DST 99-1 Aboveground Fuel Storage Tank System (AST)

BC 13 A1/...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

*"To provide services to our customers and the air transportation industry
To foster and develop aviation in Maryland • To develop and empower our employees."*

Theodore E. Mathison Executive Director

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: January 15, 1999

SUBJECT: Design Standard (DST) 99-01
Aboveground Fuel Storage Tank System (AST) Design Standards

Effective immediately, all Baltimore/Washington International (BWI) and Martin State (MTN) Airport projects are to be designed and specified per the attached AST design standard, dated October 14, 1998.

If the attached requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/jao

Distribution:

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cc: Ms. Barbara Grey
Mr. Alex Noorani

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION
OFFICE OF PLANNING AND ENGINEERING

To: **Alex E. Noorani, Director**
Division of Engineering

From: **Ronald H. Walden, Ass't Mgr**
Construction Inspection

Date: **October 14, 1998**

Subject : **Aboveground Fuel Storage Tank System (AST) Design Standards**

This Standard is being issued to summarize the Maryland Aviation Administration's (MAA) requirements for Aboveground Fuel Storage Tank Systems (AST). Effective immediately, AST design for Baltimore/Washington International (BWI) and Martin State (MTN) Airports shall comply with this Standard.

1. Compliance with the most recent: COMAR 26.10, Maryland Department of the Environment, Oil Pollution and Tank Management Regulation: all applicable codes of the National Fire Protection Association, including but not limited to, NFPA 1, 30 & 30A, 58, 59, 59A, 70, 385, and 395; COMAR 12, State of Maryland Fire Prevention Code; and all related EPA or Federal regulatory requirements.

2. MAA Supplement to COMAR 26.10:

   a. Aboveground Storage Tanks shall be Double-Wall Vaulted including the Underwriter's Laboratory approval for UL-2085, Fire-Resistant tank. Installation to be in accordance with manufacturer's specifications. An AST with a storage capacity greater than 10,000 gallons shall be surrounded by a continuous containment dike capable of holding the total tank volume, including a lockable drain valve, in accordance with COMAR 26.10.01.12B-1.

   b. AST aboveground piping shall be Schedule 40 galvanized steel. Underground product piping shall be one of the following: UL approved double-wall fiberglass, or UL approved double-wall flexible petroleum fuel piping including polyethylene conduit, or equal, including the installation of product containment sumps for dispensing units and transition points from aboveground to underground piping.

   c. AST monitoring system shall include a tank gauging system, interstitial monitoring, containment sump and/or dispenser sump monitoring, and high level alarm.

d. Provide a site specific Spill Prevention Control and Countermeasures Plan (SPCC) for review and approval by the MAA Manager of Environmental Compliance.

3. Prior to submission of plans and specifications to the MAA, plans and specifications must be reviewed, approved with or without comments, and signed by a representative of the Maryland Department of the Environment.

/rhw

DST 99-2 Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems at BWI (Amended by DST 99-04)

BC13A:/...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

*"To provide services to our customers and the air transportation industry
To foster and develop aviation in Maryland • To develop and empower our employees."*

Theodore E. Mathison Executive Director

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: January 21, 1999

SUBJECT: Design Standard (DST) 99-02
Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems at Baltimore/Washington International Airport

Enclosed for your use, file, and distribution are copies of the Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems at Baltimore/Washington International Airport, dated November 10, 1998 (Standard). Effective immediately, all Baltimore/Washington International (BWI) Airport projects are to be designed and specified per the Standard.

If the requirements of the Standard conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/jao

Distribution:

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Mr. Ron Walden/Building Permit Committee (MAA) – 10 copies
Mr. Reginald Weaver (Baker) – 2 copies

cc: Mr. Mike West

AIRPORT WIDE STANDARD

FOR INTERFACE OF

FIRE ALARM, LIFE SAFETY AND SECURITY SYSTEMS

FIRST EDITION
November 10, 1998

BWI
BALTIMORE / WASHINGTON
INTERNATIONAL AIRPORT

Prepared By

URS GREINER, INC.
4 North Park Drive, Suite 300
Hunt Valley, Maryland 21030

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INTRODUCTION

The purpose of this airport wide standard for the interface of fire alarm, life safety and security systems is to provide general and specific guidance to planners, designers, construction managers, contractors, tenants, and maintenance service providers for the renovation and new construction of areas at Baltimore/Washington International (BWI) Airport. The intent of this standard is to supplement established and accepted codes, standards, and regulations. Any conflicts between this standard and other regulations, codes, or standards should be brought to the immediate attention of the Maryland Aviation Administration (MAA) Fire Marshall and the MAA Director of Engineering.

The requirements of this standard should not be modified or revised without the written approval of the MAA Fire Marshall and the MAA Director of Engineering.

Purpose: To document and provide consistent and current guidance to all personnel performing design, construction, inspection, and field certifying design systems and assembly components.

Objective: Publish the criteria which is in place and which has been confirmed as the means by which all MAA representatives shall interpret the building code and standard references; with respect to new construction and renovation at BWI.

Policy: The Maryland Aviation Administration as a branch of the MD Department of Transportation shall follow the criteria, as stated in the most recently adopted legislation in Annapolis, and contained in the Code of Maryland Regulation's Subtitles 11, 5, 26 and the Maryland Fire Laws or as currently modified. All amendments to these regulations are as a result of Federal or International requirements sanctioned by the MDOT Director of transportation, to provide a better quality of service to the customers utilizing Maryland Transportation Systems.

Application: The standards and guidelines contained in this document are to be used in the design, construction, inspection, and certification of buildings and structures owned and operated by MAA, and tenant facilities in buildings owned and operated by MAA at BWI.

NOTE: All designs which are not in conformance with the Federal DOT standards, or current BOCA building code and State fire laws shall be re-submitted (to the local State Fire Marshall's office) for an appeal, or be redesigned to meet code prior to being released for construction.

Review of Standards: This standard will be reviewed annually by a committee made up of representatives from MAA Office of Planning and Engineering, Office of Airport Operations, Fire Prevention Division, Security, Maintenance, Procurement and others as designated.

APPROVAL SHEET

The Airport Wide Standard for Interface of Fire Alarm, Life Safety and Security Systems, First Edition, November 10, 1998 is approved as indicated by the following signatures.

Mr. ~~Steven~~ Stephen Sheehan
Associate Administrator, Office of Airport Operations

Mr. Michael West
Associate Administrator, Office of Planning and Engineering

Captain Woody Cullum
Fire Marshall

Ms. Sandra Hansen
Manager, BWI Federal Security Office

Mr. Alex Noorani
Director, Division of Engineering

AMENDMENT RECORD

Amendments to this standard are issued by MAA Office of Planning and Engineering upon approval.

Amendment Number	Date of Issue	Title/Remarks

EXISTING SYSTEMS

Existing Fire Detection and Alarm System

The primary fire alarm system serving the Baltimore/Washington International (BWI) Airport is the Honeywell DeltaNet Graphic Central System installed in 1990.

The Honeywell DeltaNet Graphic Central System receives signals from the following subsystems located throughout the airport:

- Honeywell DeltaNet FS-90 Plus Fire Alarm Control Panels (FACP)
- Honeywell W940 FACP's

The signals report to a Honeywell Graphic Central Monitoring Computer located in the BWI Central Dispatch Center (CDC) and the "watchroom" at the Aircraft Rescue and Firefighting Station (ARFF).

A second fire alarm system serving BWI is the Honeywell Delta 2000 system installed in 1976, which is presently located in the Airport physical plant. Because of its age and system limitations, the points reporting to the Delta 2000 are continually being converted to the DeltaNet FS-90 panels under ongoing terminal improvements projects. The signals for the Delta 2000 system report to the CDC and ARFF via a separate monitoring printer.

- Delta 2,000 points should be converted to Honeywell Graphic Central to the maximum extent possible as projects are being designed.

- During the project scoping, the Consultants should meet with the Fire Marshal, MAA Project Engineer, MAA HVAC Systems Chief to review the remaining Delta 2,000 points within or adjacent to the project site to scope/determine the points to be converted.

Existing Controlled Access Security System (CASS)

A microprocessor based security system is in operation and is currently maintained by Lockheed Martin. The objective of this system is to prevent unauthorized personnel entry into designated secured areas.

- Access to a secured area through a CASS equipped door is done by swiping a properly coded card/badge through a card reader or by entering an approved numeric code at the card reader's keypad. With system approval, the door's locking mechanism is released allowing passage.

- A CASS equipped door is monitored for door position at all times. If the door is opened with approval (card reader/key pad) but is held open for more than the allowed preset time, an alarm is issued and the policing authority and CDC personnel are alerted. If the door is opened without approval (forced open) an alarm is issued and the policing authority and CDC personnel are alerted.

- Equipment configurations on secured doors vary somewhat throughout the airport, with the standard configuration for a single door used for emergency egress as follows:

  — A combination card reader/key pad, crash bar, magnetic lock, door status contacts and a white audio/visual alarm device on the non-secured side of the door.

  — A green "Push to Enter" pushbutton on the secured side of the door.

— At present, the domestic terminal (except Pier D) has no crash bars. The doors are equipped with door knobs or push plates. On these doors the magnetic lock is released by pulling down on a hinged lexan cover mounted adjacent to the door. The lexan cover is clearly labeled, stating "Pull Down for Emergency Egress".

- Secured doors are divided into groups of 6 to 8 and each group is connected to an Access Control Unit (ACU) which is typically located in the nearest telephone closet. In the domestic terminal the ACUs are connected via fiber optic link to the master server located in the Information Systems Room (ISR) in Pier C adjacent to the CDC. A remote work station in the CDC and in the Security Office are interfaced with the master server in the ISR for the domestic terminal. In the New International Pier (NIP), the ACUs are connected to a sub-host server located in the NIP. This sub-host server is in turn connected to the master server in the ISR via fiber optic link. There is also a remote work station in the CDC for the NIP portion of CASS.

CASS Interface at Emergency Egress Doors

Emergency egress doors equipped with CASS in the NIP and some recently renovated areas of the domestic terminal are configured as follows:

- Doors are equipped with the standard equipment configuration as mentioned earlier in this section. During an emergency egress situation, the crashbar is engaged and the local alarm is activated and the magnetic lock is released allowing the door to open. CASS reports to CDC and State Police as mentioned earlier.

In the NIP where large groups of doors are clustered together for use as emergency egress, only one door is configured with a card reader/keypad, mag-lock, etc., and all other doors are equipped only with door position contacts and a sign stating "For Emergency Exit Only". This allows large volumes of people to exit quickly. When one of these doors is opened, the local alarm will sound and the State Police and CDC personnel will be alerted.

CASS Interface with Fire Alarm System

The CASS system is totally segregated from the fire alarm system. No interface exists. If a fire alarm condition exists in an area, personnel will use the emergency egress doors as described above with release of the door's magnetic lock by the CASS system alone. If power to the CASS system is lost, battery back-up will allow for continued operation. If the outage is long enough to discharge the back-up batteries, the CASS system will fail with all doors being released.

Existing Public Address System

There are currently two types of public address system equipment at the airport. One is the AMSYS MARK IV which serves the domestic terminal. The other is the IED system which serves the New International Pier (NIP).

Both systems are microprocessor based public address systems with remote speakers located in holdrooms, public corridors, lobbies and restrooms. The speakers are connected to head end equipment via plenum rated cable in cable tray or in conduit (except in some older, unrenovated areas of the terminal where cable is strapped to structural steel above the ceiling). The head end equipment for the AMSYS system is located in a dedicated room in the lower level of Pier B at the main terminal. It contains the systems microprocessor(s), amplifiers, ambient noise adjustment equipment and microphone interface equipment. The head end equipment for the IED system is located in Room No. 1215 in the NIP. This room contains the systems microprocessor(s), amplifiers and microphone interface equipment (the IED system has no ambient noise adjustment capability). The IED and AMSYS PA Systems are controlled by personnel at the CDC via fiber optic links. The IED system fiber link is routed from its head end room to the AMSYS head end room and then to the CDC.

Normal Operations

The PA System at the airport provides a means to allow for general announcements to the entire airport (all-call) or to selected zones from the CDC. Paging/microphone stations exist throughout the concourses (piers) at ticket lift counters for use by airline personnel when making announcements within a specific holdroom. Announcements to selected zones are performed by entering a zone specific numeric code at a paging console keypad.

Emergency Operations

During emergency situations in the domestic terminal, (AMSYS portion) BWI FPD personnel can communicate with CDC personnel via radio or house phone and direct the operator to issue emergency/evacuation announcements to the entire airport (all-call) or to selected zones within the terminal. In the NIP, emergency/evacuation announcements can be issued via the IED System the same way as described for the AMSYS System, except that BWI FPD personnel also have a dedicated paging console/microphone located adjacent to the NIP's fire alarm control panel by which they can make announcements directly. BWI FPD personnel would enter a numeric code at the paging console keypad and make the announcement to the corresponding PA zone. A system hierarchy exists whereby all emergency announcements take precedence over all other PA System activity, allowing BWI FPD personnel to have control at any time.

Voice Evacuation System Requirements

No stand alone voice evacuation system exists at the airport. The public address system, although not Underwriter Laboratories (U.L.) listed as a fire alarm voice evacuation system is monitored 24 hours a day by airport communications (paging) personnel and CDC personnel. This system has been accepted by the State Fire Marshall for use as a voice evacuation system following the NFPA 101 Life Safety Code Section 8-3.4.1 Exception No. 2 (1994 Edition.)

DESIGN CRITERIA

Fire Detection and Alarm System

Fire Alarm Codes and Standards

Applicable Fire Alarm systems codes and standards include:

- National Fire Protection Association (NFPA) Article 72, National Fire Alarm Code, current edition.
- National Electric Code (NEC), current edition.
- Building Officials and Code Administrators Building Code (BOCA), Section 918, Fire Alarm Systems, current edition.
- Americans with Disabilities Act (ADA), 1990, Public Law 101-336.
- Underwriter's Laboratories (UL).
- Elevators, Dumbwaiters, Escalators and Moving Walks, Article 89, Section 49B and 64, Annotated Codes of Maryland, 1995.
- ANSI/ASME A121, Safety Code for Elevators and Escalators.
- ANSI/ASME A17.1 Safety Code for Elevators and Escalators.
- MAA Design Standard 98-8 (See Appendix D).

Many significant codes and standards have been instituted since the installation of the existing fire alarm systems and devices. When renovations affecting the fire alarm system are

identified, the scope of work should include bringing the area of renovation into compliance with the codes and standards referenced above.

Design Requirements of Local Authority Having Jurisdiction

The Consultants must coordinate with the BWI Fire Prevention Division during the design of fire detection and alarm systems. Submit relevant drawings and specifications to MAA OPE for transmittal to BWI FPD for review at each required submission. At a minimum MAA recommends meeting with the BWI FPD prior to 50% completion of design. General requirements of the BWI FPD include, but are not limited to, the following:

- Conductors and Circuit Type:
  - Initiating circuits shall be Class A only.
  - Indicating circuits shall be Class A or B.
  - Only cooper conductors shall be used. Conductor wire shall be solid. Stranded conductors will not be allowed.
- Conductor Size:
  - Initiating circuits shall be No. 14 AWG twisted pair. No. 16 AWG may be used for initiating circuits depending on electrical system design and manufacturer's requirements. No. 18 AWG shall not be permitted.
  - Indicating circuits shall be No. 12 AWG.
- Conductor Requirements:
  - Insulation - THHN or THHW (NEC Article 310, Table 310-16).
  - Voltage Rating - 600 volt.

- Temperature Rating - 90°C/194°F.
- No. 14 AWG shall have 6 turns per foot.
- No. 16 AWG shall have 10 turns per foot.

- Color Codes:

  - New work - shall comply with equipment manufacturer's requirements.

  - Existing - shall match existing color coding of wire.

- Conduit:

  - All wiring shall be in conduit complying with applicable NEC articles.

  - Identification of conduit and junction boxes will be done with red paint and wording that clearly identifies the installation as being a fire alarm system.

- Panel Connections:

  - Shall be on the left hand or right hand sides. No connections shall be done from the bottom.

  - Top mount connections shall be permitted only if waterproof connectors are used.

- Power Supply:

  - All systems shall be provided with a primary and a secondary power supply.

- Secondary power shall automatically supply the energy to the system within 30 seconds.

- Secondary power shall be from a storage battery capable of operating the complete alarm system in normal or supervisory (nonalarm) mode for a period of 24 hours and at the end of this period, have sufficient capacity to operate the system, including alarm-indicating devices in either alarm or supervisory mode for a period of 15 minutes. This requirement applies to new panel installations and any existing panels affected by renovation work.

