. "Dig-Safe" is required to respond to the notice within 72 hours from the time said notice is received by designating at the locus the location of pipes, mains, wires, or conduits.
- E. Contractors shall not commence work until "Dig-Safe" has responded as noted above. The work shall then be performed in such a manner, and with reasonable precautions taken, to avoid damage to utilities under the surface in said areas of work.

- F. Prior to the “Dig-Safe” notification, Massport requires contractors to provide their superintendents with current “Dig-Safe” regulations, and a copy of Massachusetts General Laws, Chapter 80, Section 40.

6.04 Trench Permit

- A. In accordance with M.G.L. c. 82A, §4 and 520 CMR 14.02, prior to an excavation of a trench the contractor shall obtain a permit for the excavation (“Trench Permit”) approved by Massport. The permit applies to excavations in excess of three feet below grade and the depth of which is, in general, greater than the width, but the width of the trench, as measured at the bottom, is not greater than 15 feet. The contractor must take necessary steps to provide appropriate protections when trenches are unattended. Necessary steps shall include one of the following: (1) erecting a fence that is at least 6’ tall; (2) using a roadplate that is at least ¾” thick steel; (3) posting an attendant; or (4) backfilling the trench.

6.05 Inspection during Construction

- A. Massport shall be allowed 24-hour access to the Tenant’s construction site(s). A resident engineer will be assigned by Massport to each tenant project and shall review ongoing and completed construction work. The Tenant’s contractor shall permit these resident engineers, as well as the State Building Inspector and representatives of Massport’s Fire Marshal’s Office, to have unlimited access to the work site, and shall respond to all reasonable requests to further the inspectors’ ability to observe work in progress or complete other investigations or tests. Such inspections shall not relieve the Tenant’s contractor of any of its obligations under its Owner-Contractor Agreement, or any applicable laws, codes or regulations.
- B. Massport shall have the authority to reject any work, fixtures, systems, materials, equipment, furnishings, or any component of the work which is not as required or as specified in the approved project documents. Any such rejection shall be communicated in writing to the Tenant.
- C. Massport may, at its option, and when required by the Massachusetts State Building Code (780 CMR), in cases where proposed construction is of a complex nature, require the Tenant to hire a competent resident engineer or inspector to be present at all times during the construction period. For projects that necessitate work in multiple locations within a facility, or for those with a value exceeding \$1 million, Massport may require that the Tenant provide a dedicated project coordinator or construction manager.

6.06 Construction Operations

- A. All construction at Logan International Airport must comply with the Massachusetts Port Authority’s Logan Airport Rules and Regulations, Regulation 740.CMR, as currently amended, as well as all applicable Local, State and Federal regulations.
- B. All facilities will continue in full operation throughout the period of the Tenant construction work. Where the operations of Massport’s services, utilities, functions, spaces and facilities conflict with contractor operations, Massport’s operations will take precedence. Contractor’s work hours must be approved in advance by Massport, which may require that all or part of the proposed work take place at night or other off-hours.
- C. All work shall be performed by competent tradespeople licensed as required by their respective trade’s codes and regulations, using materials of a quality equal to or greater than that specified by code.

- D. The Tenant and its contractor shall familiarize themselves with other ongoing projects by Massport or by other tenants which may be taking place in the same or adjacent areas. The contractor shall coordinate the progress of its work with that of others working at the same facility.
- E. A complete set of plans must be available on the work site at all times. All permits which are issued to the project must also be posted at the work site.
- F. Once approved by Massport, no significant changes to the proposed work (including but not limited to changes in layout, modifications to building structural elements, or large-scale material substitutions) shall be made by Tenant or contractor unless these changes are resubmitted and approved in writing by Massport and the State Building Inspector, if applicable.
- G. When access or traffic control, special fire hazards, or other public safety issues arise as a result of project activity, Massport may require fire or police details, overtime operations and/or special equipment services. In such cases, the Tenant or contractor shall make arrangements for and pay all charges in connection therewith. Such services shall be provided only by assigned representatives of the Massachusetts State Police and/or Massachusetts Fire Rescue Department unless otherwise determined by Massport.
- H. Contractors must advise the Massport Capital Programs Department at least 24 hours in advance of all airside deliveries of equipment or materials. Under no circumstances will contractor equipment or vehicles be permitted on the aircraft ramp or apron without proper escort, and all are subject to aircraft operations area vehicle movement regulations.
- I. In most cases, neither official contractor's vehicles nor employee vehicles will be permitted to park at the terminals or the job site. However, in any instance in which contractor parking is allowed, it must be coordinated with the Capital Programs Department.
- J. For any work which will take place outside of the tenant's leased premises or which can reasonably be expected to affect the systems or operations of the facility or the experience or safety of passengers or other building users, the contractor shall submit a Work Plan Form. Massport shall review and approve the work plan with conditions, with which the contractor and/or subcontractors must abide.
- K. Roadway Lane Closures

Any work impacting Logan Airport roadway operations shall be performed during off-peak hours from 11:00 pm through 6:00 am for work impacting the arrivals roadway; and from midnight through 5:00 am for work impacting the departures roadway, including but not limited to utility work, modifications to roadways and curbs, hoisting of materials and/or equipment. For any other times the Tenant must obtain express written permission from Massport. At no time may any roadway be fully closed without the approval of Massport.

