PART III- Product Overview & Specification

3.1 RFFT- Real Fire Fighting Trainer

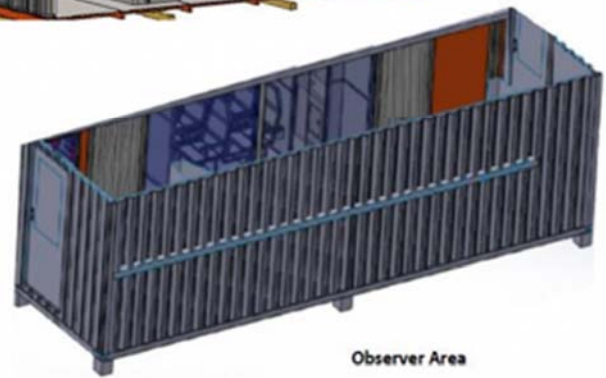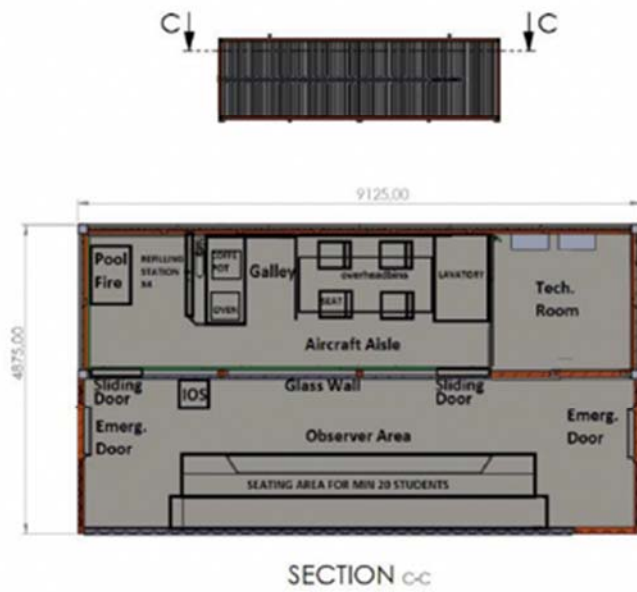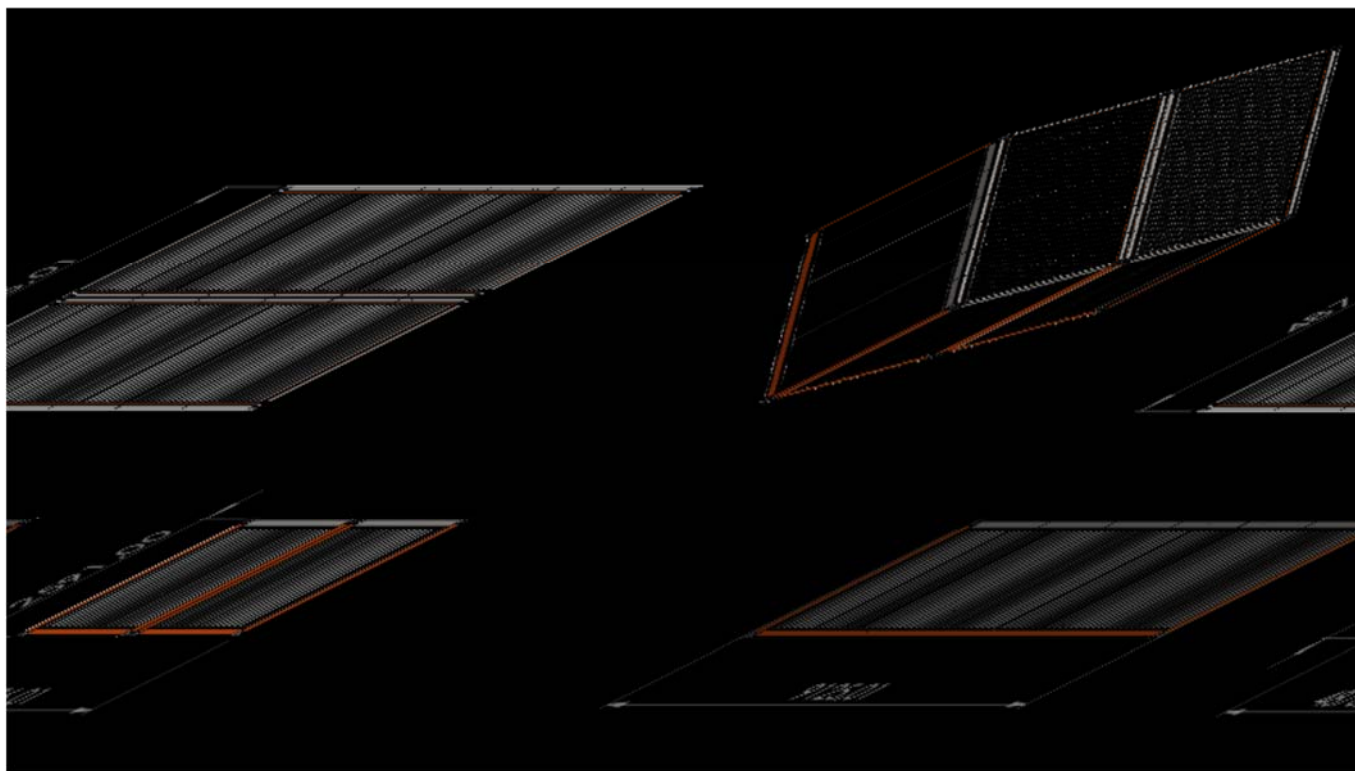FIRE TRAINING AREA