- The batteries in all FACPs will be supervised.

- An engine-driven generator with automatic transfer switch arranged in accordance with NFPA-72 can be used for secondary power in lieu of storage batteries.

- Fire Alarm Panel Location:

  - Shall be determined by the Airport Fire Marshall only.

  - Shop drawings shall include a floor plan showing the location of the fire alarm panel.

- Fire alarm system zones shall follow fire protection sprinkler zones. Ideally two equally sized (20,000 square feet maximum) fire alarm zones shall be provided within one 40,000 square foot (maximum) sprinkler zone.

- All public toilet rooms shall be provided with ADA compliant strobes. No duct smoke detectors shall be provided for the toilet room exhaust fans.

- All duct type smoke detectors shall be provided with remote test switches and indicator lights with identification signage. The test switches shall be readily accessible and have readily visible (below ceiling) indicators. Smoke detectors shall be provided with two sets of contacts. One set for alarm and one set to shut down related HVAC equipment. All duct detectors shall be accessible for inspection, maintenance, repair and replacement.

- All existing sprinkler water flow switches and tamper switches, which are not connected to any fire alarm system shall be connected to the Honeywell DeltaNet fire detection and alarm system.

- The Honeywell DeltaNet Graphical Central Computer shall be programmed with a specific designation of the alarm location (for example, boarding bridge gate number).

- The BWI FPD and the MAA insurance underwriter (Royal Insurance) have stated that manual fire pull stations shall be provided per code or as required by AHJ.

- Individual fire detection devices shall be provided for each electrical room, elevator machine room, and elevator shaft, and similar spaces per code or as required by AHJ.

- Provide power signal booster panels for long/heavily loaded indicating device circuits as required. All booster panels shall be monitored for "Trouble" conditions.

- Install a dedicated MAA "IN-HOUSE" telephone adjacent to each FS-90 FACP. This requirement applies to new panel installations and any existing panels affected by renovation work. Design shall include an empty conduit between the proposed telephone location and the nearest telephone closet. Coordinate with Mr. Bill Lins, MAA, 410-859-7629, for MAA to install the telephone.

- Special Hazard Systems:

  — Certain areas including Computer Rooms, High Voltage Electrical Rooms or other areas as determined by the AHJ will be provided with Special Hazard Extinguishing Systems. These extinguishing systems consist of:

    - CO_2 Extinguishing Systems
    - Pre-Action Sprinkler Systems or others.
    - Other systems as approved by AHJ.

  — In all cases the Special Hazard Extinguishing Systems will be provided with a separate panel used for release of the extinguishing agent. The Airport Fire Marshall (AHJ) shall be the sole determiner of the type and quantity of initiating devices to be used to detect the emergency condition.

  — The Special Hazard Extinguishing System panels will be monitored by the Airport's Proprietary Receiving Station through a data gathering panel installed adjacent to the Special Agent panel. The AHJ will determine the type and quantity of alarms and/or trouble signals monitored by the Airport's Proprietary Receiving Station.

— The Special Hazard area must be monitored by addressable initiating devices. In this case the Special Hazard Panel will only be used for special functions and to release the extinguishing agent upon a signal from the local FS-90 fire alarm control panel. An interface shall be provided between the Releasing Agent Panel and the local FS-90 fire alarm control panel for selected control and monitoring functions.

- For MAA projects, the contract documents shall require all submittals for fire protection systems to be certified (stamped/sealed) by a fire registered protection engineer. The AHJ may require the fire detection system submittals to be certified (stamped/sealed) by a registered fire protection engineer because of the complexity of the system and interfaces with other building systems and/or the application of NFPA 72.

- For tenant projects being submitted under the building permit process, all construction documents shall be prepared by a design professional registered in the State of Maryland. The construction submittals pertaining to fire protection shall be reviewed, and certified (stamped/sealed) by a registered fire protection engineer working for the submitting party. The AHJ may require the fire detection system submittals to be certified (stamped/sealed) by a registered fire protection engineer because of the complexity of the system and interfaces with other building systems and/or the application of NFPA 72.

- MAA should be prepared to provide names of qualified FPE's to tenants. This is not a normal requirement for tenants.

- Provide door number nameplates for all doors within a project's area. If a fire alarm device is located in the room, the nameplate will have

a red background with white letters, otherwise it will have a black background with white letters. Room designations will be provided by MAA.

- The contract documents shall require that all sprinkler systems be installed by a licensed/certified installer in the state of Maryland.

- Provide signs for sprinkler control valves and inspectors test points. Provide signs on the exterior wall near wall hydrants and exterior sprinkler standpipes.

- Label to be provided by Honeywell, Inc. for all fire alarm addressable devices with its FACP address.

- Install a Knox Box as required by the AHJ. Location to be provided by the AHJ.

Fire Alarm Indicating Devices

- Notification Signals:

  — Terminal Building - all areas will be zoned as either a public area or a tenant area.

  — Public areas shall have visual devices (strobe lights) and audible devices (horns). Normal audible notification shall come from terminal-wide public address (PA) system. In the event of a failure of the PA System, horns will be activated manually from the CDC. All devices in this zone, horns and strobes, shall be activated separately via manual control from the CDC.

- Tenant areas shall have audio/visual (horn/strobe) notification. All devices in this zone shall be automatically activated by the associated FS-90 FACP.

- The limits of the tenant and public zones shall be determined by Airport Fire Marshall.

- All other buildings (non-terminal) shall have audio/visual notification in accordance with NFPA-72 and the applicable sections of NFPA-101, Life Safety Code.

- All areas within buildings equipped with audio notification devices (horns) shall follow ANSI S3.41, American National Standard Audible Emergency Evacuation Signal in accordance with NFPA-72.

- The fire alarm notification signal shall be distinctly different in sound from other signals, i.e., security alarms.

- Remote Annunciators shall not be provided unless otherwise required by the BWI Fire Marshall. An existing remote fire alarm command station annunciator is located in the 5th level Traffic Controller's Room (TRACON) and another in the Aircraft Traffic Control Tower (ATCT). Both annunciators are monitored by the Federal Aviation Administration (FAA).

- DeltaNet Central Color Graphic Computers shall be programmed and updated as required by expansions and modifications to the Fire Alarm System. Cost of programming and computer upgrades shall be included with project construction costs.

- Floor Plan Graphic Requirements:

— The Airport's Central Receiving Station uses color floor plans displayed on a Personal Computer to display alarmed device information to the Central Station Operator. These floor plans are a graphic representation of the building or area of the building with fire alarm initiating devices shown in their approximate location within the building or area.

— The Electrical Engineer for each construction or renovation project shall provide Electrical Floor Plans for installation into the Central Receiving Station System Personal Computer. These floor plans will be submitted both in paper form as well as in electronic form. The electronic form will consist of either 3.5" floppy disk or CD-ROM.

— The electronic form will be submitted to the Airport's Fire Marshall in the following format:

- AutoCAD (.dwg) Release 12, see the CAD Standards Manual in Appendix D.
- Floor Plan with walls, doors, windows shown (no line over line)
- NO BLOCKS
- All associated font and shape files that define drawing including X-References
- Fire Alarm devices only (no furniture or plumbing fixtures)

Fire Alarm Initiating Devices

- Addressable Interface Units (monitoring modules) shall be used to monitor indicating devices that are not otherwise equipped for multiplexed, addressable communication such as sprinkler valve tamper switches.

- Additional Signage not required by code but required by the AHJ, with a red background and white letters, shall be placed at all sprinkler valve tamper switches, water flow switches, duct smoke detectors and other locations where identification of devices is needed during an alarm situation. All signs shall be placed in readily visible locations so that the possibility of physical damage or tampering is minimized. Coordinate signage type, size and location with FPD and the MAA signage coordinator.

- Manual Pull Stations shall be installed per code unless specifically directed otherwise by the MAA FPD. Pull stations shall be addressable double action type without glass rod inserts. Provide waterproof lexan covers on pull stations located outdoors and in parking garages.

- Smoke Detectors shall be addressable photoelectric type. Provide ionization type for elevator lobbies.

- Duct Smoke Detectors shall be addressable photoelectric type.

- Heat Detectors shall be addressable combination rate of rise and fixed temperature type, within air-conditioned spaces. Unconditioned spaces or spaces with heating only shall utilize fixed temperature only type detectors.

- Pressure Switches for preaction systems, shall be supplied with addressable monitoring modules.

- Water Flow Switches for sprinkler systems, shall be supplied with an addressable monitoring module.

- Fire Extinguishing System Control Panels for fire suppression systems (such as carbon dioxide systems, halon systems, foam systems, etc.) shall be supplied with addressable monitoring modules.

Fire Alarm Supervisory/Control Devices

- Sprinkler Valve tamper switches shall be connected to a monitoring module to determine the valve's open or closed position. A closed position will initiate a trouble signal on the system.

- Panel Faults. FACP shall detect any faults in the wiring or devices and transmit a trouble signal to the DeltaNet Central Graphic Computer.

- Battery Status. Each FACP shall be capable of displaying the status of the battery backup power supply.

- Fire Extinguishing Systems. Monitoring modules shall be provided to monitor trouble and alarm status of fire suppression systems. Suppression systems will require the use of a UL listed agent release panel to perform those functions. All agent release panels shall be provided with sufficient auxiliary relay contacts to allow a Honeywell FS-90 Plus Panel to monitor all suppression hazards on a zone by

zone basis. A new FS-90 Plus Panel shall be provided, (unless sufficient points in an existing panel are authorized by FPD to be used), in addition to the agent release panel to facilitate this arrangement.

- Special provisions for exhausting noxious or hazardous atmosphere shall be designed on a per project basis. The design shall utilize HVAC systems and controls; zoning strategies and supplemental exhaust. Additional requirements include:

  — Provide a placard mounted next to the FACP which identifies each air handling unit (AHU) and the area that each unit serves. The graphic should show the entire project area.

  — BWI FPD personnel will talk directly to Central Utility Plant personnel via the "House" phone at the FACP. Using the placard/graphic BWI FPD personnel can direct Central Utility Plant personnel to put selected AHUs in full exhaust mode or full pressurize mode to allow smoke to be drawn out of the applicable portion of the building.

  — No interface between the building automation system and the fire alarm system will be provided.

- Control Modules. Elevator Controllers shall be provided with control modules for elevator recall functions, and shunt trip disconnect for elevator main power supply.

Alarm Signal Transmission Equipment

- Airport Terminal Buildings - The only transmission media acceptable to the BWI Airport Fire Marshall, the Authority Having Jurisdiction

(AHJ) for the transmission of fire alarm signals from the Terminal Building to the Airport's Central Receiving Station are:

— Copper Wire
— Fiber Optic Cable

Modems will not be used for signal transmission within the Terminal Buildings without specific prior approval of the Airport Fire Marshall. If used, modems must be compatible with Honeywell equipment.

The transmission media will not be a mixture of copper and fiber. The transmission media will be either copper wire from end-to-end or will be fiber optic cable from end-to-end. There will not be a mixture of these two media without approval of the Fire Marshall.

- MAA Owned or Operated Remote Buildings - The BWI Fire Marshall will be the sole determiner of whether an MAA Owned or Operated Remote Building shall transmit signals via modems. If the AHJ approves the fire alarm system signal transmission via modem communication, the following shall apply:

  — Modems will be supplied by the fire alarm equipment manufacturer and will be UL Listed for "Fire Alarm Signal Transmission" and be housed within the fire alarm control panel.

  — The modems supplied with the fire alarm system will be supplied with a secondary source of power either from storage batteries or from an Uninterruptible Power Supply (UPS).

— The Bell Atlantic signal equipment used to allow the fire alarm to be transmitted on the Bell Atlantic Telephone backbone will be supplied with a secondary source of power either from storage batteries or from an Uninterruptible Power Supply (UPS).

— The Airport's Communications Agency will install the necessary jumpers to provide a communications path within the Airport.

Fire Alarm System Training

The Contractor shall provide a minimum of onsite training as specified below for all panels, Graphic Central and related equipment installed. The trainer shall be fully qualified and certified to provide such training. A panel shall be considered new, if it did not previously exist in the system and does not replace an existing panel of the current system architecture. A panel shall be considered updated/upgraded, if 10% or more of the panel's addressable points are modified by the Contractor. The Contractor shall schedule the training at least 15 working days prior to the completion of the project and notify MAA Division of Maintenance-HVAC Section. Contractor shall provide training manuals for all students attending the training (10 students).

EQUIPMENT	INITIAL/NEW	UPGRADE
Per new fire alarm panel	8 hours	2 hours
Per Central Upgrade (such as converting from Graphic Central Software to XBSi Software)	40 hours	8 hours
Per system upgrade	40 hours	8 hours
Per annunciator	4 hours	2 hours
Per FS90 plus command center	4 hours	2 hours

Specific training requirements to be determined with MAA Maintenance on a per project basis.

Supplemental Requirements

- The condition of existing wiring shall be evaluated and reused wherever possible for renovation designs.

- Existing smoke detectors shall be replaced by addressable photoelectric or ionization (for elevator recall) type smoke detectors.

- Existing FS-90 Plus FACPs, if reused, shall be modified and upgraded as required. Provide all necessary additional power supplies, intelligent loop interface boards, communication boards, etc. If existing FS-90 Plus FACP is served by only one fire alarm intelligent loop (i.e., loop 'A'), then provide wiring for second loop (i.e., loop 'B') to the FACP.

- It is the designers responsibility to confirm which Delta Net 2000 points will be converted to FS-90 FACPs. Coordinate with MAA.

- New battery calculations shall be performed for all existing FACPs, if modified or if devices are added. If existing batteries are found to be inadequate, new batteries are to be provided. Backup battery power supplies shall be added to existing FACPs, if no batteries are present.

- Monitoring modules shall be added to existing fire extinguishing systems, duct smoke detectors, sprinkler water flow switches and valve tamper switches to make all devices addressable to the FACP.

- Location indicating devices shall be added at each existing sprinkler water flow and valve tamper switches and where otherwise requested, in a visible location below the ceiling.

- Provide a smoke detector at the top of each elevator hoistway as required by code.

- Provide a smoke detector for elevator recall function in each elevator machine room.

- Provide shunt trip circuit breakers (with time delay) for each elevator controller. The delay time will be designated by the inspector in the field after timing the elevator recall operation. Provide a heat detector for each elevator room, pit and top of shaft having sprinklers added under the project scope, in accordance with ANSI/ASME A121 which requires power to elevators to be interrupted prior to sprinkler heads discharging. Heat detectors shall have rated temperature setting below associated sprinkler head settings.

- Provide elevator recall smoke detectors at each elevator landing (lobby). Connect smoke alarms to elevator controllers via a fire alarm control module and connect the devices to the DeltaNet system.

- Confirm that all existing elevator recall and shunt trip initiating devices are connected to the FACP. If any existing devices are not connected to the FACP, provide an addressable monitoring module for the device and connect it to the appropriate FACP.

- Elevator systems shall be supplied with elevator recall control modules for associated smoke detectors, shunt trip breakers, and heat detectors.

- Provide Audio Visual devices as described in the previous section for "Fire Alarm Indicating Devices."

- Provide a sprinkler valve tamper switch and addressable monitoring module for each sprinkler system zone valve.

- Alarms or trouble signals shall be transmitted to the Graphic Central Fire Alarm system for acknowledgment of alarm trouble status.

- Monitoring modules shall be supplied for all Halon or CO_2 systems, foam systems or other, so that their status can be supervised by the FACP on a hazard zone by hazard zone basis. See related discussion of special extinguishing systems in the Section titled "Special Hazard Systems" for additional requirements.

- Smoke detectors shall be placed in electric rooms, telephone rooms, computer rooms, elevator lobbies, elevator machine rooms, the top of elevator shafts, and where otherwise requested. Heat detectors shall be placed in mechanical rooms, spaces prone to smoke detector false alarms, and spaces protected by fire extinguishing systems.

- Duct detectors shall be placed in HVAC units, ducts where the air distribution system has a capacity in excess of 2,000 cfm for supply ducts and 15,000 cfm for both supply and return ducts, per BOCA Section 309.0. Detectors shall shutdown units directly via auxiliary contacts, overriding the facility Building Management System. The duct detector rating must match the cfm of the duct and be tested in accordance with the air differential test of NFPA 72.

System Programming

- All projects shall provide plain English, unique designations for rooms, spaces, areas and equipment to enable easy identification of device locations.

- All Honeywell Central Graphic system programming will be performed by Honeywell, Inc. The device descriptions shall be formatted as follows:

  — First field, 4 spaces, describing the type of device.
  Examples: PULL, SMOK, HEAT, FLOW, TAMP, DUCT

  — Second field, 1 space, blank.