The Tenant is required to submit a Traffic Management Plan, inclusive of the following:

1. Provide a drawing, a supporting narrative and a schedule of work to be done, at least one week prior to the work date(s). This submittal should include, but not be limited to, a description of all lanes affected, method of lane closure(s), the anticipated need for police details, equipment to be used, temporary lighting, and signage and cleanup procedures.
2. The Traffic Management Plan must conform to the 1998 Manual on Uniform Traffic Control Devices (MUTCD), including all supplements and revisions thereto and the latest revisions to Part IV, thereof.

3. Complete and submit a Roadway Lane Closure Request form to the Capital Programs Department prior to the scheduled start of work for each separate lane closure. The Tenant shall be required to notify Massport Operations Department prior to the scheduled start of each lane closure and also at the conclusion of work. Massport reserves the right to deny permission to initiate any lane closure or roadway work on a daily or nightly basis as may be deemed necessary by airport operational requirements, unsuitable weather conditions, or for any other reason.
- L. Cranes and other construction equipment with an overall height in excess of 25 feet must be lowered during hours of darkness, or be equipped with obstruction lighting in accordance with all current FAA regulations including, *Part 77 – Objects Affecting Navigable Airspace* and *Advisory Circular AC 70/7460-1K – Obstruction Marking and Lighting*. Notification to FAA may be needed where cranes may potentially affect airfield operations. Such notification shall be made in coordination with Massport. A crane permit shall be issued by the Capital Programs Department for crane activities. Request a Crane Checklist which details the information required for this permit approval.
- M. Massport's passenger elevators may not be used for the removal of debris, or for the delivery of materials. Durable floor and wall coverings shall be provided by the contractor in any service elevator cab used for deliveries to protect against damage. Hand carts used for material deliveries must have pneumatic tires to protect the automatic door mats and rubber bumpers to protect interior furnishings. No hand carts, dollies, etc. will be permitted on escalators. Personnel access and material deliveries to the work site are to be by designated and approved routes only. No concrete, plaster, terrazzo, debris or other bulk materials may be brought through public area concourses unless approved by Massport. Massport reserves the right to back-charge the contractor for any damage done to Massport's property.
- N. Construction areas must be kept clean. Construction debris shall be removed daily by the contractor; no debris shall be stockpiled on the site without prior written permission of Massport. The contractor will be responsible for the placement of a covered dumpster if required by Massport. If Massport finds it necessary to remove debris, repair damages to Massport's property or equipment, or otherwise clean up after the contractor, the Massport reserves the right to back-charge the tenant.
- O. The storage of construction materials shall be controlled on tenant construction sites to avoid unsightly appearance and to prevent winds or jet blast from scattering materials on the airside. Appropriate storage areas, containers and methods must be provided by the contractor.
- P. All construction areas within the aircraft operations area (AOA), or in a public area, must be properly barricaded, (and, in the case of the AOA, identified with flashing lights during hours of darkness) to prevent accidental entry by pedestrians, vehicles, or aircraft (see paragraph 6.04.J). Massport may require that certain construction work in public areas be screened for the protection of the public. Such screening shall be constructed of durable materials and shall be finished in a manner which is visibly attractive.
- Q. Construction project signs shall be limited to project identification information. These signs shall be provided for each project in a standard format, by Massport. In some cases, graphics and visuals may be allowed for construction fencing or interior temporary barricades.
- R. Contractor vehicles and crews working within the AOA may be required to be equipped with a radio operating a frequency assigned by Massport. Otherwise, escorts must be provided for all vehicles.
- S. Massport shall have the right to photograph, videotape, film, or in any other manner document the progress of Tenant construction work at any time, and to use such documentation for any purpose. The contractor shall coordinate the photography of his work and of adjacent affected work areas through the Capital Programs Department.

- T. Contractors working on other projects may occasionally need to gain access to the Tenant's area under construction. The Tenant and its contractor shall fully cooperate and coordinate their project work with that of other projects to the maximum extent possible to avoid or mitigate any delay or hindrance of either's work.

