


EDMONTON AIRPORTS

FIRE ALARM SYSTEM ALTERATION

INFRASTRUCTURE PROCESS

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		Fire Alarm System Alteration Process		

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1. PURPOSE

The program is intended to control changes to the fire alarm system that includes the EIA Air Terminal Building (ATB) and attached structures (Central Tower [CT] and North Tower [NT]). Other EIA owned and operated facilities are also included, if they are connected to the overall fire alarm system (Central Utilities Plant, CBSA Building, 25kV Station, Parkade, etc.).

It is the expectation of Transport Canada, the fire Authority Having Jurisdiction (Leduc County) and our insurers that we maintain control of our fire alarm system, a critical life safety system.

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3. EXISTING POLICIES

There are no existing policies associated with control of the fire alarm system for EIA ATB, NT, CT, or other facilities.

4. CURRENT REGULATIONS

The regulatory environment is informed by codes and standards established by the following organizations:

- *National Fire Code of Canada*
- *Alberta Fire Code*
- *National Fire Protection Association (USA)*
- *National Canadian Fire Alarm Code and Standards*

Which have established specifically relevant standards, including but not limited to:

- *CAN/ULC – S524 – Installation of Fire Alarm Systems*
- *CAN/ULC – S537 – Verification of Fire Alarm Systems*
- *CAN/ULC – S573 – Installation of Ancillary Devices*
- *CAN/ULC – S575 – Commissioning of Life Safety & Fire Protection Systems*

Leduc County is the *Authority Having Jurisdiction* for fire code within the confines of EIA.

5. OBJECTIVE AND RATIONALE

The objective of this program is to ensure that changes to our fire alarm system are made in a controlled and verified manner, thereby maintaining system functionality and currency.

Changes to the system are planned in the context of a project, and typically consist of four elements:

1. System devices are installed, modified, or removed with verification of proper system function
2. Ancillary devices are installed, modified, or removed with verification of proper function outside the system for functional effect
3. Enunciator graphics corresponding to devices are updated as changes occur
4. Existing system documentation is updated as changes occur
 - a. System record drawings
 - b. System single line drawings

The program is not intended to address deficiencies that are identified during annual system inspections.

When work occurs on the system, the following elements must be satisfied:

- Proposed system changes have been reviewed by a party designated by EA
 - Designed and installed in compliance with current edition of CAN/ULC – S524
- The system installation has been completed by appropriate parties
 - Connection infrastructure installed by electrical contractor
 - Devices installed by certified fire alarm installer
 - Devices modified or removed are clearly identified in record drawings and fed back into the documentation
- System graphics and software have been updated by Fire Alarm (FA) System Provider
 - Verification of graphics changes by EA Emergency Response Services
 - Acceptance by EA Maintenance
- The system installation has been verified by a party designated by EA
 - Verified in compliance with current edition of CAN/ULC - S537

When work occurs on the system that impacts ancillary device/system connections, the following additional elements must be satisfied:

- The ancillary connection has been completed by an appropriate party
 - Appropriate party relates to the type of system connected (HVAC, etc.)
- The ancillary connection has been verified by party designated by EA
 - Verified in compliance with current edition of CAN/ULC - S537

When graphics changes are needed, the following elements must be satisfied:

- Graphics changes are made by FA System Provider
- To initiate a graphics change, the following needs to be supplied to FA System Provider
 - Contact information provided in Appendix A
 - Contact at least four weeks prior, to book work and get pricing for changes
 - Must provide drawings for the area affected
- Successful change verification from FA System Provider to EA
- Changes must be verified as being made before the area is put into service, as per ERS

When system documentation needs to be updated, the following elements must be satisfied:

- System documentation in two forms
 - Record drawings
 - Single line drawings of system
- System documentation changes are provided via system change record drawings
- Received from party making the change, through the Verifier
- System documentation is held and updated by Technical Services
 - This requirement must be reflected in the FAP approval for the work being conducted

6. DEFINITIONS

Ancillary Device – A device which has a life safety application and is actuated by the fire alarm system but is not part of the fire alarm system

Building – Any structure used or intended for supporting or sheltering any use or occupancy

Design – The selection, application and layout of the fire alarm system component

Fire Alarm System – A combination of devices designed to warn the building occupants of an emergency condition

Inspect (Inspection/Inspected) – A visual examination to determine that the device or system will apparently perform in accordance with its intended function

Specification – A detailed and precise presentation of required work and performance approved by the designer

Test (Tested/Testing) – Operation of the device or system to determine that it will perform in accordance with its intended operation or function

Verification – Tests and inspections to support the confirmation of a fire alarm system's operability and installation in accordance with a design and other CAN/ULC standards

Verification Report – A report documenting the results of verification inspections and tests, in a form similar to that published in Appendix C of the most current version CAN/ULC-S537 Standard for the Verification of Fire Alarm Systems