  — Third field, 6 spaces, describing the specific building or general area.

  Examples: PIER C, GARAGE, ARFF, DEICNG, LOUNGE, TUNNEL

  — Fourth field, 1 space, blank.

  — Fifth field, 6 spaces, describing the specific floor or level.

  Examples: LWRLVL, UPRLVL, 3RDLVL, 4THLVL, 5THLVL

  — Sixth field, 1 space, blank.

  — Seventh field, 13 spaces, describing the specific device location utilizing accepted landmarks and/or compass direction.

  Examples: STAIR@GATE#28, ENTRYDR@BLDG, SESTAIR #4ROWF

Examples of total descriptions would be as follows:

SMOK PIERDY UPRLVL STAIR@GATE #28
PULL DEICNG 15RT ENTRYDR@BLDG
FLOW GARAGE 1STLVL SESTAIR#4ROWF

— When providing device descriptions for the FS-90 FACP, use the above format with the following changes (character space on the FS-90 LCD display is limited).

INSTEAD OF	USE
FLOW	WFS
TAMP	VTS
LWRLVL	LL
UPRLVL	UL

Life Safety

- Provide egress lighting per BOCA, Section 1024 and NFPA 101, Section 5-9. Where not otherwise required by code, provide a dedicated emergency lighting fixture installed at each emergency exit door. The intent is to light the crash bar and door signage. Also, as directed by the AHJ, provide emergency lighting on the ramp side of emergency egress doors that exit to the air side. This lighting should be on the same circuit as the emergency lighting on the interior side of the door.

- Provide a CADD generated evacuation plan with a "you are here" designation and the egress paths clearly shown on a floor plan. Permanent signage, with the capability for changing inserts, shall be provided by the general contractor. See the sample in Appendix C. Provide a floor plan submittal showing the proposed locations of the evacuation plans(s) for approval by the Fire Marshall.

- Provide L.E.D. type exit sign as required by code. Signs shall have red lettering and a black box. Provide directional exit signs in the main corridor of the concourses (piers) to direct occupants to the exit stairs along the exterior holdroom walls.

- Self illuminated exit signs are not acceptable without prior approval of the Fire Marshall.

- Provide fire extinguishers in public areas, electrical rooms, mechanical rooms and as required by NFPA 101. Provide extinguishers for tenant spaces with new or renovated construction.

Deliverables at Project Completion

At project completion, provide the following deliverables per the National Fire Protection Association Section 7-5.2 and 1-7.2 to the MAA Division of Maintenance within 30 days of system final approval by the MAA Fire Prevention and Inspection Division.

NFPA Code Reference 7.5.2 Permanent Records. After successful completion of acceptance tests satisfactory to the AHJ, provide a set of reproducible as-built installation drawings, operation and maintenance manuals, and written sequence of operation to the building owner or his designated representative.

NFPA Code Reference 1-7.2 Certificate of Completion. Every system shall include the following documentation, which shall be delivered to the owner or owner's representative upon final acceptance of the system.

A- An owners manual and installation instructions covering all systems equipment.

B- Record drawings.

C- A Certificate of Completion.

D- List of telephone numbers (including 24 hour emergency) and contact persons for all warranty issues.

The Contractor shall provide all hardware technology, software packages, software tools, equipment, cabling and manuals necessary to allow MAA staff to make modifications to the BWI Airport data base. Provide software in the format required by MAA.

Access Controlled Egress Doors

These requirements apply to typical access controlled emergency egress doors. The designer shall confirm any variance from this standard with MAA and FAA personnel.

- Magnetic locks will be mounted to the top of door/frames. Only when clearance issues prohibit the use of mag-locks, will the use of electric door strikes be considered. Electric door strikes are not acceptable without the prior approval of the Fire Marshall.

- Provide crash bar with door strike (this is not an electric door strike) and integral contacts to indicate when the crash bar has been depressed.

- Provide CASS system components via Lockheed Martin. They are typically the door controller, combination card reader/keypad, door status contacts, audio/visual device and the door locking device (mag-lock). Configure the system as follows:

— CASS shall defeat the mag-lock for all personnel who use the combination card reader/keypad. This is an approved non-emergency egress.

— Any time the crash bar is depressed, a local alarm (piezzo buzzer) will sound. This is intended to discourage accidental/nuisance use of the system. This local alarm will sound until the system is reset.

— The mag-lock will not release until a preset delay has expired. Depressing the crash bar starts the delay countdown.

— In the event of an emergency, personnel will depress the crash bar, the local alarm will immediately sound and the delay countdown will begin. When the delay has expired, the audio/visual device will sound, the mag-lock will be defeated and the CASS will alert the police and the CDC of the alarm condition. The security system audio/visual device shall be coded differently from the fire alarm system audio/visual device.

— The delay on release should be set to 15 seconds except for egress doors at the top of a stairwell which should be set to a maximum of 6 seconds. Designers should confirm this for every project.

- Signage should be placed on each egress door, stating "EMERGENCY EXIT ONLY, PUSH UNTIL ALARM SOUNDS, DOOR CAN BE OPENED IN 15 SECONDS".

- The upper level emergency egress stairwell door in all holdrooms will be the secured door (with CASS). Only approved exceptions will

allow the secured door to be on the lower level (ramp level). The designer, MAA Security, and the tenants shall decide which stairs will be utilized by airline personnel who may not have a BWI Security Badge, but need access to lower level operations areas.

- The door control microprocessor is to be provided with a battery backup power supply.

- Utilize three wire power transfer hinges for electric connection to electronic crash bars, and emergency door release devices mounted on doors.

- All door status contacts are to be interfaced with the local door control microprocessor that is designed to send an immediate local and a remote police department alarm of unauthorized access with a local reset. The microprocessor should be interfaced with the keypad/card reader access device and the secure side magnetic lock release device and be designed to distinguish the difference between an authorized and unauthorized access.

- All electronic crash bars are to be direct wired to the magnetic lock, not through the door control microprocessor to minimize chance of malfunction.

- All magnetic locks and access control electronics are to be on dedicated circuits and on a dedicated panel.

- Where egress doors are used in conjunction with operations, the release function from the secured side shall be coordinated with and approved by security.

Public Address System

- Extend or modify existing systems in the locations where they exist (IED system in the NIP and AMSYS in the domestic terminal).

- Projects that modify or add to public areas, areas of assembly, or areas presently served by the public address system shall include all necessary work to provide public address system coverage to the areas of the project. Provide instruction and maintenance manuals, as built drawings, and schematic one-line drawings for revisions to existing PA System and all new systems.

- Provide PA System training as required by the MAA project manager.

- Survivability of the public address system is critical since it provides voice evacuation to all public areas. All work must comply with applicable sections of NFPA 72.

- It is preferred that all public address system wiring be run in conduit to the extent possible. However, wiring may be run in cable tray. Long runs of wire strapped to roof structures above suspended ceilings is prohibited. Coordinate with MAA and the Fire Marshall for approval of routing method.

- All wire not in conduit, shall be plenum rated.

- For large renovation and new construction projects, create separate public address zones for dedicated use only by FRS personnel. Coordinate with the Fire Marshall for identification of the limits of such zones.

PROCUREMENT POLICIES

Fire Detection and Alarm System

- All MAA owned buildings shall have a proprietary Honeywell fire alarm system in accordance with NFPA-72.

  — The contract documents shall define the fire alarm allowance such that Honeywell, Inc. will be responsible for furnishing and installing all FACPs, wire, devices, final connections, programming, start up and testing.

  — The general contractor will be responsible for coordinating with Honeywell, Inc. and furnishing and installing all conduit and junction/device boxes for the proposed fire alarm system. Honeywell will be responsible for wiring and connecting their system as part of the allowance work.

- All non-MAA owned buildings on airport property shall have a fire alarm system meeting the requirements for Central Station as outlined in NFPA-72. This does not have to be a Honeywell system.

- The installation shall be certificated by Underwriters Laboratories, Inc. (UL).

- The installation shall be placarded indicating the central station by name and telephone number.

Security System

- CASS system empty conduit and device boxes shall be installed by the General Contractor.

- All CASS components and wiring will be furnished and installed by Lockheed Martin through an allowance. Lockheed Martin is the current airport wide CASS installer/maintainer.

- All CASS system wiring shall be in conduit.

- The system shall be U.L. listed.

Public Address System

- All public address system work in the domestic terminal will be performed by MAA's Maintenance Contractors. In the domestic Terminal this is Maryland Sound And Image and in the NIP this is Washington Professional Systems. All PA System work shall be funded through the respective project via cash allowance. All modifications and additions shall be coordinated with MAA and the designated maintenance contractor prior to completion of construction documents.

REQUEST FOR VARIANCE

If the designer wishes to request an exception to the standards as applied to a specific project, he/she should submit the attached "Request for Variance" form for approval. Every effort should be made to meet the standards outlined and requests for variances will only be considered for instances where sufficient technical, budgetary and code merit exists. It is recommended that the designer contact the Fire Marshall to informally discuss the circumstances of a possible request for

variance prior to submission. Variances require Fire Marshall, Operations Manager and MAA Director of Engineering approval. The Request for Variance should identify if and when a "variance" to the Standard is requested. It shall provide for an equivalent level of service or rating per NFPA 101-1.5, Equivalency.

AIRPORT WIDE STANDARD FOR INTERFACE OF FIRE ALARM, LIFE SAFETY AND SECURITY SYSTEMS

REQUEST FOR VARIANCE

Name: _____ Date: _____

Company: _____ Tel. No: _____

Project Name: _____ MAA Contract No: _____

MAA Building Permit No. _____

1. *Purpose of Variance Request.*

2. *Related Code References:*

3. *Justification for Variance (include discussion of design impact; code interpretation; budget increase/decrease; and other relevant facts). (Attach additional sheets as needed).*

4. Design and Construction Cost impact if approved: $ _____ (Design), $ _____ (Construction)

5. Approval/Disapproval of this request is required by: _____ Days (Allow minimum 2 weeks.)

BELOW THIS LINE IF FOR INTERNAL USE ONLY

A. *Fire Marshall Comments.*

B. *Director of Engineering Comments.*

C. ☐ *Variance approved as submitted.*
☐ *Variance approved with comments incorporated.*
☐ *Variance denied.*

_____ _____ _____ Yes _____ No
Fire Marshall Date

_____ _____ _____ Yes _____ No
Operations Manager Date

_____ _____ _____ Yes _____ No
MAA Director of Engineering Date

NOTE: This Request for Variance is applicable to this specific project only.

CHANGES TO THIS STANDARD

Changes to this standard can be requested by submitting the attached "Change Request". Sufficient technical and/or budgetary and/or code merit must be proven. Changes will be reviewed and approved by the parties noted on the Change Request Form.

Designer and other interested parties should contact MAA OPE to have their name put on the distribution list for delivery of change pages/revisions to this standard.

AIRPORT WIDE STANDARD FOR INTERFACE OF FIRE ALARM, LIFE SAFETY AND SECURITY SYSTEMS

CHANGE REQUEST

Name: _____ Date: _____

Company: _____ Tel. No: _____

Date/Revision No. of Standard: _____ MAA Contract No: _____

1. *Station/paragraph to be changed:*

2. *Justification for change (site technical and code issues):*
(Attach additional sheets as needed)

BELOW THIS LINE IF FOR INTERNAL USE ONLY

CHANGE APPROVAL

_____ _____ _____ Yes _____ No
Mr. Steven Sheehan Date
Associate Administrator, Office of Airport Operations

_____ _____ _____ Yes _____ No
Mr. Michael West Date
Associate Administrator, Office of Planning and Engineering

_____ _____ _____ Yes _____ No
Captain Woody Cullum Date
Fire Marshall

_____ _____ _____ Yes _____ No
Ms. Sandra Hansen Date
Manager, BWI Federal Security Office

_____ _____ _____ Yes _____ No
Mr. Alex Noorani Date
Director, Division of Engineering

BC 13 A1/...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

*"To provide services to our customers and the air transportation industry
To foster and develop aviation in Maryland • To develop and empower our employees."*

Theodore E. Mathison Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: February 10, 1999

SUBJECT: Design Standard (DST) 99-03
Electrical System Ground Fault Protection

Effective immediately, all Baltimore/Washington International (BWI) Airport projects should be designed and specified per the following Electrical System Ground Fault Protection requirements.

NOTE: This standard applies only to new equipment installation.

1. Ground-fault protection shall be in accordance with the latest version of the National Electrical Code (NEC), unless otherwise noted below.

2. 13,800-480 volt double-ended substations shall include ground fault protection for all 480 volt circuit breakers, including secondary main breakers, tie breaker, and all substation feeder breakers. This shall apply to low-voltage power circuit breakers, insulated case circuit breakers, and molded case circuit breakers.

3. Ground-fault protection for 3 phase, 4 wire systems shall utilize current transformer (CT) sensing for all phase and neutral conductors. Ground-fault protection for 3 phase, 3 wire systems shall utilize CT sensing for all phase conductors.

4. The contractor shall perform a short circuit/coordination study during construction to establish all new electrical system protective device settings including, but not limited to, ground-fault settings.

5. Ground-fault settings shall be set to provide selective electrical coordination between the 480-volt main/tie circuit breakers and 480-volt feeder circuit breakers for all fault types. The 480-volt feeder breaker ground-fault sensitivity shall be set for maximum allowable response to all 480-volt downstream ground-faults, with no intended selectivity with other downstream 480-volt breakers.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

Distribution:

Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Peter Florian (PB)
Mr. Ray Heverling (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden (MAA)
Mr. Reginald Weaver (Baker)

BC/jao

cc: Mr. Chris Adamo
Mr. Alex Noorani

DST 99-4 Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems at BWI – Amendment Number 1

BC 13 A:/...

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Governor

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Secretary

Maryland Aviation Administration

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Theodore E. Mathison Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: February 10, 1999

SUBJECT: Design Standard (DST) 99-04
Airport Wide Standard for Interface of
Fire Alarm, Life Safety, and Security Systems at
Baltimore/Washington International (BWI) Airport
Amendment Number 1

Effective immediately, please incorporate the requirements of Amendment Number 1 into the design and specification of projects at BWI Airport.

The requirements of Amendment Number 1 to the Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems are as follows:

Conductors and Circuit Type (Page 7):

1. Delete "Initiating circuits shall be Class A only" and "Indicating circuits shall be Class A or B".

2. Add the following:

- Initiating Device Circuits shall be Class-A, Style D - Example: Wiring from the monitoring device to the device being monitored (WFS, VTS). This type of setup has a monitor module.

- Signaling Line Circuits shall be Class-A, Style 5α - Example: AE loop wiring to each device (smoke detector, duct detector, pull station, heat detector, intelligent devices). Monitor modules, if used, would be on this circuit.

- Notification Appliance Circuits shall be Class-A, Style-Z – Examples: speakers, horns, bell, lights, tactile, and visible text displays.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

Distribution:

Mr. Lynn Bezilla (MAA)
Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Gary Davies (MAA)
Mr. Charles Flood (MAA)
Ms. Sandy Hansen (FAA)
Mr. Ray Heverling (MAA)
Mr. Bill Lins (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Stephen Sheehan (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
Mr. Reginald Weaver (Baker)

BC/jao

cc: Mr. Mike West

DST 99-5 Certification of Fire Protection and Detection System Design (Replaced by DST 99-14)

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Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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Theodore E. Mathison Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: February 19, 1999

SUBJECT: Design Standard (DST) 99-05, Certification of Fire Protection and Detection System Design

---

Effective immediately, please incorporate the following requirements into the design and specification of projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports.

Certification:

a. A qualified fire protection engineer shall be an integral part of the design team, and shall be involved in every aspect of the design as it relates to fire protection and detection systems.

b. For the purpose of meeting this requirement, a qualified fire protection engineer is defined as an individual meeting one of the following conditions:

- An engineer having a Bachelor of Science or Master of Science degree in Fire Protection Engineering from an accredited university engineering program, plus a minimum of three (3) years work experience in fire protection engineering.

- A registered professional engineer (PE) who has passed the National Council of Examiners for Engineering and Surveys (NCEE) fire protection engineering written examination.

- A registered PE in a related engineering discipline, with a minimum of five (5) years experience dedicated to fire protection engineering.

c. Sealing Requirements – Fire protection and detection system(s) plans, specifications, drawings, reports, or other documents shall be signed and sealed, as required, pursuant to the Business Occupations and Professions Article, Section 14-403, Annotated Code of Maryland.

Application:

a. All capital projects shall meet the requirements of a, b, and c under "Certification", above. The construction contract documents should require the fire protection system(s) design and any revisions be certified, in accordance with 'c' above, by the construction contractor's Fire Protection Engineer.