6.07 Protection of Property and Work In Progress

- A. The Tenant's contractor shall take all responsible precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:
 - 1. All the work and all materials, equipment, systems, fixtures, and furnishings to be incorporated therein, whether in storage on or off of the work site, under the care, custody, or control of the contractor, subcontractors, subordinate subcontractors of any tier; or suppliers; and
 - 2. Other property at the work site or adjacent thereto, including but without limitation, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction; and
 - 3. Work of Massport or its contractors, provided, however, that the Tenant's contractor shall not be responsible to furnish the direct protection of the work of Massport or other contractors.
- B. The Tenant's contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules, regulations, and lawful orders of Massport's Insurer and any public authority bearing on the safety of property or its protection from damage, injury, or loss, and further, shall cooperate and keep the Tenant, Massport and other contractors informed of all of the Tenant contractor's precautions for the protection of the work.
- C. The Tenant's contractor shall be solely responsible for the design, installation and maintenance of all temporary structures such as, but without limitation, all necessary bracing, framing, and structures or structural elements to prevent the failure of materials or temporary facilities required in the execution of its work which could result in damage to property or the injury or death of persons.
- D. If any of the Tenant contractor's operations destroy or damage any real or personal property, public or private, the Tenant's contractor must promptly repair or replace such property. Occupancy of the completed work will not be approved until such repairs have been completed to the satisfaction of Massport.

6.08 Protection of Municipal and Public Service Systems

- A. Before the work is begun, the Tenant's contractor shall communicate with all governmental agencies and private entities which have jurisdiction over municipal or other public service systems which might be affected by the work. After the work is begun, the Tenant's contractor shall perform in a manner designed to reduce to a minimum the potential for disrupting the operations of service systems. In particular, when a Massport, municipal, or other public service system can be affected by improvement work or utilities service extensions executed by the Tenant's contractor, the Tenant's contractor is required to contact the agency responsible for the operation of that affected system for instructions on how best to proceed.

6.09 Protection of Streets and Roads

- A. Traffic control systems such as street signs, traffic signals, traffic lane markings, and any other equipment or facilities which aid in the control of traffic must be protected, and the Tenant shall be liable for any damages to these systems or any damages to persons and properties which may result

from failures in the traffic control system which were caused by the Tenant's or its contractor's operations.

6.10 Protection of Drainage Ways

- A. The Tenant and its contractor shall not bypass untreated or partially treated waste waters or waste materials to storm sewers or other drainage courses. All bypassing or pumping of sanitary sewerage required during construction shall be to other sanitary sewer facilities approved by Massport. All existing sewer facilities shall remain in continuous and full operation during construction. Dewatering activity must be conducted in accordance with DEP and EPA regulations.

6.11 Fire Protection / Safety Procedures

A. General

It is the overall responsibility of the contractor to establish, develop and implement an appropriate fire safety program to prevent and minimize fire damage during construction operations. The following is a guideline established by Massport's Fire Marshal's Office that must be complied with at all times by all contractors and subcontractors working at Massport properties. It is intended to be only a guideline is not inclusive of all code requirements governing construction activities and operations.

B. Regulatory Compliance

All construction, alteration and demolition work must be accomplished in full compliance with all applicable provisions and requirements of the Massachusetts State Building Code, State Fire Prevention Regulations, and all applicable National Fire Protection Association Codes and Standards, particularly NFPA-241, "Standard for Safeguarding Construction, Alteration and Demolition Operations", and all OSHA Standards and Regulations governing construction activities and worker safety must be complied with at all times.

C. Building Permit Requirements

No work is to take place until the state building permit has been issued by the State Building Inspector.

D. Fire Prevention

Good fire prevention practices must be observed on all construction sites. No smoking rules must be enforced, storage area must be kept neat and orderly, and trash emptied as needed.

E. Paid Fire Department Details

Paid fire department watch details may be required by Massport's Fire Marshal's Office or designee in the case of fire protection-life safety system impairments (including out-of-service fire alarm systems, automatic sprinkler systems, fire pumps, fire mains, etc.), certain phases of hot work involving welding and/or torch burning that is deemed hazardous and/or which may result in a fire, or a failure to comply with permit requirements. The cost for paid fire department details will be borne by the Tenant or the Tenant's contractor.

F. Maintenance of Exits

All exits within or adjacent to construction areas are to be maintained free and clear of any and all obstructions that may restrict access and exiting.

G. Fire Extinguishers

Fire extinguishers must be readily available throughout the entire construction area. The type of fire extinguisher required (A, B, C) shall be indicated in the contract documents. Fire extinguishers are to be properly maintained and inspected, and be readily visible. Travel distance to an extinguisher from any point in the construction area shall not exceed 75 feet. To verify its serviceability, an extinguisher must be equipped with a valid Inspection Data Tag indicating its last date of inspection, as well as the inspection firm's certificate of registration number as issued by the Massachusetts State Fire Marshal's Office.

H. No Open Burning / Open Flames

No open burning is permitted at any construction site on Massport's property. No open flames from construction-related equipment such as tar kettle, torches, salamanders, smudge pots, or like devices, will be allowed unless permits for same are issued by Massport's Fire Marshal's Office.

