

FlightSafety Simulation Systems  
Sheppard AFB Trainer Facilities Report, DI-FACR-80966 for  
PEO-STRI-12-W082 STOCII-12-KOV-0028 JPATS Visual Upgrade

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## 1 Scope

According to SOW paragraph 4.9, SITE SURVEY: *The contractor shall conduct a survey at each installation site at least three months prior to the commencement of the system installation. The purpose of the survey is to discuss and confirm arrangements for the installation and to provide information on any modifications required at the installation site. During the survey, the contractor shall:*

- a. *Review the status of the building or location where the system will be installed.*
- b. *Confirm the required positions of equipment, assemblies, cableways, access ways, and any other unique feature, and measure to insure clearance during the installation.*
- c. *Review and confirm the existing and proposed location of power distribution boxes, switches, water and air supply points and air ducting, and other unique building or location features.*
- d. *Determine the availability of required services.*
- e. *Review and confirm arrangements for hours of work, access to work areas, supporting workshops facilities, and on-site personnel participation.*
- f. *Discuss and resolve any outstanding issues pertaining to the installation program.*
- g. *Confirm all required arrangements for DoD 8500.2 controls identified as being inherited by the system are in existence.*

## 2 Sheppard AFB Site Survey

On Monday, 22 April 2013 Mr. Darren Bomer, Lead Mechanic, and Mr. Andy Shead, Project Engineer, traveled to Sheppard AFB to survey building 2326 facility installation. We met with Mr. Tracy Davidson, Site Manager, at 0830 hours, Tuesday, 23 April 2013.

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## 2.1 Telephone Numbers

- T6 Site Manager:
  - Office: 940-676-0760
  - Mobile: 940-642-8100
- T6 Maintenance:
  - Shop: 940-676-0771

## 2.2 IFT Relocation Meeting

Tracy Davidson convened a meeting with Wing Scheduling personnel who had expressed desire to discuss with FlightSafety the possibility of relocating the two IFTs nearest to the roll-up door at the north end of the high-bay to the location now occupied by the two UTDs farthest from the double-door fire exit in the west wall of the high-bay. Figure 2-7 on page 7 shows the roll-up door in the north wall of the high-bay and the fire exit can be seen toward the south end of the west wall.

Andy Shead stated that there will be no change to the contract as a result of any discussions.

Any decision to alter the installation schedule must be agreed between PEO-STRI, the SPO, and the Program Manager at FSSC.

These persons attended the meeting:

- Mr. Tracy Davidson, T6 Site Manager
- Mr. Andy Shead, JPATS Project Engineer.
- Mr. Darren Bomer, JPATS Lead Mechanic
- Lt. Col. Amy Young, Wing Scheduler.
- Lt. Col. Erik Knauff, Head of OGA (Training)
- Mr. Mark Giglio, Senior Flying Instructor.
- Ms. Melody Brown, Assistant Scheduler.

**Figure 2-1: Building 2326 Overview**



**Figure 2-2: Bollard Obstruction**



**Figure 2-3: Electrical Transformer Obstruction**



## 2.2.1 FTD Orientation

While the high-bay was sized to accommodate the installed number of FTDs, available space was reduced by the presence of bollards inside the roll-up door and electrical transformers that require 3-feet clearance on each side. Final orientation of the FTDs was dictated by the bollards and electrical transformers. Figure 2-2 on page 2 shows the bollard obstruction. Figure 2-3 on page 2 shows the electrical transformer obstruction that is similar on all sides of the high-bay. Figure 2-4 on page 3 shows the final orientation of the FTDs obstructing the roll-up door due to accommodation of National Electrical Code transformer clearance requirements.

## 2.2.2 Building Maintenance Concerns

Building maintenance is handicapped by insufficient space to get a scissor- or boom-lift past the OFT and IFTs inside the roll-up door, whenever they need to change lamps in the chandeliers or need to work among the rafters of the roof. Relocating the two IFTs inside the roll-up door to the other end of the room will eliminate this problem.