Capital projects involving fire detection systems should be designed and certified by the Consultant/Engineering firm preparing the construction contract documents prior to advertisement. The Consultant/Engineering firm, prior to issuance to the Contractor, should certify any subsequent changes/revisions to the design.

b. Non-capital projects involving fire protection systems shall meet the requirements of a, b, and c, under "Certification", for wet sprinkler systems exceeding 10 heads or special systems such as dry, deluge, pre-action, carbon dioxide or clean agent.

Non-capital projects involving fire detection systems shall meet the requirements of a, b, and c under "Certification", only when involving the connection to a special system as identified above.

c. For projects that involve little or no fire protection and detection systems, a certification waiver may be requested by the designer through the Office of the Fire Marshall.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

Distribution:

Mr. Lynn Bezilla (MAA)
Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Gary Davies (MAA)
Mr. Charles Flood (MAA)
Ms. Sandy Hansen (FAA)
Mr. Ray Heverling (MAA)
Mr. Bill Lins (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Stephen Sheehan (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
Mr. Reginald Weaver (Baker)

BC/jao

cc: Mr. Mike West

DST 99-6 Procedures for Review of Contract Documents & Shop Drawings/Submittals

BC 13 A:/

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Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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Theodore E. Mathison **Executive Director**

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: March 22, 1999

SUBJECT: Design Standard (DST) 99-06, Procedures for Review of Contract Documents and Shop Drawings/Submittals

---

Attached is a March 1, 1999 letter from Mr. Emory Carrigan to Chief Woody Cullum regarding procedures to insure adequate review and response to Fire Marshall comments, and coordination during the shop drawing/submittal process. Based on this letter, the Maryland Aviation Administration (MAA) Design Services Project Manager, Designer, Contract Procurement Officer, Fire Marshall, and Construction Manager will be responsible for the following:

1. All written comments from the Fire Marshall's office will be responded to in writing by the Designer within two weeks after receipt. All comments which cannot be fully addressed in the two-week period will be responded to in writing when resolved, and prior to the final addendum being issued.

   NOTE: **This requirement applies to all written comments received by the Designer and the MAA Design Services Project Manager.**

2. When the contract is advertised, the Contract Administration Section will provide a set of bid documents and all addenda to the Fire Marshall's Office. At that time, the Fire Marshall will have approximately one week to review the bid set and submit any final comments to the Design Services Project Manager. Additional Fire Marshall comments will be addressed by addendum prior to bidding.

3. After bidding, the Contract Administration Section, in coordination with the MAA Design Services Project Manager, will provide the Fire Marshall with a complete set of contract documents. The contract documents will be provided in either one of the following forms:

   a. Bid set and all addenda, or
   b. A conformed set of contract documents.

4. During construction, the Construction Manager will forward a copy of the appropriate shop drawings/submittals to the Fire Marshall at the same time as the Designer. The Construction Manager will then schedule a meeting one week later with the Fire Marshall, Designer, Construction Manager, and Mr. Emory Carrigan or Mr. Ron Walden. At that meeting, all shop drawing issues will be addressed, and a decision will be rendered as to the status of the submittal (approved, approved as noted, rejected). The shop drawings/submittals will be returned to the Construction Manager at that time for further action.

   The shop drawing/submittal review meeting will also provide an opportunity for the Designer, Construction Manager, and Fire Marshall to review contract revisions and modifications.

Effective immediately, please incorporate the aforementioned procedures into the design and construction of projects at Baltimore/Washington International and Martin State Airports.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

Distribution:

Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Peter Florian (PB)
Mr. Ray Heverling (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden (MAA)
Mr. Reginald Weaver (Baker)

BC/jao

Attachment

BC 13 A1/...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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Theodore E. Mathison Executive Director

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: May 12, 1999

SUBJECT: Design Standard (DST) 99-07, Magnetic Tape Identifier

Effective immediately, the design and construction of all Baltimore/Washington International and Martin State Airport projects shall include the requirement to mark all underground utilities with magnetic tape. The tape should be 3" wide and positioned at a maximum 8"–12" deep below top of ground, or 4" wide and positioned at a maximum 3"-6" deep below the bottom of pavements.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/jao

Distribution:

Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Peter Florian (PB)
Mr. Ray Heverling (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden (MAA)
Mr. Reginald Weaver (Baker)

cc: Mr. Chris Adamo

DST 99-8 Fire Hydrants

F:/BEN/UPDATES.DST

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

*"To provide services to our customers and the air transportation industry
To foster and develop aviation in Maryland • To develop and empower our employees."*

Theodore E. Mathison Executive Director

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: July 27, 1999

SUBJECT: Design Standard (DST) 99-8, Fire Hydrants

Enclosed for your information and use are copies of specifications and details for fire hydrants. The specifications are provided in Federal Aviation Administration and AIA/CSI format. The specifications and details should be edited for coordination with other contract specification sections and plans. Technical modifications to the specifications and details must be approved by the Manager, Design Services Section. Effective immediately, all Baltimore/Washington International (BWI) and Martin State (MTN) Airport projects are to be designed and specified per this Standard.

This Standard supersedes DST 96-8, Fire Hydrant and DST 98-11, Fire Hydrant Color.

If the requirements of this Standard conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tt

Enclosures

Distribution:

Mr. Chris Adamo (MAA)
Mr. Lynn Bezilla (MAA)
Mr. Ian Bricknell (TAMS)
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Mr. Reginald Weaver (Baker)

cc: Mr. Mike West

ITEM U-15 FIRE HYDRANTS

DESCRIPTION

15-1.1 GENERAL. The work to be performed under this Section includes, but is not limited to, the furnishing of all materials, labor, tools, and equipment required for the construction and relocation of fire hydrants in accordance with the Contract Documents, including all excavation, backfilling, furnishing and installation of all equipment, piping, fittings, valves, fire hydrants, and other accessories and incidentals necessary to complete the work as indicated on the Plans and/or specified herein.

All work shall be accomplished in accordance with the laws, ordinances, and codes of the State of Maryland, Anne Arundel County, Baltimore/Washington International Airport Fire Department, and any other local, County, or State government body having jurisdiction.

15-1.2 RELATED WORK

a. Section (INSERT #) for trench excavation, backfill, and compaction.

b. Section (INSERT #) for water piping, fittings, and appurtenance installation.

15-1.3 REFERENCES

a. NFPA – National Fire Protection Association

(1) 24 – Installation of Private Fire Service Mains and Their Appurtenances

(2) 291 – Flow Testing and Marking of Hydrants

(3) 1963 – Fire Hose Connections

b. ASTM – American Society for Testing and Materials

c. AWWA – American Water Works Association

d. AASHTO – American Association of State Highway and Transportation Officials

e. OSHA – Occupational Safety and Health Administration

15-1.4 QUALITY ASSURANCE

a. Materials. The Contractor will inspect all materials before and after installation to insure compliance with the Contract Documents.

b. Field Tests

(1) Fire hydrants installed at the same time as new water main shall be tested, after installation, by the Contractor, along with the water main, in accordance with the following standards that apply: NFPA 24 and NFPA 291.

(2) Fire hydrants installed on existing water main will be visually inspected for leakage by the Contractor at the existing water main's line pressure before the excavation is backfilled. The hydrant valve and connection branch pipe shall be leak free under line pressure.

(3) All fire hydrants, valves, piping, and appurtenances shall be visually inspected by the BWI Airport Fire Marshal's Office after installation and before backfilling.

(4) All flow testing shall be conducted by the Contractor and witnessed by the BWI Airport Fire Marshal's Office. The "Contractor's Material and Test Certificate for Private Fire Service Mains" shall be completed by the BWI Airport Fire Marshal's Office or Representative.

15-1.5 SUBMITTALS

a. General. Submit each item in this Article according to the Conditions of the Contract and the "Maryland Aviation Administration Standard Provisions for Construction Contracts".

b. Provide data on the following:

(1) Fire Hydrants.

(2) Parts List.

(3) Valve and Hose Connection Sizes.

(4) Operating Nut Style.

(5) Direction of Opening.

(6) Thrust Blocks and Accessories.

(7) Piping, Fittings, and Accessories.

(8) Valves, Roadway Boxes, and Accessories.

(9) Vault details for the Underground Fire Hydrants, including accessories.

c. All submittals related to the fire hydrants subject to the BWI Fire Department's approval.

15-1.6 PROJECT CONDITIONS

a. **Site Information:** Perform site survey, and verify existing utility locations.

b. **Existing Utilities:** Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.

(1) Notify Engineer not less than 48 hours in advance of proposed utility interruptions.

(2) Do not proceed with utility interruptions without receiving Engineer's written permission.

15-1.7 SEQUENCING AND SCHEDULING

a. Coordinate with all other utility work.

b. Provide minimum 48-hour notice to BWI Fire Department prior to relocation of any existing fire hydrants.

c. Provide minimum 48-hour notice to BWI Fire Department prior to any tests on new or relocated fire hydrants.

MATERIALS

15-2.1 ABOVEGROUND FIRE HYDRANTS

a. The Contractor shall furnish fire hydrants manufactured by American Darling, Model B-62-B; Kennedy Valve, Model K-81-A; or Mueller, Model Super Centurion 250.

b. Hydrant valve opening shall be at least 5-inch diameter net. Inlet connection shall be 6-inch mechanical joint with accessories (glands, plain rubber gaskets, bolts and nuts).

c. Hose connections shall consist of two 2 ½-inch diameter hose connections and one 4 ½-inch diameter steamer or pumper connection threaded as follows: the 2 ½-inch diameter nozzles shall have National Standard threads and the 4 ½-inch diameter nozzle shall have Baltimore City threads.

d. Operating nut shall be 5 sided, 1 5/16 inches from point to flat, and shall turn left (counterclockwise) to open.

e. Outer casing shall be one-piece cast iron, designed to permit extension without excavating.

f. Hydrant design shall be such that when the barrel is broken, it may be repaired without excavating or breaking adjacent pavement; that the entire barrel, including all working parts, along with the main and waste valve seats, may be removed for inspection, or repair without excavating or disturbing the ground; and that the underground flanges with bolts and nuts are eliminated.

g. Main valve seal shall be compression type sealing against a bronze seat and the valve shall open against pressure.

h. Between elbow and top cap, the barrel shall be made in two parts connected by a swivel segment to permit facing the nozzles in any direction.

i. Bonnet shall be bolted to the standpipe and shall have an arrow cast on the top and the word "Open" indicating the direction for opening.

j. A self-opening draining valve shall be provided.

k. All hydrant caps shall be provided with chains that will not rust.

15-2.2 UNDERGROUND FIRE HYDRANTS (NON-AIRCRAFT LOADING AREAS)

a. The Contractor shall furnish 5-1/4" flush type fire hydrants by Mueller or approved equal.

b. Hose connections shall consist of one 2 ½ inch diameter hose connection and one 4 ½ inch diameter steamer or pumper connection threaded as follows: the 2 ½ inch diameter

nozzle shall have National Standard threads and the 4 ½ inch diameter nozzle shall have Baltimore City threads.

c. Bronze operating nut shall be 5-sided 1-5/16 inches from point to flat, and shall turn left (counterclockwise) to open.

d. Flush box shall be constructed of ASTM A126 Class B cast iron, with "Fire Hydrant" wording cast in cover.

e. Hydrant operating wrenches shall be provided with hydrant. Provide minimum one wrench per underground hydrant and another two wrenches to be turned over to the BWI Fire Department.

f. All hydrant caps shall be provided with chains that will not rust.

15-2.3 UNDEGROUND FIRE HYDRANTS (AIRCRAFT LOADING AREAS)

a. Provide similar to underground fire hydrant described in Section 15-2.2, except without the cast iron flush box and cover.

b. Provide reinforced concrete structure around the underground fire hydrant as detailed on the plans. Access cover to the fire hydrant shall be 36" x 36" Model HLC-4 by Bilco or equal, suitable for aircraft loading. Access cover shall be painted with one primer coat and two coats of red epoxy paint. The cover shall be constructed of steel capable to withstand a live load of 200 psi plus 30% impact. Provide door with flush mounted hinges and stainless steel hardware, spring cushion operators, and hold open arm.

c. Verify that wrenches provided with the fire hydrant will operate inside the vault.

15-2.4 ANCHORS/BUTTRESSES

a. Thrust blocking or concrete buttressing: Portland cement concrete mix, 3,000 psi.

b. Cement: ASTM C 150, Type 1.

c. Fine aggregate: ASTM C 33, sand.

d. Coarse aggregate: ASTM C 33, crushed stone.

e. Water: potable.

f. Clamps, straps and washers: ASTM A 506, steel.

g. Rods: ASTM A 575, steel.

h. Rod couplings: ASTM A 197, malleable iron.

i. Bolts: ASTM A 307, steel.

j. Cast iron washers: ASTM A 126, gray iron.

15-2.5 PIPING

a. 6-inch ductile iron piping: AWWA C151, Class 52.

b. Lining: AWWA C104, cement mortar, seal coated.

c. Gaskets, glands, bolts and nuts: AWWA C111.

d. Ductile-iron and cast-iron pipe fittings: AWWA C110.

e. Ductile-iron or cast iron mechanical joint with retainer glands, AWWA C 110, 250 psig rating or ductile-iron compact fittings with retainer glands, AWWA C 153, 350 psig rating.

15-2.6 VALVES

a. Non-rising Stem Gate Valves 3-inch or larger: AWWA C 500, cast-iron double disc, bronze disc and seat rings, bronze stem, cast-iron or ductile-iron body and bonnet, stem nut, 200 psig working pressure, mechanical joint ends.

b. Valve boxes: Cast-iron box having top section and cover with lettering "Water", bottom section with base of size to fit over valve and barrel approximately 5-inches in diameter, and adjustable cast-iron extension of length required for depth of bury of valve.

c. Provide three (3) steel tee-handle operating wrenches. Wrenches shall have tee handles with one pointed end, stem of length to operate valve, and socket-fitting valve-operating nut. This only pertains to the installation of six (6) or more hydrants.

d. Provide ductile iron "aircraft loading" lid and frame for areas designated. Cover shall be provided with "Water" lettering.

INSTALLATION

15-3.1 GENERAL

a. It is the Contractor's responsibility to inspect the site and to perform any test pit investigations as might be required to verify location and depth of existing utilities and/or subsurface structures within the areas of proposed work.

b. The Contractor shall furnish all materials, perform all excavation and backfill, construct all necessary joints and connections, construct all appurtenances, dispose of all surplus excavation, and discard materials as may be necessary to complete each fire hydrant installation. All materials and equipment shall be installed complete in a first-class manner and in accordance with modern methods and practice. Any material or equipment installed which does not present an orderly and reasonably neat or workmanlike appearance shall be removed and replaced when directed by the Engineer. The removal and replacement of this work shall be done at the Contractor's expense.

c. The Contractor shall assume all risk and bear any loss or injury to property or persons occasioned by neglect or accident during the progress of the work. The Contractor shall exercise special care during the work so as not to damage any existing utility lines or appurtenances.

d. Removal of Water. The Contractor shall at all times during construction provide proper and satisfactory means and devices for the removal of all water entering the excavated area, and he shall remove all such water as fast as it may collect to avoid interference with the prosecution of the work of the proper placing of cleanouts, pipe, pavement, or other materials.

e. For construction methods of excavation and backfillings, see item D-751. There will be no separate measurement or payment of excavation and backfilling but this work will be incidental.

15-3.2 FIRE HYDRANT INSTALLATION

a. Gravel or crushed stone for hydrant foundation shall meet gradation requirements of AASHTO M 43, Size Number 57.

b. Fire hydrants shall be installed and restrained in accordance with the Standard Details, at locations shown, and to elevations directed by the Engineer. Hydrants shall be set within a gravel or crushed stone drainage well extending the full width of the trench.

c. Hydrant leads shall be laid level on a firm foundation to insure that it is set plumb. Backfill around hydrant shall be compacted so as to obtain a density of at least 95% of maximum when measured in accordance with AASHTO T 180, Method D.

d. Where hydrants are to be relocated, the Contractor shall ascertain whether or not the hydrant valve has been restrained before removing the hydrant to be relocated. The lead shall be capped and blocked so that service can be restored to the parent main pending the removal or plugging of the mainline tee.

e. The outside of all fire hydrants above the breakaway flange shall be painted with two coats of OSHA orange industrial enamel paint. The riser pipe from ground to breakaway flange shall be painted with two coats of gloss black industrial enamel paint. Hydrant bonnet shall be painted the appropriate color to indicate its GPM flow per NFPA 291.

f. All installations shall follow the manufacturer's recommended installation procedures.

g. All flush type (underground) hydrants shall be enclosed in a vault. See plans for details.

h. Test fire hydrant piping concurrent with testing and installation of new water main. See water main specification section for details.