WIEVING AREA

Training Compartment Overview

- The RFFT Device can be installed Indoors or Outdoors
- RFFT installation with adjustable metal legs
- Easy relocation possible
- The device will guarantee total rustproof construction and maximum sustainability along with safe, easy cleaning and comfortable atmosphere for end users.
- There will be a **Galvanized** metal base under the compartment.
- RFFT interior materials available:
    - **Fire Training Area**: Stainless Steel and Aluminium floor.

- o **Technical Room & Gas Bottle Storage**: Composite, aluminium, painted metal
- Observation window between will be a Safety **Glass**
- Aluminum doors with panic handle installed at EXIT door (inside).
- Main door will have window.
- Floor in the Fire Training Area will be of <u>non-slip</u> aluminium
- Exit lights will be provided above the exit door.
- The device will be composed of two different containers. One for training exercises and another will be used for observation room.

SECTION C-C

9125.00

4875.00

Pool Fire | REFILLING STATION X4 | COFFEE POT | Galley | overhead bins | LAVATORY | Tech. Room
OVEN | SEAT
Aircraft Aisle
Sliding Door | IOS | Glass Wall | Sliding Door
Emerg. Door | Observer Area | Emerg. Door
SEATING AREA FOR MIN 20 STUDENTS
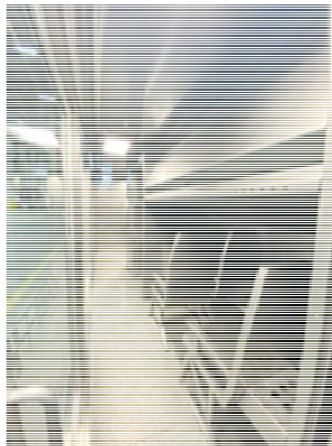
Training Area

Observer Area

Fire Fighting Drills

- Fire burners are stainless steel and dry burner types.
- Fires are **Automatic** with Sensors and **Manual** with Remote Control.
- Both systems are standard in Skyart
- Each fire source's functionality can be modified as required and required fire source must be confirmed by the customer.
- Smoke quantity will be adjustable for each fire location.
- The seat fie will have short circuited effect that can be switched off by the instructor
- Propane gas will only be used for generating the flames.
- Dry burners will be used to generate the flames in various scenarios.
- The burner units will not cause any soot deposition to the device cabin interior.
- The burner unit ignition will be resistant against water to ensure uninterrupted operation.
- All technical installations that do not belong to the real aircraft interior will be out of sight.
- The accuracy of the extinguishing action will be displayed on the IOS.
- The oven fire will have a functional master galley switch. In case this switch is not de activated, the fire will automatically relight. The timing for relight will be settable.
- The seat/IFE fire will have a functional master IFE switch. In case this switch is not de-activated, the fire will automatically relight and the timing for relight will be settable.
- The lavatory waste bin fire will have a glowing spot. Unless the glowing spot was extinguished by dousing with water, it shall remain on.
- The duration of the extinguishing action and the level of difficulty can be configurable.
-

Common fire drills are (In this proposal 6 fire sources are inclusive):