## 2.2.3 Training Wing Concerns

Lt. Col. Young explained that the OFTs and IFTs are used heavily to train ordinary USAF students, instructor pilots, and foreign ENJJPT students whose training schedules often overlap. Lt. Col. Young said that of the three types of FTD, the wing can do without the UTDs, whereas the training curriculum requires the visual capability of the OFT and IFT simulators; having two IFTs inoperative for the duration of the visual upgrade will have a negative effect on the Wing training schedules. Lt. Col. Young is strongly in favor of exchanging the two IFTs nearest to the roll-up door with two UTDs at the other end of the high-bay; during the visual upgrade, the UTDs can remain out-of-service parked in some of the vacant space once occupied by the IFTs.

Mr. Mark Giglio expressed concern about having the high-bay door open during summer weather. An open door will cause condensation on the cold metalwork and condensed water to drip onto the equipment; in addition, the rapid change in humidity will cause the HVAC system

**Figure 2-4: Roll-up Door Obstructed**





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to freeze and go offline. FSS said that the door won't be open all day, just for brief periods during the course of one day. Mr. Giglio thought that the noise of the upgrade work and the door opening and closing would be likely to interrupt training in all FTDs, not just the FTD being upgraded.

### 2.2.4 FSS Concerns

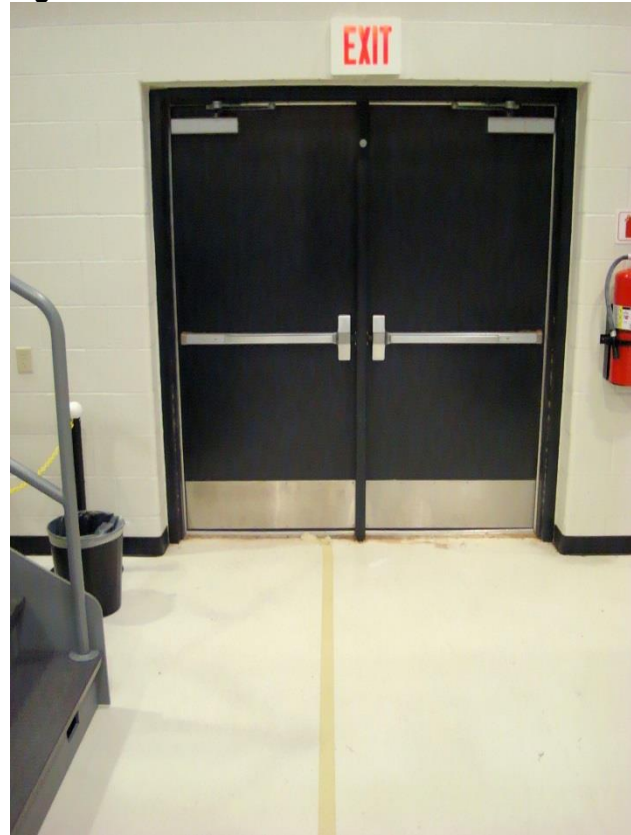
This discussion cannot change the schedule. Any decision to change the order of the visual upgrade schedule or move simulators must be mutually agreed between the Program Manager at FSSC, PEO-STRI, and the SPO.

Moving the IFTs is well within FSS capability.

Primary concern for FSS is the additional work involved that will add cost and time that hasn't been included in the budget, causing cost overrun and delayed completion.

A secondary concern is that the proposed relocation of the IFTs will partially obstruct the fire exit. Local T6 maintenance-staff have marked position of the IFTs with masking tape on the floor of the high-bay. Partial obstruction of clear egress through the fire exit is shown in Figure 2-5 on page 4, illustrated by the beige tape on the floor. Relocation of the IFTs must be approved by the local Fire Marshal.

**Figure 2-5: Fire Exit Obstruction Marked**



### 2.2.5 Current Visual Upgrade Schedule

At first, FSS proposed to upgrade the visual systems at Sheppard in a single phase that would occur at the end of a year to take advantage of the Christmas holidays. FSS was instructed to divide the work into five phases, the intention being to eliminate the need to have the entire training facility inoperative for multiple weeks. Periods of performance for each phase of the visual upgrade at Sheppard AFB are:

- Phase-1: Upgrade IFTs s/n 071 & 077, the two IFT farthest from the roll-up door.
  - 8 Jul 2013 — 19 Jul 2013
- Phase-2: Test and disassemble IFTs s/n 078 & 079; upgrade OFT s/n 047. These are the two IFTs nearest to and the OFT farthest from the roll-up door.