METHOD OF MEASUREMENT

15-4.1 Fire hydrants and gate valves shall be measured by the unit. Pipe shall be measured by the linear foot.

BASIS OF PAYMENT

15-5.1 The accepted quantities of piping, fire hydrants, and valves will be paid for at the contract unit price for each, or per linear foot, as applicable complete in place. This price shall be full compensation for finishing all materials and for all preparation, excavation, backfilling, and placing of materials, furnishing and installation of such specials and connections to pipes and structures as may be required to complete the item as shown on the plans; and for all labor, equipment tools and incidentals necessary to complete, disinfect, and test the water distribution system. Price for valves shall include the roadway boxes and aircraft loaded covers as necessary. Underground fire hydrants shall include the vault enclosure and accessories.

Payment will be made under:

Item U-15-5.1	Aboveground Fire Hydrants--per each
Item U-15-5.2	Underground Fire Hydrants--per each
Item U-15-5.3	6-inch Valves--per each
Item U-15-5.4	6-inch Piping--per linear foot

END OF ITEM U-15

SECTION 02505 - FIRE HYDRANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and provisions of the Contract, including Standard Provisions for Construction Contracts - Volume 1, and Technical Provisions, apply to the Work of this Section.

1.2 SUMMARY

A. The work to be performed under this Section includes, but is not limited to, the furnishing of all materials, labor, tools, and equipment required for the construction and relocation of fire hydrants in accordance with the Contract Documents, including all excavation, backfilling, furnishing and installation of all equipment, piping, fittings, valves, fire hydrants, and other accessories and incidentals necessary to complete the work as indicated on the Plans and/or specified herein.

B. All work shall be accomplished in accordance with the laws, ordinances, and codes of the State of Maryland, Anne Arundel County, Baltimore/Washington International Airport Fire Department, and any other local, County, or State government body having jurisdiction.

1.3 RELATED WORK

A. Section (INSERT #) for trench excavation, backfill, and compaction.

B. Section (INSERT #) for water piping, fittings, and appurtenance installation.

1.4 REFERENCES

A. NFPA – National Fire Protection Association

1. 24 – Installation of Private Fire Service Mains and Their Appurtenances

2. 291 – Flow Testing and Marking of Hydrants

3. 1963 – Fire Hose Connections

B. ASTM – American Society for Testing and Materials

C. AWWA – American Water Works Association

D. AASHTO – American Association of State Highway and Transportation Officials

E. OSHA – Occupational Safety and Health Administration

1.5 QUALITY ASSURANCE

A. Materials: The Contractor will inspect all materials before and after installation to insure compliance with the Contract Documents.

B. Field Tests

1. Fire hydrants installed at the same time as new water main shall be tested, after installation, by the Contractor, along with the water main, in accordance with the following standards that apply: NFPA 24 and NFPA 291.

2. Fire hydrants installed on existing water main will be visually inspected for leakage by the Contractor at the existing water main's line pressure before the excavation is backfilled. The hydrant valve and connection branch pipe shall be leak free under line pressure.

3. All fire hydrants, valves, piping, and appurtenances shall be visually inspected by the BWI Airport Fire Marshal's Office after installation and before backfilling.

4. All flow testing shall be conducted by the Contractor and witnessed by the BWI Airport Fire Marshal's Office. The "Contractor's Material and Test Certificate for Private Fire Service Mains" shall be completed by the BWI Airport Fire Marshal's Office or Representative.

1.6 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and the "Maryland Aviation Administration Standard Provisions for Construction Contracts."

B. Provide data on the following:

1. Fire Hydrants.
2. Parts List.
3. Valve and Hose Connection Sizes.
4. Operating Nut Style.
5. Direction of Opening.
6. Thrust Blocks and Accessories.
7. Piping, Fittings, and Accessories.
8. Valves, Roadway Boxes, and Accessories.
9. Vault details for the Underground Fire Hydrants, including accessories.

C. All submittals related to the fire hydrants subject to the BWI Fire Department's approval.

1.7 PROJECT CONDITIONS

A. Site Information: Perform site survey, and verify existing utility locations.

B. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.

1. Notify Engineer not less than 48 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without receiving Engineer's written permission.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate with all other utility work.

B. Provide minimum 48-hour notice to BWI Fire Department prior to relocation of any existing fire hydrants.

C. Provide minimum 48-hour notice to BWI Fire Department prior to any tests on new or relocated fire hydrants.

PART 2 - PRODUCTS

2.1 ABOVEGROUND FIRE HYDRANTS

A. The Contractor shall furnish fire hydrants manufactured by American Darling, Model B-62-B; Kennedy Valve, Model K-81-A; or Mueller, Model Super Centurion 250.

B. Hydrant valve opening shall be at least 5-inch diameter net. Inlet connection shall be 6-inch mechanical joint with accessories (glands, plain rubber gaskets, bolts and nuts).

C. Hose connections shall consist of two 2½-inch diameter hose connections and one 4½-inch diameter steamer or pumper connection threaded as follows: the 2½ -inch diameter nozzles shall have National Standard threads and the 4½-inch diameter nozzle shall have Baltimore City threads.

D. Operating nut shall be five sided, 1-5/16 inches from point to flat, and shall turn left (counterclockwise) to open.

E. Outer casing shall be one-piece cast iron, designed to permit extension without excavating.

F. Hydrant design shall be such that when the barrel is broken, it may be repaired without excavating or breaking adjacent pavement; that the entire barrel, including all working parts, along with the main and waste valve seats, may be removed for inspection, or repair without excavating or disturbing the ground; and that the underground flanges with bolts and nuts are eliminated.

G. Main valve seal shall be compression type sealing against a bronze seat and the valve shall open against pressure.

H. Between elbow and top cap, the barrel shall be made in two parts connected by a swivel segment to permit facing the nozzles in any direction.

I. Bonnet shall be bolted to the standpipe and shall have an arrow cast on the top and the word "Open" indicating the direction for opening.

J. A self-opening draining valve shall be provided.

K. All hydrant caps shall be provided with chains that will not rust.

2.2 UNDERGROUND FIRE HYDRANTS (NON-AIRCRAFT LOADING AREAS)

A. The Contractor shall furnish 5¼" flush type fire hydrants by Mueller or approved equal.

B. Hose connections shall consist of one 2½ inch diameter hose connection and one 4½ inch diameter steamer or pumper connection threaded as follows: the 2½ inch diameter nozzle shall have National Standard threads and the 4½ inch diameter nozzle shall have Baltimore City threads.

C. Bronze operating nut shall be 5-sided 1-5/16 inches from point to flat, and shall turn left (counterclockwise) to open.

D. Flush box shall be constructed of ASTM A 126 Class B cast iron, with "Fire Hydrant" wording cast in cover.

E. Hydrant operating wrenches shall be provided with hydrant. Provide minimum one wrench per underground hydrant and another two wrenches to be turned over to the BWI Fire Department.

F. All hydrant caps shall be provided with chains that will not rust.

2.3 UNDEGROUND FIRE HYDRANTS (AIRCRAFT LOADING AREAS)

A. Provide similar to underground fire hydrant described in Section 15-2.2, except without the cast iron flush box and cover.

B. Provide reinforced concrete structure around the underground fire hydrant as detailed on the plans. Access cover to the fire hydrant shall be 36" x 36" Model HLC-4 by Bilco or equal, suitable for aircraft loading. Access cover shall be painted with one primer coat and two coats of red epoxy paint. The cover shall be constructed of steel capable to withstand a live load of 200 psi plus 30 percent impact. Provide door with flush mounted hinges and stainless steel hardware, spring cushion operators, and hold open arm.

C. Verify that wrenches provided with the fire hydrant will operate inside the vault.

2.4 ANCHORS/BUTTRESSES

A. Thrust blocking or concrete buttressing: Portland cement concrete mix, 3,000 psi.

B. Cement: ASTM C 150, Type 1.

C. Fine aggregate: ASTM C 33, sand.

D. Coarse aggregate: ASTM C 33, crushed stone.

E. Water: potable.

F. Clamps, straps and washers: ASTM A 506, steel.

G. Rods: ASTM A 575, steel.

H. Rod couplings: ASTM A 197, malleable iron.

I. Bolts: ASTM A 307, steel.

J. Cast iron washers: ASTM A 126, gray iron.

2.5 PIPING

A. 6-inch ductile iron piping: AWWA C151, Class 52.

B. Lining: AWWA C104, cement mortar, seal coated.

C. Gaskets, glands, bolts and nuts: AWWA C111.

D. Ductile-iron and cast-iron pipe fittings: AWWA C110.

E. Ductile-iron or cast iron mechanical joint with retainer glands, AWWA C 110, 250 psig rating or ductile-iron compact fittings with retainer glands, AWWA C 153, 350 psig rating.

2.6 VALVES

A. Non-rising Stem Gate Valves 3-inch or larger: AWWA C 500, cast-iron double disc, bronze disc and seat rings, bronze stem, cast-iron or ductile-iron body and bonnet, stem nut, 200 psig working pressure, mechanical joint ends.

B. Valve boxes: Cast-iron box having top section and cover with lettering "Water," bottom section with base of size to fit over valve and barrel approximately 5 inches in diameter, and adjustable cast-iron extension of length required for depth of bury of valve.

C. Provide three (3) steel tee-handle operating wrenches. Wrenches shall have tee handles with one pointed end, stem of length to operate valve, and socket-fitting valve-operating nut. This only pertains to the installation of six (6) or more hydrants.

D. Provide ductile iron "aircraft loading" lid and frame for areas designated. Cover shall be provided with "Water" lettering.

PART 3 - EXECUTION

3.1 GENERAL

A. It is the Contractor's responsibility to inspect the site and to perform any test pit investigations as might be required to verify location and depth of existing utilities and/or subsurface structures within the areas of proposed work.

B. The Contractor shall furnish all materials, perform all excavation and backfill, construct all necessary joints and connections, construct all appurtenances, dispose of all surplus excavation, and discard materials as may be necessary to complete each fire hydrant installation. All materials and equipment shall be installed complete in a first-class manner and in accordance with modern methods and practice. Any material or equipment installed which does not present an orderly and reasonably neat or workmanlike appearance shall be removed and replaced when directed by the Engineer. The removal and replacement of this work shall be done at the Contractor's expense.

C. The Contractor shall assume all risk and bear any loss or injury to property or persons occasioned by neglect or accident during the progress of the work. The Contractor shall exercise special care during the work so as not to damage any existing utility lines or appurtenances.

D. Removal of Water: The Contractor shall at all times during construction provide proper and satisfactory means and devices for the removal of all water entering the excavated area, and he shall remove all such water as fast as it may collect to avoid interference with the prosecution of the work of the proper placing of cleanouts, pipe, pavement, or other materials.

E. For construction methods of excavation and backfillings, see Section "INSERT SECTION #". There will be no separate measurement or payment of excavation and backfilling but this work will be incidental.

3.2 FIRE HYDRANT INSTALLATION

A. Gravel or crushed stone for hydrant foundation shall meet gradation requirements of AASHTO M 43, Size No. 57.

B. Fire hydrants shall be installed and restrained in accordance with the Standard Details, at locations shown, and to elevations directed by the Engineer. Hydrants shall be set within a gravel or crushed stone drainage well extending the full width of the trench.

C. Hydrant leads shall be laid level on a firm foundation to insure that it is set plumb. Backfill around hydrant shall be compacted so as to obtain a density of at least 95 percent of maximum when measured in accordance with AASHTO T 180, Method D.

D. Where hydrants are to be relocated, the Contractor shall ascertain whether or not the hydrant valve has been restrained before removing the hydrant to be relocated. The lead shall be capped and blocked so that service can be restored to the parent main pending the removal or plugging of the mainline tee.

E. The outside of all fire hydrants above the breakaway flange shall be painted with two coats of OSHA orange industrial enamel paint. The riser pipe from ground to breakaway flange shall be painted with two coats of gloss black industrial enamel paint. Hydrant bonnet shall be painted the appropriate color to indicate its GPM flow per NFPA 291.

F. All installations shall follow the manufacturer's recommended installation procedures.

G. All flush type (underground) hydrants shall be enclosed in a vault. See plans for details.

H. Test fire hydrant piping concurrent with testing and installation of new water main. See water main specification section for details.

PART 4 - MEASUREMENT

4.1 METHOD OF MEASUREMENT

A. Fire hydrants and gate valves shall be measured by the unit. Pipe shall be measured by the linear foot.

PART 5 - PAYMENT

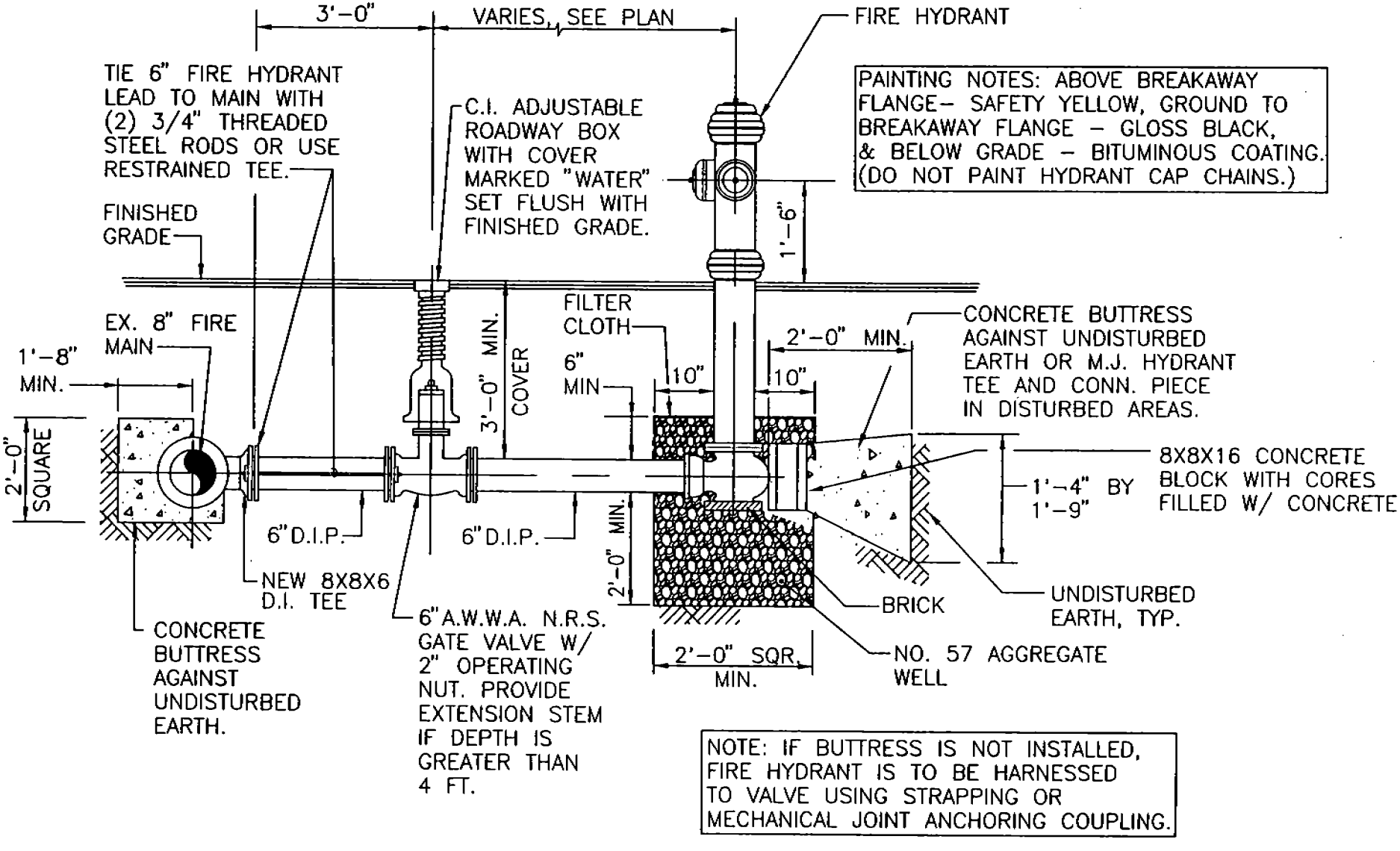
5.1 BASIS OF PAYMENT

A. The accepted quantities of piping, fire hydrants, and valves will be paid for at the contract unit price for each, or per linear foot, as applicable complete in place. This price shall be full compensation for finishing all materials and for all preparation, excavation, backfilling, and placing of materials, furnishing and installation of such specials and connections to pipes and structures as may be required to complete the item as shown on the plans; and for all labor, equipment tools and incidentals necessary to complete, disinfect, and test the water distribution system. Price for valves shall include the roadway boxes and aircraft loaded covers as necessary. Underground fire hydrants shall include the vault enclosure and accessories.