I. Explosives

The use of explosives is prohibited at any construction site on Massport's property.

J. Construction Barricades / Barriers

All construction-related barriers/barricades within a building area must be constructed of non-combustible, fire-retardant material.

K. Unprotected Openings

All horizontal floor and/or roof openings are to be properly covered at all times. Under no circumstances will any type of shaft, roof or duct opening be left unprotected. Fire walls and fire rated construction assemblies must remain in service as long as possible to prevent unwarranted fire spread. No fire doors are to be left or blocked open in any manner at any time during any phase of construction.

L. Trash Chutes

Trash chutes, when authorized, must be constructed of non-combustible material and be erected on the exterior of the building. Trash chutes must not enter into a building and must empty directly into an exterior dumpster. Trash chute openings must be secured at the end of the day with a protective cover that will stop the spread of fire into the building via the chute.

M. Construction Dumpsters

Construction dumpsters must be located at as great a distance as possible from adjacent building areas, particularly away from any windows, doors or roof overhang areas. Dumpsters are not to block fire lanes, fire hydrants, fire department sprinkler connections, exterior exit doors, fire escapes, etc. Trash will not be permitted to accumulate on or around the exterior of a dumpster. Dumpsters are to be kept closed or covered at all times, and must be labeled with the project name and contact information.

N. Electrical Work

All electrical (work both temporary and permanent) within the construction area must be accomplished in full compliance with all applicable Massachusetts Electrical Code requirements. Electrical extension cords must be suitable for their intended use, and if necessary, be approved for outdoor use. Equipment requiring ground faults for use outdoors or in damp atmospheres must be

properly maintained. Electric panel covers are to be replaced at the end of each day so as not to leave unprotected open panels. Electrical appliances, tools and equipment must be disconnected when not in use. All construction of related wiring and equipment for lighting, heat or power must be in accordance with applicable codes.

O. Welding and Torch Burning

All welding, torch burning and cutting processes must be conducted in full compliance with Massachusetts State Fire Prevention Regulations 527CMR, Section 39.00 which addresses welding and cutting processes. No hot work (welding, torch burning, etc.) is permitted unless permits authorizing such work are issued by Massport's Fire Marshal's Office. (Application for permit may be obtained from the Fire Prevention Office of Massport's Fire Rescue Department). It is the contractor's responsibility to fully understand all requirements of 527CMR, Section 39.00.

P. Storage of Flammable Liquids

Storage of flammable liquids is prohibited within building areas at all construction sites unless a permit for same is issued by Massport's Fire Marshal's Office. Storage will not be permitted in places of public assembly. Storage, if permitted by the Fire Marshal's Office, must be in U.L. approved containers stored within a U.L.- approved flammable liquid cabinet.

Q. Outside Storage

Outside storage and staging equipment must not block fire lanes, fire hydrants, fire department sprinkler connections, exterior exit doors, or access to emergency equipment.

R. Fire Hydrants

Fire hydrants are to be kept clear and accessible at all times. No parking is permitted within a 20 foot diameter of a hydrant. Fire hydrant use by contractors is strictly prohibited unless permission for use is authorized by the Fire Marshal's Office and the Massport Facilities Department.

S. Fire Lanes

Eighteen (18) foot wide fire lanes to and from all building areas are to be established and kept clear at all times. Fire lanes are not to be blocked by vehicles, storage dumpsters, or other equipment. Surface travel areas within a designated fire lane must be capable of supporting and withstanding live loads of responding fire apparatus in all weather conditions. In addition, fire lanes must be kept free of snow and ice accumulation in the winter months.

T. Excavation

Prior to any excavation work, the contractor must contact the Massport Capital Programs Department regarding utility distribution systems and acceptable excavation methods. In addition, established Massachusetts Dig Safe procedures and requirements must be complied with in full (see paragraph 6.02).

U. Temporary Heat

Use of any temporary heating units exhibiting an open flame or any type of glowing element will require a permit issued by the Fire Marshal's Office. Only temporary heating units that have been approved by the office of the Massachusetts State Fire Marshal will be considered for use.

V. Fencing / Security

Building areas under construction must be secured at all times to prevent unauthorized access. If necessary, "NO TRESPASSING" signs must be installed. Watchman/guard services may be required depending upon the hazards involved.

W. Compressed Gases

No compressed gases are to be stored on site unless permits for same are issued by Massport's Fire Marshal's Office. The storage of flammable gases within buildings is prohibited.

X. Spray Painting / Painting

Spray painting with flammable liquids, solvents, thinners, etc. is prohibited unless permits for same are issued by the Fire Marshal's Office. In addition to the above, paints and other associated products such as solvents, thinners, urethanes, etc. are not to be left in open containers. Covers must be replaced to ensure containers are properly sealed. No oily rags and/or rags contaminated with paint products are allowed to accumulate at the work site unless they are stored in approved self-closing metal containers.