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- 29 Jul 2013 — 23 Aug 2013
- Phase-3: Upgrade OFT s/n 066, the middle OFT.
  - 7 Oct 2013 — 25 Oct 2013
- Phase-4: Upgrade OFT s/n 074, the OFT nearest to the roll-up door
  - Nov 2013 — 26 Nov 2013
- Phase-5: Reassemble, upgrade, and test IFTs s/n 078 & 079, the two IFTs nearest to the roll-up door.
  - 9 Dec 2013 — 19 Dec 2013

### 2.2.6 Conclusion & Recommended Actions

Conclusion of the meeting is that movement of the IFTs is a good idea.

**Figure 2-6: Proposed New Location of IFTs**



#### 2.2.6.1 UTD Removal

Relocation of the IFTs should be facilitated by the local T6 maintenance staff moving the UTDs out of the way. Doing so will reduce the risk to the visual upgrade schedule.

#### 2.2.6.2 IFT New Location

Proposed new location of the IFTs is on the opposite side of the high-bay from the fire exit, in the space currently occupied by two UTDs, as shown in Figure 2-6 on page 5.

#### 2.2.6.3 Potential IFT Obstruction

A potential obstruction is the air duct shown in the top-left corner of Figure 2-6. Distance from the floor to the bottom of the horizontal section of duct is 15 feet. Height of the IFT enclosure is 11 feet. There is sufficient clearance between the top of the IFT and the bottom of the duct, including cleared allowance for the fire suppression sprinkler heads.

#### 2.2.6.4 Additional IFT Testing

Testing of the second IFT from the roll-up door was not planned under the original schedule as only the enclosure was to be removed. FSS movement of the IFT will require testing before and after the move, adding time to the schedule and days on site for the test engineer.

#### 2.2.6.5 IFT Move Cost & Schedule

FSS increases in cost and schedule can be mitigated by the local T6 maintenance staff taking responsibility for testing, un-cabling, re-cabling, and re-testing the IFTs and UTDs

### **2.2.6.6 New Floor Drilling**

In the new IFT location, the floor must be drilled to accept anchors for the IFT enclosure and for securing the seat actuator. This work will be additional labor for the FSS mechanics.

### **2.2.6.7 Fire Alarm Panels**

There is no need to move the fire alarm panels with the IFTs and UTDs. UTD fire alarm panels will need removal of a termination resistor when connected to an IFT. IFT fire alarm panels will need addition of a termination resistor when connected to a UTD.

### **2.2.6.8 Power Distribution Panels**

The UTD power distribution panels have enough capacity to serve the IFTs when the FTDs are swapped.

Base-CE is responsible for providing the correct configuration circuit breakers in each power distribution panel. It should be a matter of moving CBs from one panel to another.

### **2.2.6.9 Proposed New Upgrade Schedule**

A tentative visual upgrade schedule that includes moving two IFT is listed below; this schedule is subject to program management approval and change:

- Phase-1: Upgrade IFTs s/n 071 & 077, the two IFT farthest from the roll-up door.
  - 8 Jul 2013 — 19 Jul 2013
- Phase-2: Move IFTs s/n 078 & 079; the two IFTs nearest to the roll-up door.
  - 29 Jul 2013 — 16 Aug 2013
  - Predicated on T6 maintenance staff moving UTDs out of the way as well as testing, un-cabling, re-cabling, and re-testing the moved IFTs.
  - Predicated on Base-CE rearranging the power distribution panel CBs.
- Phase-3: Upgrade OFT s/n 047, the OFT farthest from the roll-up door.
  - 7 Oct 2013 — 25 Oct 2013
- Phase-4: Upgrade OFT s/n 066, the middle OFT.
  - Nov 2013 — 26 Nov 2013
- Phase-5: Upgrade OFT s/n 074, the OFT nearest to the roll-up door.
  - 2 Dec 2013 — 19 Dec 2013

This schedule moves the times when the roll-up door must be open for extended periods from summer to fall and winter, thereby reducing the risk to the HVAC system.

## **2.3 Facility Status & Location**

Building 2326 was purpose built to house the T6 flight simulators. It is located towards the 19<sup>th</sup> Avenue end of H Avenue. Figure 2-1 on page 2 shows an aerial view of the building. Figure 2-7

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on page 7 shows the northwest corner of the high-bay containing the T6 simulators, on the east side of H Avenue. Figure 2-8 on page 7 shows the access way to the parking lot on the north side of the building 2326 from 19<sup>th</sup> Avenue.