B. Payment will be made under:

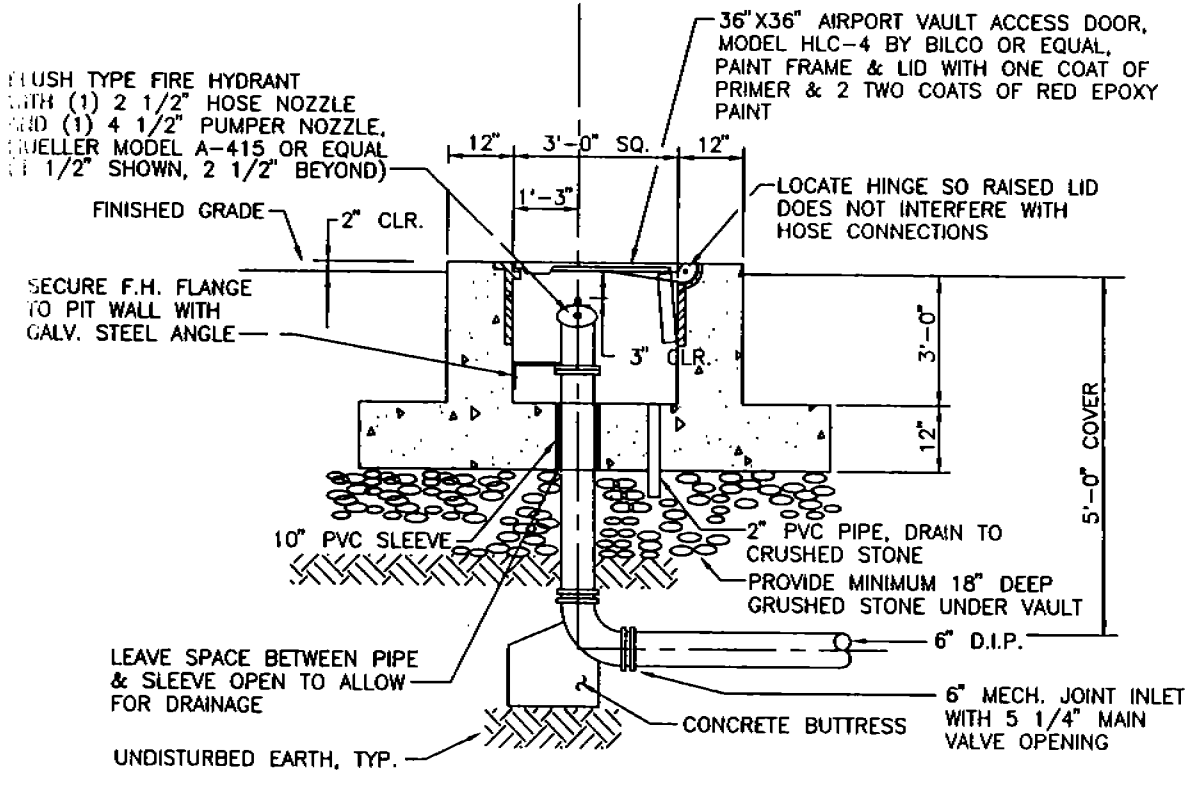
Item 02505-5.1	Aboveground Fire Hydrants--per each
Item 02505-5.2	Underground Fire Hydrants--per each
Item 02505-5.3	6-Inch Valves--per each
Item 02505-5.4	6-Inch Piping--per linear foot

END OF SECTION 02505



FIRE HYDRANT SETTING DETAIL

NOT TO SCALE



SIDE VIEW

NOTES:

1. FLUSH TYPE FIRE HYDRANTS SHALL BE FURNISHED WITHOUT THE ENCLOSURE BOX. PROVIDE TWO WRENCHES PER FIRE HYDRANT. WRENCHES SHALL BE SUPPLIED BY THE HYDRANT MANUFACTURER. PRIOR TO INSTALLATION, THE CONTRACTROR SHALL VERFIY THAT THE APPROVED HYDRANT AND WRENCHES WILL FUNCTION PROPERLY INSIDE THE PROPOSED VAULT. ADJUST VAULT DIMENSIONS AS REQUIRED SO OPERATION OF WRENCHES WILL NOT INTERFERE WITH THE SIDES OF THE VAULT AND THE HINGES/ LIFTING MECHANISM OF THE COVER HATCH.

2. THE 36"X36" COVER SHALL BE SUITABLE FOR AIRCRAFT LOADING TO WITHSTAND A LIVE LOAD OF 200 POUNDS PER SQUARE INCH PLUS 30% IMPACT. COVER SHALL BE MADE OF STEEL PLATE, WITH STEEL CHANNEL FRAME AND ANCHOR FLANGES. PROVIDE DOOR WITH FLUSH MOUNTED HINGES & STAINLESS STEEL HARDWARE, SPRING CUSHION OPERATORS, & HOLD OPEN ARM.

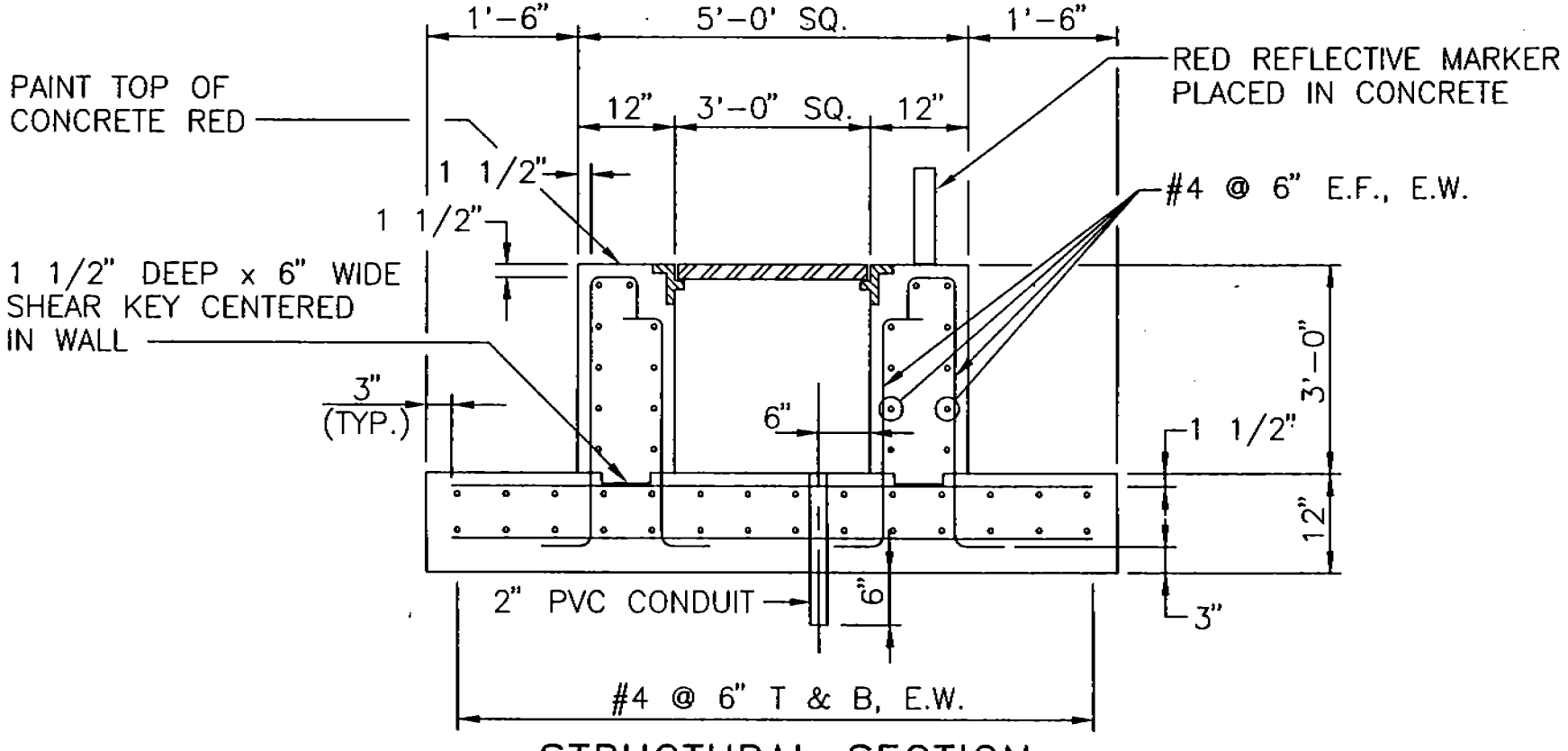
3. PROVIDE NATIONAL STANDARD THREADS ON THE 2-1/2" HOSE CONNECTION, AND BALTIMORE CITY STANDARD THREADS ON THE 4-1/2" HOSE CONNECTION.

4. ON THE ACCESS DOOR, OVER THE RED PAINT, PROVIDE A WHITE FIRE HYDRANT SYMBOL WHICH IS A MINIMUM OF 2 FEET LONG, PAINTED TO MATCH THE NFPA 170 FIGURE 4-2.5.

FLUSH TYPE FIRE HYDRANT AND VAULT DETAIL (FOR AIRCRAFT MOVEMENT AREAS ONLY)

NOT TO SCALE

NOTES: 1. RED REFLECTIVE MARKER SHALL COMPLY WITH FAA AC 150/5345-39: L-853, MODEL TRM (TAXIWAY REFLECTIVE MARKER) 853-CO-24-R-3W BY CROUSE-HINDS OR EQUAL.



STRUCTURAL SECTION

FLUSH TYPE FIRE HYDRANT AND VAULT DETAIL

(FOR AIRCRAFT MOVEMENT AREAS ONLY)

NOT TO SCALE

BC 13 A: /DESIGN STANDARDS, '99/...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

*"To provide services to our customers and the air transportation industry
To foster and develop aviation in Maryland • To develop and empower our employees."*

David L. Blackshear Executive Director

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 12, 1999

SUBJECT: Design Standard (DST) 99-08A, Fire Hydrants
Amendment Number 1

Effective immediately, please incorporate the requirements of Amendment Number 1 into the design and specification of all projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports.

Amendment Number 1 of the Fire Hydrants Standard replaces the existing detail with the attached Fire Hydrant Setting Detail. The revised detail specifies all fire hydrants are to be painted OSHA Orange.

If the requirements of the Standard conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

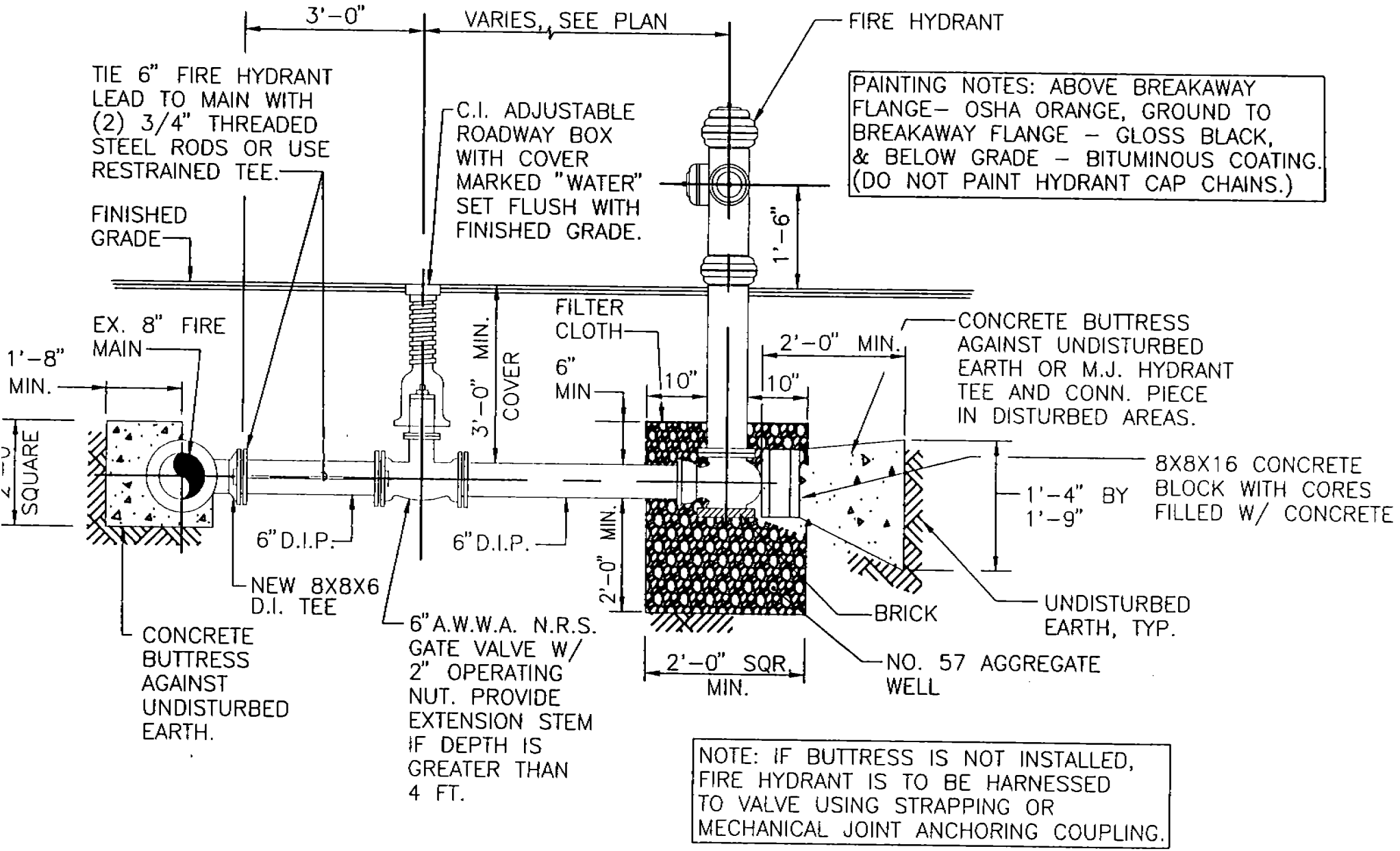
BC/tt

Attachment

Distribution:

Mr. Lynn Bezilla (MAA)
Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Peter Florian (PB)
Mr. Ray Heverling (MAA)
Mr. Andy Hriz (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden (MAA)
Mr. Reginald Weaver (Baker)

cc: Mr. Mike West



FIRE HYDRANT SETTING DETAIL

NOT TO SCALE

DST 99-9 Door Numbers

Parris N. Glendening
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Secretary

Maryland Aviation Administration

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: September 24, 1999

SUBJECT: Design Standard (DST) 99-09, Door Numbers

Effective immediately, all Baltimore/Washington International Airport projects which involve the allocation or change of door numbers shall be coordinated with the Division Chief, Fire Prevention Division. The Fire Prevention Division has been assigned the responsibility of door management and shall provide guidance when new or replacement numbers are needed.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Distribution:

Mr. Lynn Bezilla (MAA)
Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Gary Davies (MAA)
Mr. Charles Flood (MAA)
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Ms. Sandy Hansen (FAA)
Mr. Ray Heverling (MAA)
Mr. Bill Lins (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Stephen Sheehan (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
Mr. Reginald Weaver (Baker)
Mr. Mike West (MAA)

DST 99-10 Traffic Cones

BC13 A:/ DESIGNSTANDARDS '99/...

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: September 24, 1999

SUBJECT: Design Standard (DST) 99-10, Traffic Cones

Effective immediately, 12" traffic controlling cones shall not be used for projects at Baltimore/Washington International and Martin State Airports. State Highway Administration (SHA) studies have found that larger cones decrease accident rates. For slower traffic, 18" cones shall be used. For highway and nighttime traffic, 28" cones shall be used. In addition, during nighttime work, 28" cones must have reflective collars. This information may be obtained from SHA's Traffic Control Booklet #6.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Distribution:

Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Mr. Peter Florian (PB)
Mr. Ray Heverling (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Claude Samuels (MAA)
Ms. Debra Shorb (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
Mr. Reginald Weaver (Baker)
Mr. Mike West (MAA)
Mr. Frank Wojnar, Jr. (MAA)

BC 13 A:/DESIGNSTANDARD.../...