Y. Trash / Debris Removal

All trash, debris and all other waste material must be removed from all building areas at least once a day. Trash and debris will not be permitted to accumulate in any building area.

Z. Canvas / Tarpaulins

All canvas and tarpaulins used to enclose either interior and/or exterior building areas must be U.L. Listed Fire Resistant Material with flame spread rating of 15 or less. Tarpaulins must be properly secured at all times.

AA. Tar Kettles

A Fire Marshal's Office permit is required for the use and operation of any type of asphalt and/or tar kettle. Tar kettle operations must be conducted in safe locations as determined by the Fire Marshal's Office.

BB. Construction Trailers and Tool Sheds

Construction trailers and tool sheds, when used, shall conform to State Building Code requirements. Heating and electrical systems are to be properly maintained. Exits are to be kept clear, and fire extinguishers must be available. Construction trailers are not to be positioned and/or located so as to unnecessarily expose existing building area to fire exposure hazards. Location of construction trailers must be approved as part of the larger project through the Tenant Alteration Application (TAA) process. Sprinkler protection may be required within construction trailers depending on the length of construction activity. Massport's Fire Marshal's Office will determine protection requirements during TAA process review.

(End of Section)

Section 7

Project Closeout

7.01 Project Closeout Process

A. The Tenant shall be required to demonstrate completion of all items and requirements as identified in the Capital Programs Department Closeout Checklist. Copies of all certifications and documents as noted therein shall be submitted to the Capital Programs Department as a pre-requisite for the return of the Tenant's TAA Record Drawings Deposit.

B. Project Acceptance and Certificate of Occupancy

1. The Tenant shall prepare a preliminary copy of a Project Closeout Manual approximately two weeks prior to the anticipated completion of the project. The preferred form of the manual is a ring-bound document no larger than necessary to accommodate the required materials.
2. The Project Closeout Manual will be reviewed by Capital Programs with the Tenant project representative for status and completion, and an anticipated timeline for final inspection will be agreed upon. The architect/engineer's certification of completed construction will not be accepted or a final inspection scheduled if there are any unresolved conditions of approval as noted in the TAA response.
3. Once all required permit signoffs, affidavits, and test reports have been obtained, the Tenant's project representative will produce one manual with original documents and two manuals of copies. The project team shall contact Capital Programs to affirm that the project is ready for final inspection by Capital Programs, the Properties/Leasing Department (if required) and the State Building Inspector. Massport and the Tenant's project team will work together to expeditiously schedule all final inspections.
4. Once inspections have taken place, and the project is deemed to be ready for occupancy, the State Building Inspector will issue a Certificate of Occupancy to the Tenant, and will retain the closeout manual with original documents. Copy manuals shall be submitted to Massport, along with a schedule for completion of any and all punch list items.
5. Each project shall provide O&M manuals (if applicable and deemed to be required) and record drawings of the completed project within 90 days of the date of substantial completion in accordance with Tenant Alteration Application requirements.

7.02 Warranties and Correction of Work

A. The Tenant shall ensure that all parts, materials, components, fixtures, furnishings, equipment, finishes and other items used to perform the work shall be new (unless otherwise specified in the Tenant's approved specifications) and suitable for the purpose used; and further, are of good quality, free from faults and defects, and in conformance with the approved construction contract documents. Work not conforming to these requirements, including substitutions not properly approved and authorized by the Tenant, its representatives, or Massport, may be considered defective. The

Tenant's contractor shall, when requested by the Capital Programs Department through the Tenant, furnish Massport with submittals or other satisfactory evidence as to the kind of materials, fixtures, furnishings and equipment planned to be installed, or which have been installed. The Tenant shall ensure that the construction procedures and methods employed by its contractor to perform the work shall have in the past proven to be suitable for the results expected. If the Tenant's contractor proposes to use an unproven and untried method, process or product, the Capital Programs Department must be advised of that proposal, in writing. Massport reserves the right, in its sole discretion, to approve or disapprove or to require special guarantees to cover, the work produced by any such new and untried process, method or product.

- D. Except as provided in the General Terms and Conditions (Section 2 of this Guide), title to all fixed equipment, systems, components, exhaust hoods and other fixed items ("fixed equipment") shall immediately upon installation vest in Massport (or in Massport's lessee, if any, and if the agreement between such lessee and Massport so provides) without execution of any further instrument. Title to all such fixed equipment shall be transferred to Massport free and clear from all security interests, liens, or encumbrances whatsoever. Tenant's warranty for such items shall pass and be assigned to Massport at the date of substantial completion.
- E. The Tenant shall ensure that its contractor will promptly repair, replace or otherwise correct any of its workmanship and any parts, materials, furnishings, fixtures, finishes, components, equipment or other items in the work which contain faults or defects or which otherwise fail to comply with the warranties set forth in this section, as determined or as identified by the Building Inspector, Massport, Tenant's architect or engineer, or Tenant's contractor, whether observed and/or reported before or after substantial completion.