**Figure 2-7: Northwest Corner of T6 High-bay**



**Figure 2-8: Access to North Parking Lot from 19th Avenue**



## **2.4 Confirm Access Ways**

Interior and exterior access to the high-bay is adequate.

### **2.4.1 Exterior**

There is sufficient access to building 2326 and space to stage unpacking of equipment.

New top-caps will be unpacked and assembled outside the building before being lifted and moved inside using the shuttle lift.

Since there is no interior space available, the demolished electronic visual components will be set aside outside. It is Government responsibility to dispose of the removed visual components.



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Figure 2-9 & Figure 2-10 on page 8 show the exterior access space. If necessary, activity can be conducted on the concrete apron between the air conditioning plant enclosure and the north wall of building 2326, see Figure 2-9 & Figure 2-1.

## 2.4.2 Interior

As shown in Figure 2-4 on page 3, there are space constraints inside the high-bay. With the IFTs either disassembled or moved, the narrowest part of the central aisle is 9 feet. The shuttle-lift crane is less than 8 feet, 6 inches in width, which means there is enough room to maneuver the crane further into the high-bay, closer to the point of lift. Worst case will be making a longer-range lift with a 39-foot boom extension; a certified crane operator doesn't see this as a problem from a safety point of view.

**Figure 2-9: High-bay Door East View**



**Figure 2-10: High-bay Door West View**



## 2.5 GFE: Waste Disposal Container

The visual upgrade contract requires the waste disposal container to be GFE.

FSS will cut the old top-cap into 3-foot square segments and place them in the GFE container for disposal.

## 2.6 Potential Grassfire Hazard

Demolition and disposal of the old top-caps will require the use of a motorized concrete saw. In operation, this saw could produce sparks of hot aluminum particles that could ignite a grassfire. It would be worth having a base fire-crew standing by during cutting operations.

## 2.7 Confirm Power Distribution

FlightSafety will engage a licensed electrician to reconfigure the electrical distribution panel circuit breakers for the lower amperage visual equipment.



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## 2.8 Fire Alarm

FlightSafety will engage a licensed fire alarm technician to work with the base Fire Marshal reconnecting the fire alarm system.

## 2.9 Base Access & Hours of Work

Base access shouldn't be a problem at Sheppard AFB. FlightSafety will notify Tracy Davidson thirty days in advance of FSS arrival at Sheppard and coordinate base access and hours of work with him.

## 2.10 Information Assurance

For the purposes of Information Assurance (DoD 8500.2), the FTDs are considered an enclave of Platform IT (PIT); it is self-contained with no external network connections, either wired or wireless.

All computing devices are behind lockable doors; there are no exposed USB, network ports, or disk media drives. It is the responsibility of the local officials to secure the PIT components by locking the doors and access panels and controlling access to the building in which they are housed.

## 3 Acronyms & Abbreviations

AFB.....	Air Force Base
Base-CE .....	Base Civil Engineering
CB .....	Circuit Breaker
Col.....	Colonel
DoD.....	Department of Defense
DODI-8500.2 .....	Information Assurance Implementation
ENJJPT .....	Euro-NATO Joint Jet Pilot Training
FSS.....	FlightSafety Simulation Systems
FSSC .....	FlightSafety Services Corporation
FTD.....	Flight Training Device
GFE.....	Government Furnished Equipment
HVAC .....	Heating Ventilation & Air Conditioning
IA .....	Information Assurance
IFT.....	Instrument Flight Trainer
IT.....	Information Technology
JPATS .....	Joint Primary Aircrew Training System
Lt. ....	Lieutenant
NAS.....	Naval Air Station
NATO .....	North Atlantic Treaty Organization

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OFT.....Operational Flight Trainers  
PEO-STRI.....Program Executive Office for Simulation Training & Instrumentation  
                    (US Army)  
PIT.....Platform IT  
PO/QAR.....Project Officer / Quality Assurance Representative  
S/N .....Serial Number  
SOW.....Statement Of Work  
SPO .....Systems Program Office at Wright-Pattison AFB  
STOCII.....Simulation Training and instrumentation Omnibus Contract number two  
                    (a US Army contracting vehicle)  
USB.....Universal Serial Bus  
USN.....United States Navy  
UTD .....Unit Training Device