- (L) Lavatory Fires with Glowing Spot in waste bin (with Smoke Alarm Light & Sound)
- (G) Oven Fire in the Galley (On/Off switch and breaker)
- (S1) Seat Fire (fire under the seat bench; for ex. in IFE Box)
- (S2) Seat Fire (fire at back side of the seat back rest)
- (HR) Over Head Bin Fire (opens upwards)
- (LB) Lithium Battery Fire (Laptops and smart phones)
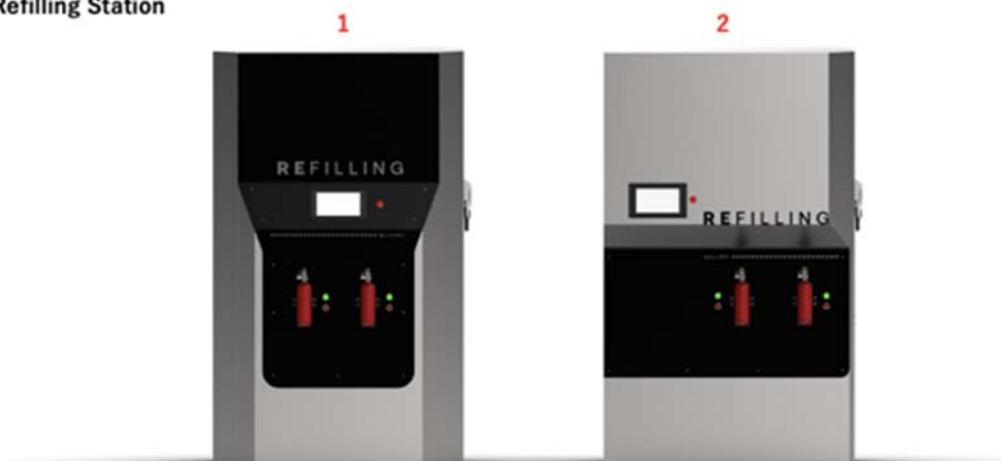- Smoke training (smoke filled cabin environment only)

FIRE TRAINING AREA

1-Refilling   2-Galley   3-Cabin   4-Lavatory   5-Technical Room

1-Refilling Station

1

2

The extinguisher refilling station will have following features.

o Automatic Refilling Station for ordinary aircraft fire extinguishers. The realistic 1.0 or 1.2 kg handheld model fire extinguishers will be provided and can recharge **2 fire extinguishers in max 17 seconds**. The system will be provided with pumps and reservoir tank. And 2 additional spare fire extinguishers will be provided by Skyart.
o The fire extinguishers will be approved for unlimited refilling cycles.
o Water with compressed air as propellant will be used as extinguishing agent.
o The extinguisher will give a proper stream appearance similar to the appearance of a Halon.
o The fire extinguishers will have a safety pin and the indication, for training only.
o The extinguisher will not be necessarily empty when its placed in the station
o The extinguisher will be locked during the refilling process.
o The refilling station will have a dedicated compressor for the compressed air with auto drain functionality. No external equipment will be required.
o The station will be a modular and easily exchangeable.
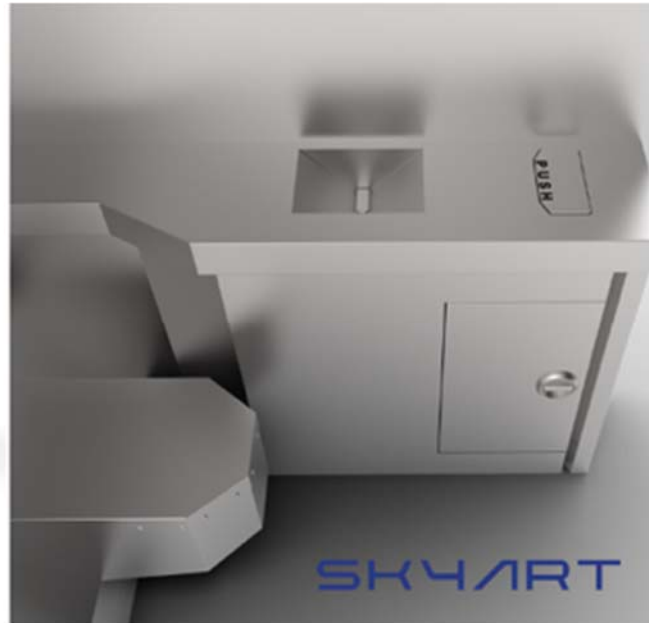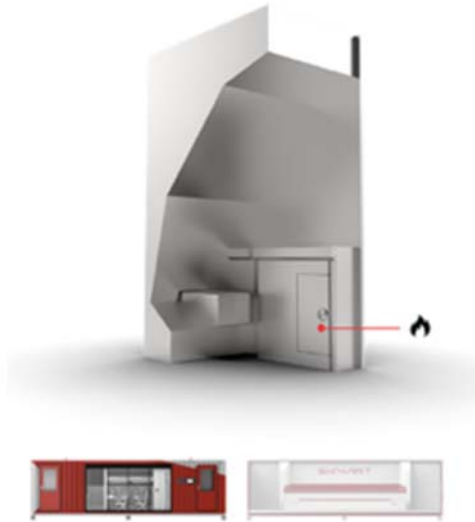
2-Galley Fire