7.03 Performance During Warranty Period

- A. Massport's Capital Programs Department will notify the Tenant of work which it finds does not satisfy the warranties described above, and the Tenant's contractor shall, within the time set forth in such a notice, begin to repair, replace or otherwise correct the defective work. Should the Tenant's contractor fail to begin such work within such time period, Massport may make the repairs or replacements at the expense of the Tenant. If Massport determines that immediate action to make repairs, replacements or other corrections is necessary because of emergency conditions or to prevent further loss or damage, Massport may proceed without notice to the Tenant's contractor and such remedial work by Massport shall be at the Tenant's expense.
- B. If the Tenant's contractor or Tenant does not agree with a determination of the Capital Programs Department concerning defective work, the Tenant's contractor or Tenant may dispute in writing, Massport's determination and shall provide a detailed explanation of such position.
- C. Should Massport claim by written communication to Tenant's contractor or Tenant before the warranty periods expire determine that Tenant's contractor or Tenant's position regarding defective work is without merit, or that certain defective work exists and that it requires repair or replacement, the warranty period shall be automatically extended for as long as the defective work exists.

7.04 Record Drawings

- B. Record drawings provide an enduring record of what was actually constructed, and where exactly it is located, both horizontally and vertically. The Tenant must incorporate into the record drawings all the changes that were made during construction so that future work may foresee existing and as-built conditions.
- B. TAA construction or alteration projects will require, upon completion of construction, the submission of one set of record documentation in hard copy format, and a disk with record drawing information in

CADD format, except when such requirement is explicitly waived by the Capital Programs Department, or by a specific provision of the TAA agreement. This documentation shall be provided within 90 days of the date of substantial completion, or the Record Drawing Deposit shall be forfeited to Massport.

- C. Massport has specific CADD requirements for tenant projects. Please request the Tenant CAD Guidelines from Capital Programs.

(End of Section)

Section 8

Security Requirements for Tenant Contractors

Not used.

Section 9

References and Contacts

9.01 Contacts

- A. Massport Capital Programs Department
Logan International Airport
1 Harborside Dr. Suite 200S
East Boston, MA 02128

- B. Massachusetts State Police
FHQ Troop F Headquarters
Logan International Airport
2 Service Road
East Boston, MA 02128
(617) 568-7300

- C. Massport Fire-Rescue Administrative Offices
Logan International Airport
162 Harborside Drive
East Boston, MA 02128
617-561-3400

- D. State Plumbing Inspector
Division of Professional Licensure Office of Investigation
1000 Washington Street, Suite 710
Boston, MA 02118-6400
(617) 727-3074

- E. Board of Building Regulations and Standards & State Elevator Inspectional Dept.
Architectural Access Board
Commonwealth of MA, Department of Public Safety
One Ashburton Place, Room 1301

Boston, MA 02108
617-727-7532

- F. Elevator Permits and Inspections
Commonwealth of MA, Department of Public Safety
One Ashburton Place, Room 1301
Boston, MA 02108
617-727-7532

- G. Architectural Access Board
Commonwealth of MA, Department of Public Safety
One Ashburton Place, Room 1301
Boston, MA 02108
617-727-7532

- H. Board of Fire Prevention Regulations and State Fire Marshal's Office
Commonwealth of MA, Department of Fire Services
POB 1025 - State Rd.
Stow, MA 01775
978-567-3100

- I. Department of Environmental Protection
Commonwealth of MA
1 Winter Street, Suite 2
Boston, MA 02108
617-292-5500

- J. Electrical Inspections Dept. and Board of Health Dept.
City of Boston Inspectional Services Dept.
1010 Massachusetts Ave, Floor 4
Boston, MA 02118
617-635-5300

- K. Boston Water and Sewer Commission
City of Boston
980 Harrison Ave

Boston, MA 02119
617-989-7000

- L. Board of Registration of Professional Engineers and Land Surveyors
Division of Professional Licensure
Commonwealth of MA
239 Causeway Street, Suite 400
Boston, MA 02114
617-727-9957

- M. Board of Registration of Architects
Division of Professional Licensure
Commonwealth of MA
239 Causeway Street, Suite 400
Boston, MA 02114
617-727-3072

- N. National Fire Protection Association (NFPA)
Batterymarch Park
Quincy, MA 02269
617-770-3000

(End of Section)

Section 10

Appendices

Not used.