7. ROLES & RESPONSIBILITIES

- Applicant (internal or external parties)
 - Represents internal interest (through a Project Manager) or an external interest (tenant)

- Adheres to EA design standards
- Responsible for all costs associated with fire alarm system connection, including verification
- Provides all necessary design information in FAP application for Designated Reviewer and Verifier
- Designated Reviewer and Verifier
 - Primary reviewer and verifier for EIA FA system
 - Established via Standing Offer for design reviews and verifications
 - Provides completed verification records to TS
 - Contact information provided in Appendix A
- Engineering, Planning & Operational Compliance (ENG)
 - Developed and maintains program document
 - Holds Standing Offer for Designated Reviewer and Verifier
- Projects Group
 - On behalf of a project sponsor, follows process for internal projects
 - Provides assistance to Tenant applicants
 - Assists setting up Standing Offer
 - Submits verification records to TS for EA project changes to FA system
- Contracts and Procurement Services (CAPS)
 - Administers Standing Offer for Designated Reviewer and Verifier
- Technical Services (TS)
 - Identifies need for following this process to applicant through FAP
 - Holds overall system record drawings, change drawings, and verification records
 - Updates overall system record base drawing
 - Prompts Applicants to submit required information in specified timeframes
- Maintenance (M)
 - Owner of the FA System; ensure system is operational and functional
 - Lead annual inspection of FA system
 - Submits annual verification records to TS for archiving

- FA System Provider
 - Performs system graphics and software changes, based on information submitted
 - Provides confirmation to ERS when changes have been completed
 - Contact information provided in Appendix A
- Commercial Development (CD)
 - Provide initial understanding of process requirements to tenants
 - Include reference to process and fire alarm system sensitivity in lease agreements
 - Require a deposit to be held for submission of fire alarm system documentation
- ERS
 - Confirms changes have been made to graphics, to allow occupancy of areas
- Security
 - Aware of ancillary connections between FA System and PSL
 - Notified through FAP process of changes to primary security line doors that are linked into fire alarm system

8. PROCEDURAL FLOW CHART

- Design Review
 - Design completed and submitted with FAP application
 - Contract reviewer conducts design review
 - Design review includes:
 - Compliance with EA standard
 - Loop and circuit capacity confirmation
 - Conduit run acceptance
 - Ancillary connections
 - Proposed naming for devices
 - Design is approved via FAP process; FAP approved for construction
- Installation of new/modification of existing/removal and connection with ancillary devices

- Installation conducted, including conduit runs
- Ancillary connections made by appropriate parties
- Verification by Designated Verifier for system and ancillary devices
- Receive final verification report
 - Submitted to TS
 - TS circulates to M and ERS
 - ERS reviews and recommends
 - M accepts or rejects
 - TS provides verification acceptance or rejection to Applicant
- Graphics and software change (runs concurrently with installation)
 - Change request made to FA System Provider by Applicant
 - Contact at least three to four weeks before work is planned to be completed
 - Provide CAD drawings to FA System Provider of the areas being affected by change
 - Changes implemented by FA System Provider
 - FA System Provider notifies EA of completed changes
 - FA System Provider sends verification documentation to TS
 - Includes pictures of graphical changes made
 - Post-verification notification to ERS (allow two working days)
 - TS forwards change verification details to ERS and M
 - ERS accepts system change
 - Forwarded to ERS Fire Officers
 - M approves changes are completed
 - Forwarded to Facilities Maintenance Management
- Submit change docs
 - 30 days after verification is completed
 - TS receives change documentation
 - TS reviews and provides feedback to Applicant
 - Accept = Complete
 - Identifies deficiencies for correction = Resubmit

- System
 - Record drawings and single line diagrams provided by Applicant to TS
- Verification records
 - Provided by Applicant to TS
- Update docs as per TS schedule
 - Record drawings updated twice a year by TS
 - Single line drawings updated twice a year by TS

9. RECORDS MANAGEMENT

1. Program Document – maintained by ENG; held by TS
2. Record drawings – maintained and held by TS
3. Single line system drawings – maintained and held by TS
4. Verification records – held by TS
5. O&M Manual(s) – held by TS

10. LINKS TO OTHER EDMONTON AIRPORT PROCESSES

- FAP Process
- Notice of Impairment
- FA Bypass Procedure

11. APPROVALS



Rob Hough, Manager, Engineering, Planning
and Operational Compliance

July 24, 2015
Date

APPENDIX

A. CONTACT INFORMATION

1. System Change Reviewer and Verifier

SMP Engineering

Richard West, E.E.T., MIET

rwest@smpeng.com

403-270-1461

2. Fire Alarm System Provider (for graphics and software updates)

SimplexGrinnell

Lynn Patrick – (780) 699-9721