3-Cabin & PED Fires
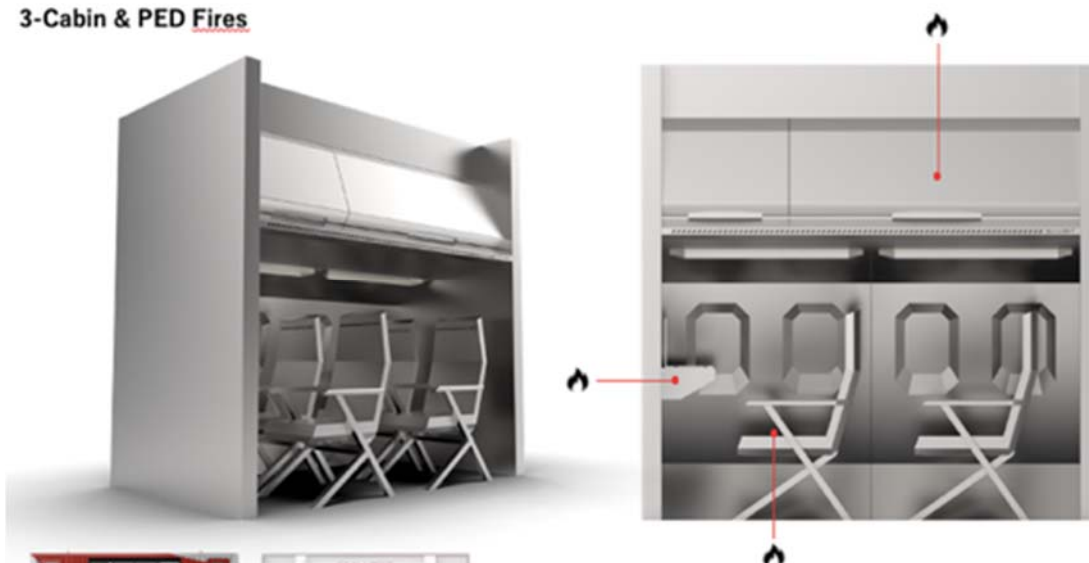
4-Lavatory Fire

5-Technical Room

The technical room will have following features;

- It will be lockable.
- Equipped with gas detection system.
- The computer and operating system of the RFFT will be situated in the technical room.
- The system will have an internet connection in order to receive manufacturers software updates, and online technical assistance.

WIEVING AREA

The Viewing Area (observation area) will have a capacity of 18-22 trainees. There will be;
- o   Double decker seat group with faux leather cushion
- o   Storage chest underneath the seating groups
- o   2 main door to the observer room
- o   Air conditioning- split version
- o   Aluminium doors with panic handle installed at Exit door.
- o   Exit lights will be provided inside the observer area.

RFFT IOS Features

- PLC and Touch IOS operating panel to be used.
- MIOS tablet will be provided.
- Skyart RFFT Software 2024 to be used.
- Cordless Remote Control to operate fires.
- From the IOS the Instructor can select all required RFFT functions for fire drills
- IOS software is self-guiding and easy to use.
- RFFT safety features are automatic.
- Emergency Stop can be also activated from Emergency Stop buttons.
- RFFT ventilation is automatic but can be easily boosted by Instructor when required during the fire and smoke drills.
- A phone will be installed adjacent to the oven fire area to simulate communication between cabin and the cockpit.
- Instructor can also be able to communicate via microphone with trainees and able to give instructions to trainees via IOS panel.
- Parameters for smoke per fireplace, training time, difficulty level and relight time for fires will be configurable.
- The instructor will receive automatic feedback on the IOS about the result of the drill (FAILED-PASSED)