TENANT ALTERATION APPLICATION

(To be completed by Massachusetts Port Authority)

TAA #

Date

PART 1 (To be completed by Applicant)

A. Applicant and Project Information

Tenant Name:

Location of Work:

Permission is hereby requested to perform the following work on the space presently leased/to be leased by Applicant. *Please list title of project and include a descriptive scope of work in the space below.*

Estimated Cost:

Estimated Start Date:

Estimated End Date:

Architect/Engineer:

Contractor:

Address:

Address:

Phone:

Phone:

Email:

Email:

B. Required Submittals

1. One executed original and six copies of this form; 2. 7 Copies Plans and Specifications; 3. Locus plan or building plan indicating work area; 4. Contractor's Insurance Certificate indicating a) Workers' Compensation Insurance; b) Comprehensive General Liability (combined single limit minimum \$1,000,000); c) Comprehensive Automobile Liability (combined single limit minimum \$1,000,000); d) Builder's Risk/Fire Legal Liability. All limits of liability and coverage required are subject to change based upon the nature and scope of work proposed. 5) Deposit form and deposit check.

C. Signature

Applicant's signature below constitutes a binding agreement to perform said work in accordance with the information furnished above, and to comply and be bound by all requirements and conditions set forth in the General Conditions of Approval, in the Guide to Tenant Construction (most recent edition) and on Massport's review/approval documents, and in the Right of Entry agreement or Lease Agreement between Massport and the Applicant.

Submitted by:

Tenant Name:

Signature of tenant:

Subtenant Name

(if applicable):

Date:

Send correspondence to:

(Name, Address, Phone, E-mail)

PART 2 (Prepared by Massachusetts Port Authority)

This application is hereby approved subject to the General Conditions for Tenant Alteration, in the Guide to Tenant Construction (current edition), and on the attached rider(s).

APPROVED BY: _____ Title: _____ Date: _____

Section 2

Terms and Conditions

The terms and conditions below apply to all Tenant construction projects. Please read them carefully. The Tenant's signature on the TAA form constitutes agreement to comply with and be bound by all conditions of project approval stated in this Guide, on the TAA form, and/or otherwise required through the TAA review process. Applicant acknowledges that in addition to this TAA form there is a Right of Entry or Lease Agreement by and between the Authority and Applicant providing Applicant with entry upon the work area. It is intended that the terms and conditions of the TAA supplement the terms and conditions relating to Tenant alterations and other Tenant obligations under the Right of Entry Agreement or the Lease Agreement between the Applicant and the Authority. In the event of conflict between this TAA form and the Right of Entry or Lease Agreement, the terms of the Right of Entry or Lease Agreement shall control.

In these terms, "The Authority" references the Massachusetts Port Authority.

- A. The Applicant shall obtain prior to, and keep in full force and effect during construction, any and all permits, licenses and approvals relating to the work that is the subject of this TAA as required pursuant to applicable federal, state and local laws, statutes, ordinances, rules, regulations, directives and orders.
- B. The Applicant shall perform all construction under this TAA in accordance with all federal, state, and municipal laws, statutes, orders, ordinances, rules, regulations, and directives, if any, as may be legally applicable to the work or the performance thereof. Applicant shall consult with the Authority with respect to the applicability of any and all laws, statutes, enactments, ordinances, resolutions and regulations and as to the procedures to be followed before taking any other action with respect thereto, and shall follow the instructions and procedures prescribed by the Authority with respect thereto. Applicant shall be solely responsible for assuring compliance with the Massachusetts Environmental Policy Act and all other laws.
- C. Approval by the Authority of the work described herein shall not create any liability on the part of the Authority for the design sufficiency of such work or its compliance with any applicable laws, statutes, ordinances, rules, regulations, directives or orders, nor does it relieve the Applicant of its responsibility for assuring compliance.
- D. Approval by the Authority of the work described herein shall not waive any rights of the Authority under M.G.L. Ch. 21E, Sec. 1 et. seq., or any other local, state or federal law, statute, ordinance, rule, regulation, directive or order to compel Applicant to assess, contain, remove, remediate, clean-up or take any other response action on connection with any oil or hazardous waste or material that:
 1. Has been released or threatens to be released on or from the Premises on which the work subject to this TAA is performed, or
 2. Is released or threatened to be released in connection with the work subject to this TAA or to seek payment for or reimbursement of any damages, costs and liabilities of the Authority or any third party for such assessment, containment, removal, remediation, clean-up or response action.
- E. The Applicant shall also observe and obey and direct its officers, employees, agents, consultants, vendors, and contractors to observe and obey the rules, regulations, and directives of the Authority now in effect which are applicable to the performance of the work, and such further applicable rules, regulations and directives which may from time to time during the said performance be promulgated by the Authority for reasons of safety, security, health, preservation of property or maintenance of a good and orderly appearance of the

