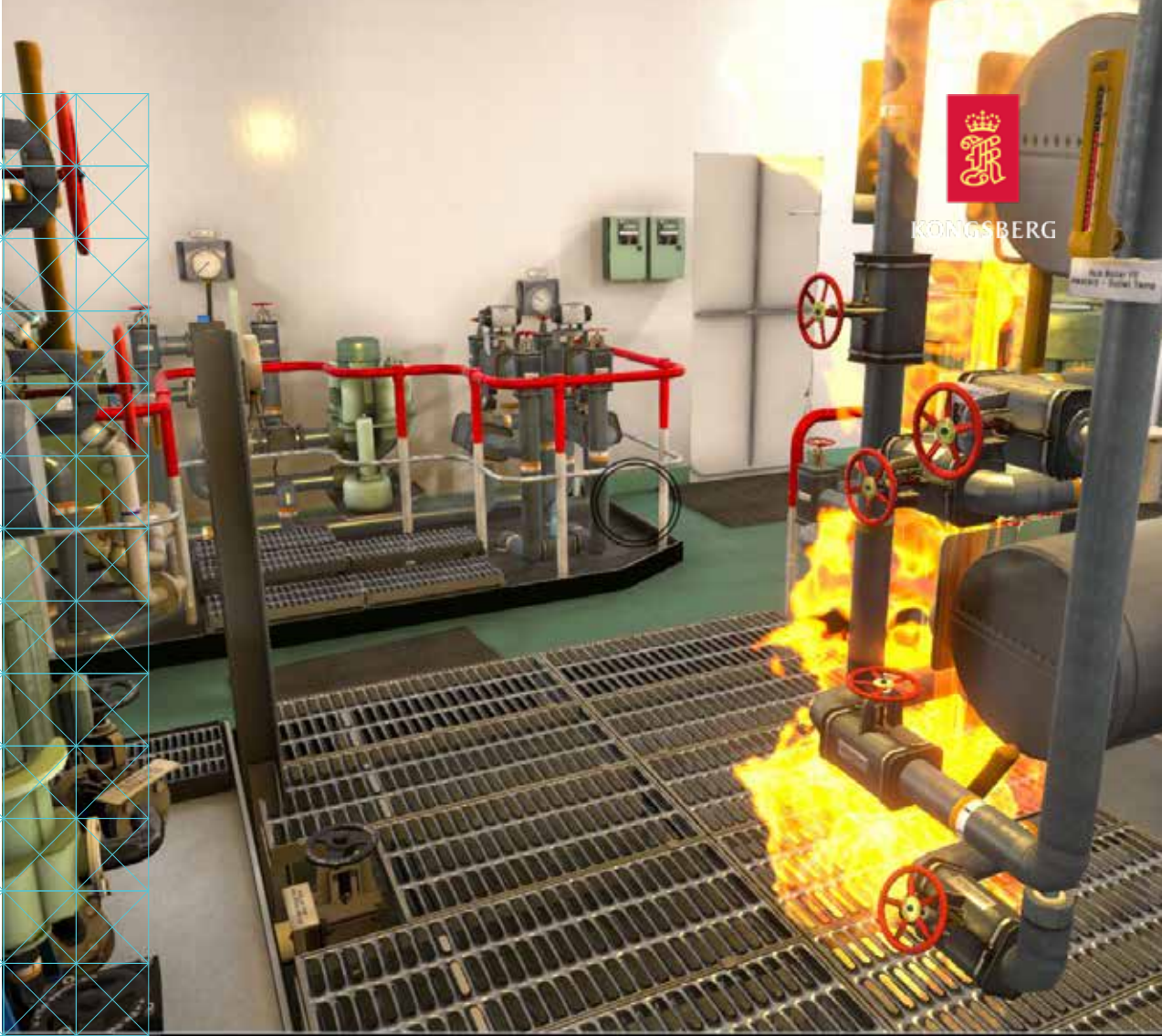# K-SIM® SAFETY

MEETING THE STCW TRAINING REQUIREMENTS

K-Sim Safety enables practical exercises simulated in a realistic environment and meets the STCW regulation VI/3, section A-VI/3 table A-VI/3-1, where methods for demonstrating competence in firefighting, search and rescue onboard are described as:

- Control firefighting operation onboard ships

- Organize and train fire teams

- Inspect and service fire detection and extinguishing systems and equipment
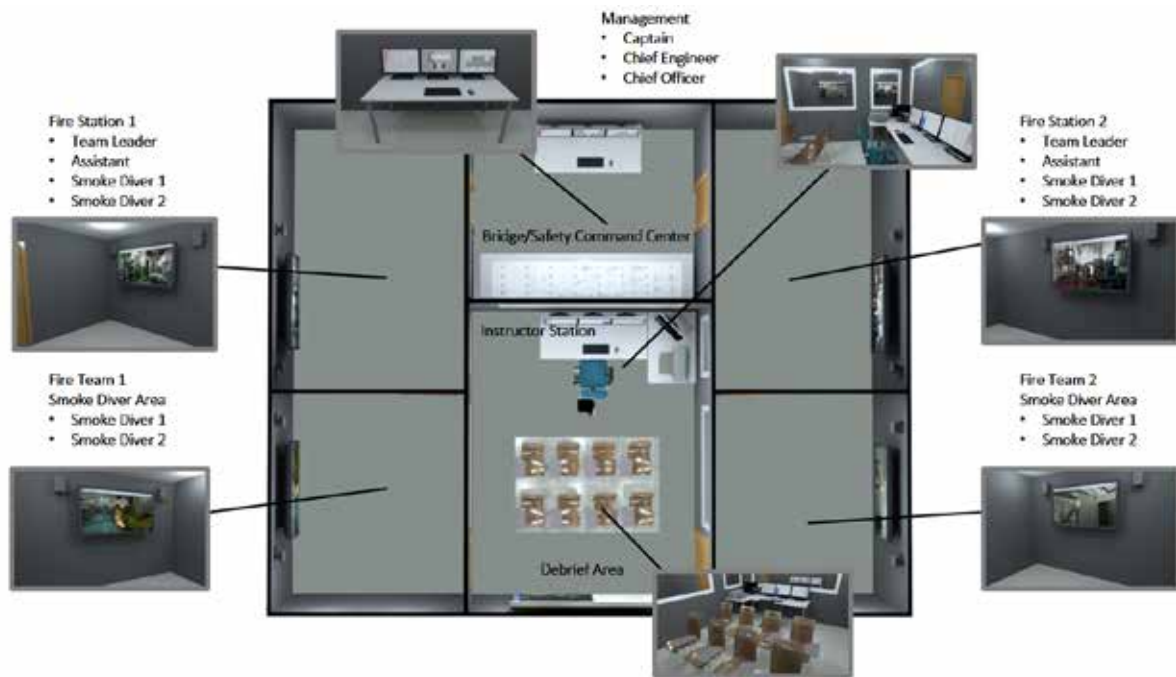
ADVANCED FIREFIGHTING TRAINING SYSTEM

K-Sim® Safety

K-Sim Safety is a simulation system, specifically made to practice management and execution of procedures for firefighting as well as search and rescue operations onboard a vessel. With an immersive 3D virtual environment, the simulator system provides a realistic, safe and cost effective enhancement of live practical training for safety professionals.

Vital training in fire prevention and firefighting techniques

Personnel on board a ship must be able to handle incidents of fire while the ship is at sea. Traditional training methods can be complex, costly and time consuming, placing pressure on both company and crew. However, this can be negated using detailed simulation training.

K-Sim Safety allows emergency crews to experience an incident as if it happened in real-life. During an exercise, they can assess the situation and determine the best response strategy, implement it and then observe the consequences of their decisions during a debriefing afterwords.By using K-Sim Safety, realistic and cost-efficient critical training can be carried out for ship safety, ensuring competence in fire prevention and firefighting techniques.

Fire Station 1
- Team Leader
- Assistant
- Smoke Diver 1
- Smoke Diver 2

Management
- Captain
- Chief Engineer
- Chief Officer

Fire Station 2
- Team Leader
- Assistant
- Smoke Diver 1
- Smoke Diver 2

Bridge/Safety Command Center

Instructor Station

Fire Team 1
Smoke Diver Area
- Smoke Diver 1
- Smoke Diver 2

Fire Team 2
Smoke Diver Area
- Smoke Diver 1
- Smoke Diver 2

Debrief Area

Onboard management of fire-fighting, searh and rescue

Bridge/safety command center

The K-Sim Safety solution includes a full mission simulator, which can train up to three different teams at the same time; typically one management team and two firefighting teams.

In an emergency situation the management team (often consisting of the Captain, the Chief Engineer and the Chief Officer), will meet at the bridge/safety command center. Their main task is to manage the firefighting by communication to the other internal teams as well as external communication using radio. The bridge/safety command center is equipped with an Integrated Automation System (IAS) and safety panels giving an overview of the emergency situation, supporting the management team to take critical decisions.

Fire control and safety plan

K-Sim Safety includes a fire control and safety plan, which is a mandatory requirement of the SOLAS convention onboard ships. The plan is located at selected locations on the ship and provides detailed information about fire stations, type of fire detection and firefighting systems available onboard.

Main training elements:
- Communication
- Management training
- Familiarization with emergency exits
- Location of firefighting equipment
- Compare general arrangement (GA) drawings with real life
- Finding missing persons & evacuation
- Blackout training
- Flooding
- Desicions and assessment of consequences

FIRE CONTROL AND SAFETY PLAN

Virtual reality

The full mission training system includes two separate fire team muster stations (fire station 1 and 2) with detailed 3D virtual hotel & machinery space application, comprising an interactive walk-through virtual animation of the entire engine room and four upper decks.