Safety

- There is an automatic RFFT Safety precaution in the system. Gas alarm or temperature alarm will start the Emergency Stop functions.
- Dräger CO sensor in firefighting area will be available.
- We will install minimum **3 Emergency Stop buttons.**
- Ventilator is Heat Protected and with industrial approvals.
- Natural drainage in the RFFT
- RFFT Alarm System with light and sound indicators
- The alarm can be also transferred to end user's main building or security office if required.
- Fire control sensors.
- Over temperature control systems
- Airflow monitoring system
- Emergency lights
- Panic escape handle.
- Alarm Sound system.
- Anti slippery safety floor
- Airflow fault indication
- Smoke fluid low indication.
- Gas low indication
- Gas empty indication
- Pilot burner fault indication
- Main burner fault indication
- Water supply fault indication
- Refilling station fault indication
- Leak-test ok/fault indication.
- De-calcifier fault indication
- Routine maintenance indication
- EX-PROOF ventilation

- All interior parts in the drill area will be made out of stainless steel. The fire trainer drill area cabin will be non-flammable.
- As part of the start-up procedure, a gas leak test will automatically be performed in order to secure the gas network is free of any leaks.
- Automatic pre-purging of the training room will be a apart of the start-up procedure.
- Flames will be ignited by means of monitored pilot flame; electronic ignition is not permitted.
- The maximum ventilation rate will be provided.
- An air flow sensor will monitor the air flow.
- The smoke will not have any negative effects on human's health. Documentation with proof will be provided.
- An industrial fail-safe gas detection system with a minimum of four infra-red gas detection sensors will be installed.
- A temperature sensor will be installed to control the room and extraction duck temperature
- A minimum 3 emergency stop buttons will be installed in the device.
- An alarm light and horn at the outside of the device will be activated in case a gas concentration reaches a predefined value.
- Evacuation and orientation lighting on the ceiling will be provided
- An emergency stop will automatically be activated in case the inside temperature reaches a predefined value.

Standards-End User

- EASA and FAA are not giving clear indications for RFFT Trainers design nor requirements.
- Local Civil Aviation Authorities in some countries has given some "soft instructions", but officially in writing hardly anything.
- There are no common technical requirements to design and build the RFFT type fire trainers.
- There is no CE-Certificate number nor any standard in European Union (EU) for RFFT type fire trainers.
- There is no common standard in USA to design or build RFFT type fire trainers.
- **Skyart is following carefully all industrial approvals available and safety requirements** available.
- Skyart RFFT Trainers will be designed and constructed using <u>CE Certified Components</u> when aclicable to make RFFT as **CE Compliance** by following all relevant regulations and safety standards. <u>Declaration of CE Compliance Conformity</u> will be provided by authorized CE Certification engineer.
- RFFT Trainer Safety for the users is the main issue when designing and building this kind of trainers
- End user must provide an installation platform or plates for RFFT; made from **concrete**, which will be able to carry the RFFT Trainer's weight.
- **<u>End user shall provide following supplies:</u>**

- Power supply (230/400V, 50 Hz); or the power available at end user's site
- Clear water supply with normal Tap Water pressure
- Gas Bottle(s) for RFFT Fire Drills use (Propane or equivalent LPG Gas, for ex. 2 x appr. 11 kg
- Internet connection if the end user requires.
- Telephone land line cable if the end user requires.
- Alarm Cable from RFFT to the main building if the end user requires.
- High-Pressure Air Compressor is inclusive.

Electric Network and Distribution Cabinet

- Power as per locally available
- Operational power 24V / 12V in the RFFT components
- PLC / Touch IOS operating panel
- Tiny Remote Control to operate the fires.
- Inverter for Main Ventilator's automatic functionality

Remote Access System

- We provide Internet Access from our service hub to RFFT.
- Customer shall provide Internet connection or SIM card connection for service hub use.

User and Maintenance Training

- RFFT Operator Training for customer Instructors
- RFFT Operator & Maintenance Training for customer Technicians
- Fundamentals of Fires & Burning Training for Instructors

Documentations

RFFT will be handed over to the Customer with two master booklets. These will be in printed and digital formats. The booklets will be updated if there are any changes to the configuration in the future.

- User - Maintenance Manual
- Electric Drawings
- Pneumatics Schematic Drawing
- Gas System Schematic Drawing
- List of Recommended Spare Parts
- Installation manual

Warranty

- **36** months warranty is standard in European Union

Customer Support

- 24 / 7 / 365 - Free of charge for all Skyart RFFT Clients
- Support for RFFT operational questions, RFFT functionality, questions concerning spare parts, support required for training questions.
- <u>Contacts</u>: Via service hub email, service hub WhatsApp and service hub mobile telephone