- facility, or for the safe and efficient operation of the facility.
- F. The Applicant shall procure and maintain bodily injury and property damage liability insurance on an occurrence basis in its own name in at least the limits specified on the TAA, the Right of Entry Agreement or the Lease Agreement, and worker's compensation insurance, as required by law; or if the work is to be done by an independent contractor, the Applicant shall require such contractor to procure and maintain such insurance in the contractor's name. A certificate evidencing such insurance shall be furnished to the Authority prior to the commencement of the work.
 - G. Based on information submitted by Applicant in the TAA, and its responses to the Environmental Questionnaire, the Authority will consider whether the proposed project has the potential to result in the discovery or generation of asbestos containing materials, oil-contaminated media, or other hazardous materials, or to impact any known areas of contamination. Prior to commencement of project construction, Applicant may be required to conduct pre-characterization studies of structures, soil, groundwater, and/or other relevant media as the Authority, in its reasonable judgment, deems necessary to determine the scope and nature of the potential for discovery or generation of asbestos-containing materials, oil-contaminated media, or other hazardous materials. Any such hazardous materials discovered or generated during the course of the work approved by this TAA must be reported immediately to the Authority and must be handled and disposed of in accordance with the terms and conditions of the Right of Entry Agreement or the Lease Agreement.
 - H. The Applicant shall pay all claims lawfully made against it or against the Authority by contractors, subcontractors, material personnel and workers, and all claims lawfully made against it by other third persons arising out of or in connection with or because of the performance of the work; and shall cause all contractors and subcontractors to pay all such claims lawfully made against them.
 - I. All approved construction shall be performed in a professional manner, using only first-class materials. Quality control is the responsibility of the Applicant. Work shall be done in accordance with the drawings and specifications described in Part 1 of the TAA form and approved by the Authority, to the satisfaction of and subject to the inspection of the Authority's representatives. The Applicant shall re-do or replace at its expense, any work not approved by the Authority's representatives.
 - J. Prior to the commencement of the work and throughout the performance thereof, the Applicant shall erect and maintain at its own expense in or about the space such barriers, shields, and other suitable protective devices for the protection of the public and others and their property as in the opinion of the Authority may be necessary or desirable for the purpose. The work shall be performed in such manner as will cause the minimum inconvenience to members of the public and others at the facility. During the performance of the work, the Applicant shall not permit the accumulation in or about the space of any debris, rubbish, or litter, of any sort, resulting from the work, and shall make such arrangements for the frequent and controlled removal thereof from the facility, by means to be furnished by the Applicant, as may in the opinion of the Authority be necessary to prevent such accumulation.
 - K. In the performance of the work covered by this TAA, the Applicant shall not employ any contractor nor shall the Applicant or any of its contractors employ any persons or use or have any equipment or materials or allow any condition to exist if any such shall, or in the opinion of the Authority, cause or be conducive to any labor troubles at the facility which interfere, or in the opinion of the Authority, are likely to interfere, with the operation of the facility by the Authority or with the operations of others at the facility or with the progress of other construction work thereat. The determinations of the Authority shall be conclusive on

the Applicant and upon notice from the Authority, the Applicant shall immediately remove such contractor or withdraw or cause its contractors to withdraw from the facility the persons, equipment, or materials specified in the notice and replace them with unobjectionable contractors, persons, equipment and materials and the Applicant shall or shall cause its contractor to immediately rectify any condition specified in the notice.

In the event of failure by the Applicant or any of its contractors to immediately comply with the requirements of this paragraph, 2.01.M, whether or not such failure is due to the Applicant's fault, the Authority shall have the right to suspend Applicant's work under this TAA, and the permission thereby granted, without prior notice. When the labor troubles shall be so settled that such interference or the danger thereof no longer exists, the Authority, by notice to the Applicant, shall permit recommencement of the work on all the same terms and conditions, as before the suspension. "Labor troubles" shall mean and include strikes, boycotts, picketing, work stoppages, slowdowns, complaints, disputes, controversies or any other type of labor trouble regardless of the employer of the persons involved or their employment status, if any. No allowance of any kind will be made for suspension of work by order of the Authority, and the Authority shall not be liable for delay damages arising out of the suspension of the work.

- L. The Applicant shall notify the Authority not less than two days prior to the commencement of the work, and shall complete the work fully and acceptably within the number of days specified in Part 1 of the TAA, and upon completion shall notify the Authority in writing, and shall provide as-built documentation as specified by the Authority. In the event the work performed pursuant to this TAA does not require a building permit, then at the completion of such work, the Authority reserves the right to request that the Applicant provide the Authority with a closeout certificate and all associated backup documentation.
- M. The Authority's approval of the TAA shall not imply the existence of any lease or leasehold interest of the Applicant in any space at the Airport.
- N. The Authority reserves the right to require a performance bond to ensure compliance with all terms and conditions of the TAA, as it may be approved.