The simulator features detailed of visual models such as equipment for the fire teams, doors, fire doors, lights, fire, smoke and people. Corridors, stairs, cabins, offices, lockers, storages, emergency exits and muster stations including firefighting and lifesaving devices are all available in the 3D environment.

During an exercise, each fire team may consist of a team leader, an assistant and two smoke divers who can train on procedures and vitually walk around selected areas of the ship. K-Sim Safety facilitates training on emergency communication, the use of extinguisher equipment and search for missing persons. Training of communication between the teams is also extremely important,since errors are a main cause of fatal accidents.

A X-Box controller is used for navigating around the ship. When a situation requires the smoke divers to split from their managers, they can continue into the virtual smoke diver's area with their own monitor and X-Box controller.

Visual effects, simulated functionality in 3D:
* Fire & smoke
* Flooding
* Electrical lighting control (normal and emergency light, blackout)

* Ventilation control panel
* Missing persons (Victims)
* Fire team presence
* Smoke diver outfit
* Fire extinguisher equipment

Instructor control & Assessment sytem

K-Sim Safety includes the same state-of-the-art instructor, monitoring and assessment system as KONGSBERG's K-Sim Engine and -Cargo simulators. It is developed in close cooperation with experienced instructors worldwide, the Norwegian Maritime Directorate and DNV GL, with user-friendliness and efficiency firmly in focus.

The Instructor system enables a complete overview of the situation. It can easily configure different types of emergency scenarios like fire, smoke, blackout, flooding and missing persons. Scenarios and fault-settings can either be pre-programmed or manually set by the instructor during the exercise to dynamically challenge the teams.

Monitoring of exercise as well as recording and replay of scenarios allows instructors to have full control of crew performance and to , while enabling in depth debriefing after exercises.

The assessment system enables automatic evaluation of performance in the exercise. The Instructor has the possibility to print out assessment reports for each individual student reflecting his/her performance on different variables, including pass or fail.

3D - Fire in the steering gear room

3D - Search for fire and missing persons in the upper deck area

3D - Flooding in the main engine area

Instructor room where configuration and monitoring of exercises takes place
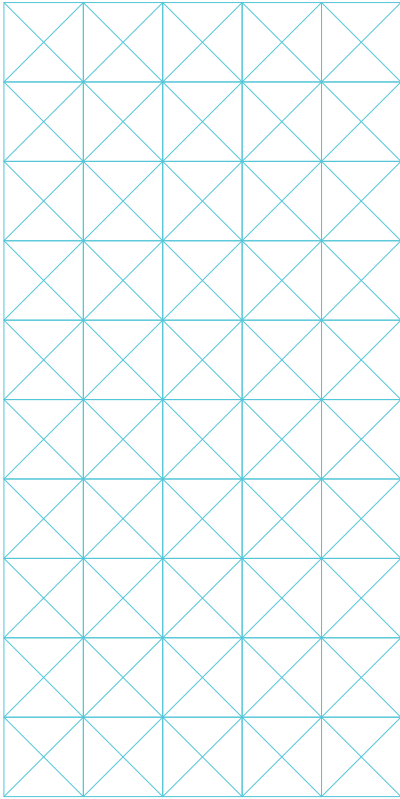
Integrated training

The K-Sim Safety system can be integrated with the K-Sim Engine simulator L11ME-SCC, the K-Sim Cargo simulator SCC-II and the corresponding K-Sim Navigation ship model, enabling the ultimate integrated crew training.

Model description

The simulated vessel model is s a 152,000 dwt double hull Suez Max crude oil carrier with 7 decks. The model is based on real general arrangement data, which ensures that the layout of the simulator is close to the real ship.

The simulator contains a 3D interactive walkthrough software of selected areas in the simulated ship.

Vessel's Main Particulars

Length:	269.00 m
Breadth:	46.00 m
Draught, moulded:	24.40 m
DWT, scantling:	55.00 mt
Speed:	15.5 knots
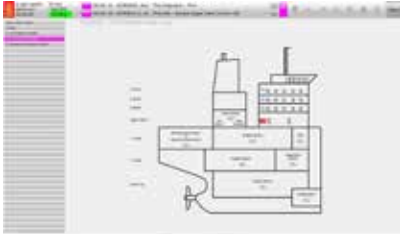
Simulated systems
- Integrated Automation System (KONGSBERG's standard IAS)
    - Alarm and safety warning system
    - Fire detection
    - Air ventilation
    - Water mist
    - Fire and general service system
- Fire protection panel
- Fire detection sysetm
- Electrical lighting control (normal- and emergency light, blackout)
- Ventilation control panel
- Water mist control panel
- Flooding control
- Virtual walkthrough presentation and operation of the ship hotel and engine room
- CCTV of selected areas