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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David L. Blackshear Executive Director

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: November 29, 1999

SUBJECT: Design Standard (DST) 99-11, Design Review Committees

Attached for your information and use are charts of the Design Coordination/Review Committees for Airside and Site Planning and Buildings for Baltimore/Washington International Airport. The information is provided for guidance, and reflects the people who should attend meetings for the defined work areas. In general, • indicates required attendance; *N* indicates attendance as needed for specific input or decisions; and *IA* indicates attendance desired.

At the beginning of each project, the MAA project managers will determine who the "client" is within MAA. The client should be invited to all scoping, design, phasing, and review meetings. Project managers and consultants should use their judgement to add people as needed. For example, under Airside and Site Planning we have included the Fire Marshall and MdTA Police in the category of "as needed" on roads, parking, and sitework. Use your discretion, as there may be times when you need to invite the Fire Marshall to discuss fire lanes and hydrant locations for parking lots, or the MdTA Police to discuss traffic enforcement.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/jao

Attachments

P.O. Box 8766, BWI Airport, Maryland 21240-0766 (410) 859-7100
TOLL FREE: 1 (800) I-FLY-BWI • FAX: (410) 850-4729 • TDD for the hearing impaired: (410) 859-7227

Distribution:

Mr. David Benner (Urban)
Mr. Ian Bricknell (TAMS)
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Mr. Ernie Lepore (Baker)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Mr. Jack Moeller (JMT)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Stephen Sheehan (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden (MAA)
Mr. Reginald Weaver (Baker)
Mr. Mike West (MAA)

BALTIMORE WASHINGTON INTERNATIONAL AIRPORT

DESIGN COORDINATION/REVIEW COMMITTEES:

AIRSIDE & SITE DEVELOPMENT

N: as needed
IA: if available

	AIRFIELD LAYOUT	AIRFIELD SIGNS/SMGS	APRON LIGHTING	BLAST FENCING	CENTRAL UTILITY PLANT	CODE COMPLIANCE	ENVIRONMENTAL	FEDERAL FUNDING	FIRE PROTECTION	GLYCOL RECOVERY	HIGH STRUCTURES PERMIT	LANDSCAPING	LINE OF SIGHT	NAVAIDS	PAVING	PHASING, CONSTRUCT'N SAFETY	ROADS, PARKING, SITEWORK	SECURITY	SEDIMENT AND EROSION	STORMWATER MANAGEMENT	TRAFFIC, MARKING, SIGNS	UTILITIES
Executive Staff																						
Executive Director (Blackshear)												N										
Deputy Administrator (Schaus)																						
Deputy Administrator (Wineland)																						
Assoc. Admin., Airport Operations (Sheehan)																						
Assoc. Admin., Marketing (Castleberry)																						
Assoc. Admin., Business Administration (Crosby)																						
Assoc. Admin., Planning and Engineering (West)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Planning & Engineering																						
Director of Engineering (Noorani)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Manager, Design Services (Chin)	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Manager, Construction Inspection (Carrigan)	IA	IA	IA	IA	IA		N		IA	IA	IA			IA	IA	●	IA	IA	IA	IA	IA	●
Resident Architect (Heverling)												●					N					
Assistant Manager, Construction Inspection (Walden)																						
Airport Engineer (Design Services Project Engineer)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Director, Planning (Bezilla)	N						N						N	N			N				N	
Manager, Planning (Andrews)	N		●								●		●	N			N			N		
Manager, Environmental Plans & Program (Grey)							●			●		N							N	●		
Manager, Federal Aid/Capital Programs (Kuczinski)	N	N						●						N								
Parsons																						
Principal Architect (Bird)						N						IA										
Senior Resident Engineer (as designated)																						
Resident Engineer (as designated)	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Operations																						
Deputy Assoc. Admin., Airport Operations (Samuels)	N	N	N	N											N		N	N			N	
Director, Airport Operations	N	N														N	N	N			N	
Manager, Airport Operations Center (Stewart)	●	●		●									●	N		●	●			N	N	
Assistant Manager, Airport Operations Center		●	●							●								N				
Fire/Rescue Services																						
Division Chief (Cullum)	N				N	N			●								N	N			N	

BALTIMORE WASHINGTON INTERNATIONAL AIRPORT

DESIGN COORDINATION/REVIEW COMMITTEES:

AIRSIDE & SITE DEVELOPMENT

N: as needed
IA: if available

	AIRFIELD LAYOUT	AIRFIELD SIGNS/SMGS	APRON LIGHTING	BLAST FENCING	CENTRAL UTILITY PLANT	CODE COMPLIANCE	ENVIRONMENTAL	FEDERAL FUNDING	FIRE PROTECTION	GLYCOL RECOVERY	HIGH STRUCTURES PERMIT	LANDSCAPING	LINE OF SIGHT	NAVAIDS	PAVING	PHASING, CONSTRUCT'N SAFETY	ROADS, PARKING, SITEWORK	SECURITY	SEDIMENT AND EROSION	STORMWATER MANAGEMENT	TRAFFIC, MARKING, SIGNS	UTILITIES
Security																							
Manager, Airport Security Center (Flood)	N																	●				
Maintenance																						
Chief, HVAC System (Gazy)					●																	
Environmental Specialist (Brooks)							N			●												
Director, Division of Maintenance (Hriz)		●	●									●			N		N					N
Transportation																						
Director, Div. of Trans. and Term. Services (Keen)						N										N	N				●	
MIS Section																						
Mgr., Procurement and Telecommunications (Lins)																						N
Automation Coordinator (Neal Heaton)																						N
Telecommunications Systems Admin. (John Miller)																						N
MdTA Police																						
Commander (Downing)	N															N	N	N			●	
FAA																						
Federal Security Manager (Hansen)																		●				
Airport Facilities Section																						
SSC Supervisor (Dalton)	N													●								N
Air Traffic Control Center																						
(Chase)	N	●											●	N		N						
Washington Airport District Office																						
Tom Priscilla	N	N					N	●		N	N		N	N	N	●	N	N			N	
Tenants																						
Airlines (Commercial Management - as designated)	N	N	N							N						N		N			N	N
Concessions (CM-Davies)																N		N			N	N
Ground Transportation (Keen)																N	N	N			N	N
Rental Car Agencies (CM-Purnell)																N	N	N			N	N
Parking Operator (Keen)																N	N	N			N	N

BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT

DESIGN COORDINATION/REVIEW COMMITTEES:

BUILDING

N: As needed
IA: If available

	ADA COMPLIANCE	BAGGAGE HANDLING	BLDG. MANAGEMENT SYSTEM	CCTV SYSTEM	CODE COMPLIANCE	ELEVATORS, ESCALATORS	FIDS/BIDS	FINISHES, ARTWORK	FIRE ALARM & PROTECTION SYSTEM	FURNITURE	HARDWARE	HVAC, ENERGY CONSERVATION	LIGHTING, POWER	LOADING BRIDGES	PA SYSTEM	PLUMBING	PROGRAMMING/LAYOUT	PUBLIC TELEPHONES	SECURITY & CASS	SIGNAGE, DISPLAYS	TELEPHONE & DATA	TENANT COORDINATION
Executive Staff																						
Executive Director (Blackshear)								●		N							N			N		
Deputy Administrator (Schaus)								N									N					
Deputy Administrator (Wineland)								N									N					
Assoc. Admin., Airport Operations (Sheehan)								N		N							N					
Assoc. Admin., Marketing (Castleberry)								N														
Assoc. Admin., Business Administration (Crosby)								N														
Assoc. Admin., Planning and Engineering (West)	N	N	N	N	N	N	N	●	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Planning & Engineering																						
Director, Engineering (Noorani)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Manager, Design Services (Chin)	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Manager, Construction Inspection (Carrigan)	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Resident Architect (Heverling)	●				●		●	●		●	●		●				●	●		●	●	N
Assistant Manager, Construction Inspection (Walden)																						●
Airport Engineer (Design Services Project Engineer)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Parsons																						
Principal Architect (Bird)	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Senior Resident Engineer (as designated)																			●			
Resident Engineer (as designated)							IA															IA
Operations																						
Deputy Assoc. Admin., Airport Operations (Samuels)								●									N					
Director, Airport Operations																						
Manager, Airport Operations Center (Stewart)			●	●		N	●		N										●	N		
Assistant Manager, Airport Operations Center		●									N			●	●			N			N	●
Fire/Rescue Services																						
Division Chief (Cullum)	●	●	●		●	●	N		●		●	N		●	●				N			
Security																						
Manager, Airport Security Center (Flood)		●		●		N			N		N			N					●	N		

BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT

DESIGN COORDINATION/REVIEW COMMITTEES:

BUILDING

N: As needed
IA: If available

	ADA COMPLIANCE	BAGGAGE HANDLING	BLDG. MANAGEMENT SYSTEM	CCTV SYSTEM	CODE COMPLIANCE	ELEVATORS, ESCALATORS	FIDS/BIDS	FINISHES, ARTWORK	FIRE ALARM & PROTECTION SYSTEMS	FURNITURE	HARDWARE	HVAC, ENERGY CONSERVATION	LIGHTING, POWER	LOADING BRIDGES	PA SYSTEM	PLUMBING	PROGRAMMING/LAYOUT	PUBLIC TELEPHONES	SECURITY & CASS	SIGNAGE, DISPLAYS	TELEPHONE & DATA	TENANT COORDINATION
Maintenance																						
Director, Division of Maintenance (Hriz)				●										●		●						
Facilities Manager (as designated)		●	●			●	●			●	●	●		●	●	●			●			
Chief, HVAC Systems (Gazy)			●						●			●	●									
Ralph Davis											●								●			
Special Projects Manager (Croft)																		N		●		
Transportation																						
Director, Div. of Trans. and Term. Services (Keen)	●					●	●			N							N			N		N
Safety & Compliance																						
Airport Safety and Compliance Officer (Wojnar)				●		●			●						●				●			
MIS Section																						
Mgr., Procurement and Telecommunications (Lins)														N	●			N			●	
Automation Coordinator (Neal Heaton)			●	●			●		N										N		N	
Telecommunications Systems Admin. (John Miller)																		●			●	
MdTA Police																						
Commander (Downing)				●															●			
Office of Business Administration, Division of Commercial Management																						
Director (Davies)		N															N			N		N
Asst. Director (Hunt)																				N		
Control Specialist (Geno Langeletto)																		●				
FAA																						
Federal Security Manager (Hansen)	N	N		N		N			N										●			
Signature																						
Supervisor, Loading Bridges (Sam Carder)		●												●								
Honeywell																						
Senior Systems Engineer (Steven Downey)			IA			IA			●													
Communications																						
Airport Communications Center							N								●							
Office of Marketing and Development																						
Director, Public Affairs (Corbett)							●								N							

BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT

DESIGN COORDINATION/REVIEW COMMITTEES:

BUILDING

N: As needed
IA: If available

	ADA COMPLIANCE	BAGGAGE HANDLING	BLDG. MANAGEMENT SYSTEM	CCTV SYSTEM	CODE COMPLIANCE	ELEVATORS, ESCALATORS	FIDS/BIDS	FINISHES, ARTWORK	FIRE ALARM & PROTECTION SYSTEMS	FURNITURE	HARDWARE	HVAC, ENERGY CONSERVATION	LIGHTING, POWER	LOADING BRIDGES	PA SYSTEM	PLUMBING	PROGRAMMING/LAYOUT	PUBLIC TELEPHONES	SECURITY & CASS	SIGNAGE, DISPLAYS	TELEPHONE & DATA	TENANT COORDINATION
Elevators																						
Consultant						●																
State Elevator Inspector						●																
Tenants																						
Rental Car Agencies (Commercial Mgmt. – Purnell)								N		N	N						N	N	N	N	N	N
Airlines (Commercial Mgmt . – as designated)		N					N	N		N	N			N	N		N	N	N	N	N	N
Concessions (Commercial Mgmt. – Davies)								N		N	N	N	N			N	N		N	N		N
Ground Transportation (Commercial Mgmt. – Keen)								N		N					N		N		N	N	N	N
Parking Operator (Commercial Mgmt. – Keen)				N				N									N			N		N

DST 99-12 As-Built Preparation

BCB-99 A: /DESIGN STANDARDS 99

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: September 28, 1999

SUBJECT: Design Standard (DST) 99-12, As-Built Preparation

Effective immediately, please incorporate the following requirements when preparing As-Builts for all projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports.

Deliverables:

- 1 set of blueline prints (2 sets if AIP funding is used in the project)
- 1 set of reproducible mylar plots, sealed by Professional Engineer or Registered Architect, with original signature
- 2 CDs with electronic files

Drawings:

- Revision block shall be labeled "As-Built" with date of issue.
- The following disclaimer shall be placed on each sheet (including the title sheet): "These record drawings dated...and titled "As-Built" have been developed from the Contractor's record of changes made and may not represent the final project, as constructed, in every detail. Th record drawings have been prepared based on information supplied by others and the Engineer has not verified the accuracy or completeness of the information."
- Every drawing shall have the file name clearly located within the sheet border.

CDs:

- Disks shall be labeled with the contract number, title, date, AIP number (if applicable), disk number, and any other pertinent information.
- CD inserts shall be formatted per the attached.
- All electronic files shall be stand-alone; bind all external reference files.
- All electronic files shall be purged of all unused layers, blocks, and fonts. Only those attributes required for the final CD set should be in the archived file.
- All electronic file names shall be identical to the sheet number or title on the contract documents.
- All drawings shall be in DWG (or TIF for scanned images) and DWF formats. One folder shall be set up for each format and the respective drawings placed in each. The folders shall be labeled "AUTOCAD" and "DWF".
- A standard pen setting should be used to allow the Maryland Aviation Administration (MAA) to plot the drawings with the same line weights as the originals. Pc2 files shall be used and embedded into the drawing files.
- All fonts must be available in the MAA standard font library. The MAA standard font library includes all fonts delivered with AutoCAD.

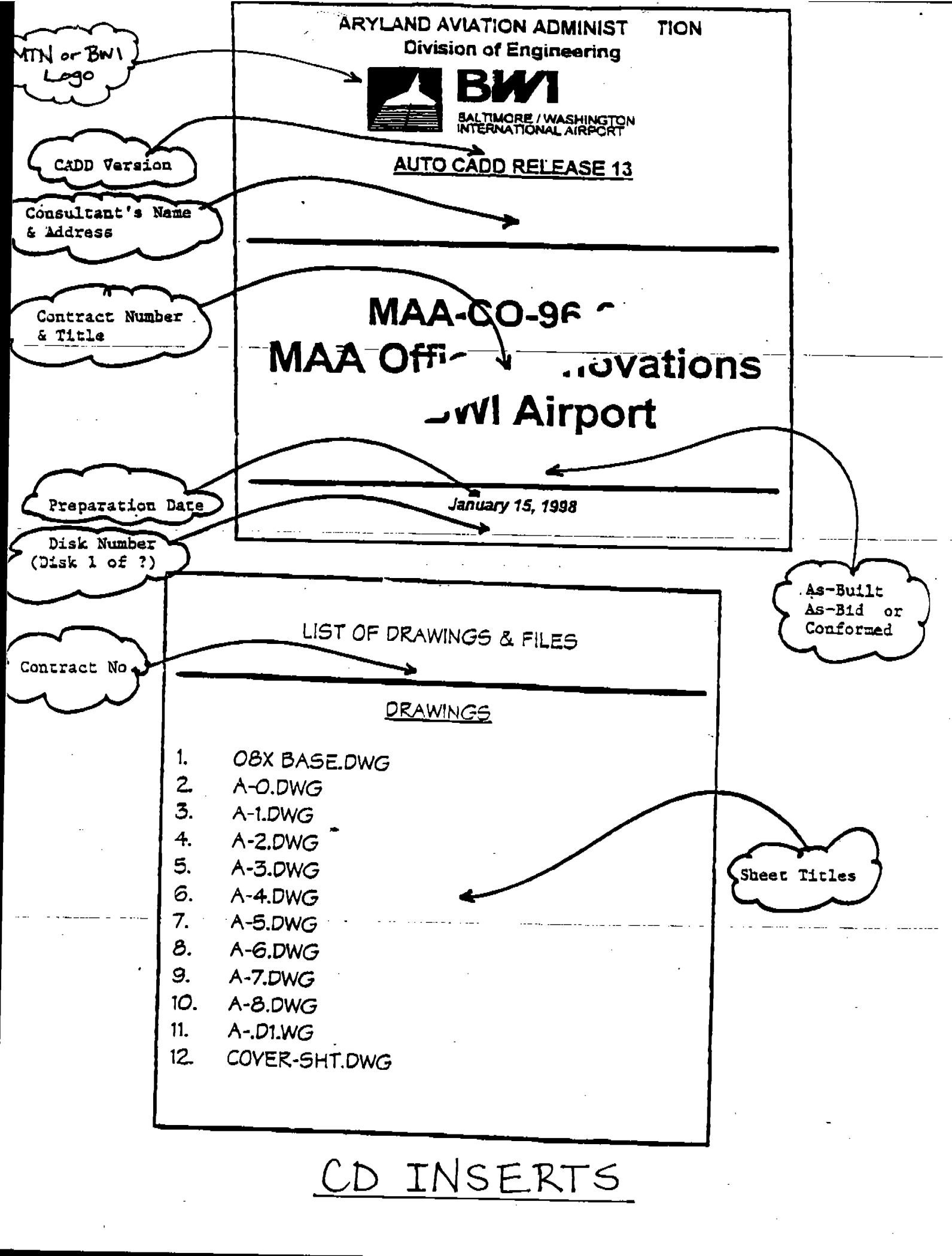
If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Attachment

Distribution:

Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Mr. Ray Heverling (MAA)
Mr. Ali Logmanni (MAA)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Alex Noorani (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
Mr. Reginald Weaver (Baker)
Mr. Mike West (MAA)


MTN or BWI Logo
ARYLAND AVIATION ADMINIST TION
Division of Engineering
BWI
BALTIMORE / WASHINGTON INTERNATIONAL AIRPORT
CADD Version
AUTO CADD RELEASE 13
Consultant's Name & Address
Contract Number & Title
MAA-CO-96
MAA Offi- ovations
-WI Airport
Preparation Date
January 15, 1998
Disk Number (Disk 1 of ?)
As-Built As-Bid or Conformed
Contract No
LIST OF DRAWINGS & FILES
DRAWINGS
1. 08X BASE.DWG
2. A-0.DWG
3. A-1.DWG
4. A-2.DWG
5. A-3.DWG
6. A-4.DWG
7. A-5.DWG
8. A-6.DWG
9. A-7.DWG
10. A-8.DWG
11. A-.D1.WG
12. COVER-SHT.DWG
Sheet Titles

CD INSERTS

Parris N. Glendening
Governor

John D. Porcari
Secretary

Maryland Aviation Administration

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: September 28, 1999

SUBJECT: Design Standard (DST) 99-13, Fabric Roll-up Doors

Effective immediately, all Baltimore/Washington International (BWI) and Martin State (MTN) Airport projects shall not use fabric roll-up doors at "high hazard" locations. Fabric roll-up doors do not provide a fire rating, and therefore provide a hazard when used at improper locations. "High hazard" applications include, but are not limited to, mechanical, switch gear, and electrical substation rooms. When fire rated doors are required, metal roll-up doors shall be specified.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

P.O. Box 8766, BWI Airport, Maryland 21240-0766 (410) 859-7100
TOLL FREE: 1 (800) I-FLY-BWI • FAX: (410) 850-4729 • TDD for the hearing impaired: (410) 859-7227
The Maryland Aviation Administration is an agency of the Maryland Department of Transportation

Distribution:

Mr. John Bird (Parsons)
Mr. Ian Bricknell (TAMS)
Mr. Emory Carrigan (MAA)
Chief Woody Cullum (MAA)
Mr. Gary Davies (MAA)
Mr. Ray Heverling (MAA)
Mr. Bill Lins (MAA)
Mr. Ali Logmanni (MAA)
Mr. Chirantan Mukhopadhyay (Parsons)
Mr. Steve Lucchesi (URSGWC)
Ms. Suzette Moore (MAA)
Mr. Alex Noorani (MAA)
Mr. Claude Samuels (MAA)
Mr. Charles Steen (MAA)
Mr. William Tsai (MAA)
Mr. Ron Walden/Building Permit Committee (MAA)
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BC13 A:\DESIGN\STANDARDS\99

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Maryland Aviation Administration

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 1, 1999

SUBJECT: Design Standard (DST) 99-14, Certification of Fire Protection and Detection System Design

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This standard amends and supercedes DST 99-05, dated February 19, 1999.

Effective immediately, please incorporate the following requirements into the design and specification of projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports.

Certification:

a. A qualified fire protection engineer shall be an integral part of the design team, and shall be involved in every aspect of the design as it relates to fire protection and detection systems.

b. For the purpose of meeting this requirement, a qualified fire protection engineer is defined as an individual meeting one of the following conditions:

- An engineer having a Bachelor of Science or Master of Science degree in Fire Protection Engineering from an accredited university engineering program, plus a minimum of three (3) years work experience in fire protection engineering.

- A registered professional engineer (PE) who has passed the National Council of Examiners for Engineering and Surveys (NCEE) fire protection engineering written examination.

- A registered PE in a related engineering discipline, with a minimum of five (5) years experience dedicated to fire protection engineering.

c. Sealing Requirements – Fire protection and detection system(s) plans, specifications, drawings, submittals, shop drawings, reports, or other documents shall be signed and sealed, as required, pursuant to the Business Occupations and Professions Article, Section 14-403, Annotated Code of Maryland.

Application:

a. The design of the fire protection systems shall meet the requirements of a, b, and c under "Certification" above. The construction contract documents shall require the construction contractor's Fire Protection Engineer certify the fire protection system(s) design and any revisions, in accordance with 'c' above. For projects which may not require the production of contract documents, i.e. building permits, applicants shall be required to meet the certification requirements under the building/installation permit.

Fire protection system(s) include, but are not limited to: wet sprinkler systems, dry sprinkler systems, deluge systems, pre-action or fire cycle systems, dry chemical systems, wet chemical systems, carbon dioxide systems, clean agent systems, foam systems, smoke removal systems, and stair pressurization systems.

A certification waiver may be requested for the design/renovation of wet sprinkler system(s) not exceeding 10 heads. This request shall be put in writing to the Division Chief, Fire Prevention Division.

b. The design of fire detection systems shall meet the requirements of a, b, and c under "Certification" above. Fire detection system(s) shall be designed and certified by the Consultant/Engineering firm preparing the construction contract documents prior to advertisement. The Consultant/Engineering firm, prior to issuance to the Contractor, shall certify any subsequent changes/revisions to the design.

Fire detection system(s) shall be defined as a system that detects the presence of smoke, heat, and fire. This system shall send a signal to the main fire alarm panel and then activate occupant notification systems and alert the fire department. Fire detection system(s) include, but are not limited to: smoke detectors, heat detectors, pull stations, waterflow switches, pressure switches, infrared detectors, beam detectors, horns and strobes, control modules, and monitor modules.

A certification waiver may be requested for the design/renovation of small system(s). This request shall be put in writing to the Division Chief, Fire Prevention Division. If a waiver is granted, the minimum certification required shall be NICET (National Institute for Certification in Engineering Technologies) Level III.

If the fire detection system is integrated or connected to a special fire protection system, no certification waiver will be granted.

Special fire protection system(s) shall be defined as a system that is connected/controlled by the base fire detection system. Special fire protection system(s) include, but are not limited to: fire cycle or pre-action sprinkler systems, or smoke removal systems.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

Distribution:

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Mr. Reginald Weaver (Baker)

BC/tmt

cc: Mr. Mike West

DST 99-15 Procedures for Coordination with the Maryland Department of the Environment

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David L. Blackshear Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 12, 1999

SUBJECT: Design Standard (DST) 99-15, Procedures for Coordination with the Maryland Department of the Environment (MDE)

Effective immediately, all Baltimore/Washington International (BWI) and Martin State Airports projects shall be coordinated with the MDE per the following procedures. These procedures apply to Design Services projects only.

- Consultants shall designate a Point of Contact to coordinate MDE permitting issues for all of their Maryland Aviation Administration (MAA) projects.

- MDE may review projects in-house or, with MDE approval, MAA may elect to designate a review consultant to expedite the review process. The review consultant previews calculations, evaluates drawings, and provides MDE with approval recommendations. At the beginning of each project, the consultant's Point of Contact shall contact the Reviewer and coordinate all aspects of the project. Consultants may request the Reviewer's name and company information from the MAA Project Manager.

- Consultants shall expedite the review procedure by involving MDE in the entire design process. Early coordination and prompt responses to questions and comments will facilitate the approval. Coordination requirements include:

  1. For large and/or complex projects, Consultants shall set up a preliminary coordination

meeting at 30% design with the Reviewer, MAA, and MDE. The meeting shall be used to present to MDE the project scope and discuss stormwater management and sediment and erosion control design. If follow-up meetings are necessary as design progresses, Consultants shall set up additional meetings with the above mentioned participants.

2. Consultants shall submit review plans to MDE at the same time they submit review plans to MAA. **Note: A copy of the transmittal letter must be faxed to MAA and the Reviewer the day of the submission.**

3. The Reviewer may provide Consultants with an advance copy of "draft" comments. Consultants shall assemble their responses to the "draft" comments within reasonable time of receipt. Additional items may be included in the "formal" comments provided by MDE. If additional comments are included, Consultants shall revise their responses accordingly. Consultants shall forward copies of MDE comments to the MAA Project Manager and Reviewer.

4. Prior to submission, Consultants shall provide MAA and the Reviewer with the estimated date submittals and responses to comments shall be submitted. This advance notice will allow the Reviewer to schedule his review accordingly. A cover letter outlining responses to the "draft" and/or "formal" comments shall be included with all resubmittals.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Distribution:

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cc: Mr. Alex Noorani
Mr. Mike West

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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 19, 1999

SUBJECT: Design Standard (DST) 99-16, High Structure Approval Procedure

Effective October 1, 1999, Federal Aviation Administration's (FAA) high structure approval procedure has changed. The new procedure requires designers to include on the Safety and Phasing plans the locations and heights of all structures penetrating any navigational surfaces. Both permanent and temporary structures, including construction equipment, are included in this requirement. Construction equipment heights should be estimated on a worst-case basis and equipment locations should be broadly shown, i.e. envelope locations with coordinates defining the corners.

The Safety and Phasing Plan shall be submitted well enough in advance to receive approval prior to advertisement of the construction documents. Designers should submit seven copies of the Safety and Phasing plans to the FAA. Upon receipt, the FAA will review and approve the structure locations and heights in conjunction with the safety and phasing. FAA review time is 60-90 calendar days. Once approval is received, designers shall provide a copy of the FAA approved plans to Maryland Aviation Administration (MAA), Office of Planning.

MAA's Office of Planning shall then issue an Airport Zoning Permit to the contractor per the accepted plan. If the Contractor wants to place equipment and/or cranes at locations and heights which differ from the FAA approved plan, they will be required to submit a Notice of Proposed Construction or Alteration (FAA Form 7460-1). Once Form 7460-1 has been approved by the FAA, the Office of Planning will issue an additional Airport Zoning Permit for those items which differ from the original plan. MAA is in the process of issuing an ISPA which shall outline the contractor's responsibilities for obtaining this approval.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Distribution:

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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 25, 1999

SUBJECT: Design Standard (DST) 99-17, No. 2 Stone

Effective immediately, the design and construction of all Martin State (MTN) Airport projects shall include the requirement of placing an additional layer of No. 2 Stone under the designed pavement section. Due to the excessive amount of unsuitable material located at MTN, MAA recommends the consultant place No. 2 Stone and filter fabric over the entire paved area. The unsuitable material shall be removed and backfilled as determined by the engineer. No. 2 Stone shall then be placed at a depth determined by the engineer prior to the placement of the subbase material. In addition, the engineer shall require filter fabric to be placed below and above the section of No. 2 Stone. See attached exhibit.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Attachment

Distribution:

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Mr. Emory Carrigan (MAA)
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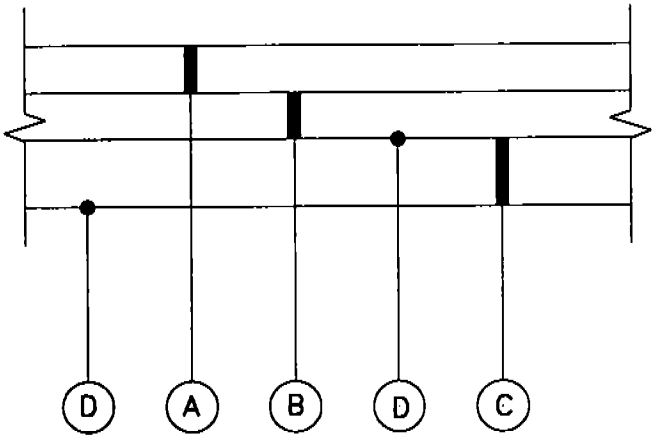
Mr. Mike West (MAA)



TYPICAL SECTION

NOT TO SCALE

LEGEND

(A) PORTLAND CEMENT CONCRETE/ BITUMINOUS ASPHALT PAVEMENT *

(B) CRUSHED AGGREGATE BASE COURSE *

(C) NO. 2 STONE *

(D) FILTER FABRIC

* DEPTH TO BE DETERMINED BY THE ENGINEER

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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: October 25, 1999

SUBJECT: Design Standard (DST) 99-18, Radar Reflectors

The Federal Aviation Administration (FAA) has installed radar reflectors throughout the airfield as part of the surface detection system. Construction documents for recent airfield development projects have not shown the locations of these reflectors, and as a result these devices have been damaged or removed during construction. Effective immediately, all contract documents for projects at Baltimore/Washington International (BWI) Airport shall include the locations of radar reflectors. Radar reflector locations and removal/replacement requirements shall be coordinated with Mr. Charles Freburger, FAA at 410-859-7252.

The Maryland Aviation Administration is currently updating the FAA utility plans for BWI Airport to include the existing radar reflector locations. We hope to have the plans updated by December 1, 1999.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

BC/tmt

Distribution:

Mr. Lynn Bezilla (MAA)
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Mr. Mike West (MAA)

DST 99-19 Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems at BWI – Amendment Number 2

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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Design Services

DATE: November 12, 1999

SUBJECT: Design Standard (DST) 99-19
Airport Wide Standard for Interface of
Fire Alarm, Life Safety, and Security Systems at
Baltimore/Washington International (BWI) Airport
Amendment Number 2

Effective immediately, please incorporate the requirements of Amendment Number 2 into the design and specification of projects at BWI Airport.

The requirements of Amendment Number 2 to the Airport Wide Standard for Interface of Fire Alarm, Life Safety, and Security Systems are as follows:

CASS Interface at Emergency Egress Doors

- CASS Interface at Emergency Egress Doors, Page 4, 1st Paragraph
  Replace "State Police" with "Airport Police".

Access Controlled Egress Doors

Eliminate references to delayed egress. All electronic crash bars shall remain direct wired to the mag-lock.

- Access Controlled Egress Doors, Page 28, 2nd Paragraph
  Delete "Any time the crash bar is depressed, a local alarm (piezzo buzzer) will sound. This is intended to discourage accidental/nuisance use of the system. This local alarm will sound until the system is reset."

- Access Controlled Egress Doors, Page 28, 3rd Paragraph
  Delete "The mag-lock will not release until a preset delay has expired. Depressing the crash bar starts the delay countdown."

- Access Controlled Egress Doors, Page 28, 4th Paragraph
  Delete "In the event of an emergency, personnel will depress the crash bar, the local alarm will immediately sound and the delay countdown will begin. When the delay has expired, the audio/visual device will sound, the mag-lock will be defeated and the CASS will alert the police and the CDC of the alarm condition. The security system audio/visual device shall be coded differently from the fire alarm system audio/visual device."

  Add "In the event of an emergency, personnel or public occupants will depress the crash bar, the security system audio/visual door alarm will immediately sound, the mag-lock will be defeated and the CASS will alert the Airport Police and the CDC of the alarm condition. The security system audio/visual device shall be coded differently from the fire alarm system audio/visual device."

- Access Controlled Egress Doors, Page 28, 5th Paragraph
  Delete " The delay on release should be set to 15 seconds except for egress doors at the top of a stairwell which should be set to a maximum of 6 seconds. Designers should confirm this for every project."

- Access Controlled Egress Doors, Page 28, 6th Paragraph
  Delete "Signage should be placed on each egress door, stating "EMERGENCY EXIT ONLY, PUSH UNTIL ALARM SOUNDS, DOOR CAN BE OPENED IN 15 SECONDS"."

  Add "Signage shall be placed on each egress door to match existing, stating "WARNING, RESTRICTED AREA, PROPER DISPLAY OF BWI AUTHORIZED ID REQUIRED AT ALL TIMES".

- Access Controlled Egress Doors, Page 28, New Item
  Add "Signage shall be placed above each combination card reader/keypad to match existing, stating "ATTENTION, PLEASE ALLOW DOOR TO CLOSE BEFORE SWIPING YOUR BWI AIRPORT ID BADGE".

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Design Services Section.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

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cc: Mr. Mike West