Smoke and fire propagation in large public spaces on-board of cruise vessels

- Assessment of
  - smoke and fire propagation
  - usability of escape routes
  - effects of fire on structures

- Finding of information on smoke layer height, concentrations of toxic gases and heat flux

- Simulation of influences of fire safety systems e.g. smoke exhaust and ventilation systems

- Intervention by fire detection and suppression systems

- Combined consideration of fire simulation and evacuation processes

- Customers benefit from identification of weak points and recommendations for improvement of fire safety
Benefit Case - Fire Safety Analysis

SITUATION AND CRITICAL ISSUE

Enlarge vertical zone of cruise ship
A shipyard desired to increase the capacity of a main dining room aboard a cruise ship by enlarging a main vertical zone (>48m)

DNV GL was asked to demonstrate equivalent safety of the proposed alternative design according to SOLAS II-2/17 and MSC/Circ.1002

DNV GL SOLUTION

- Hazard Identification and ranking of possible fire scenarios
- Specification of fire and evacuation scenarios for quantification
- Fire simulation calculations (zone and/or CFD based)
- Evacuation simulations (AENEAS)
- Fire risk calculations
- Propose of (fire) risk control measures
- Documentation of acceptable fire safety and equivalency to SOLAS design

VALUE DELIVERED

- Elaboration of risk mitigating measures for alternative design
- Ensure a high level of fire safety by assessed alternative design
- Chance of innovative design to create wide open rooms and/or large public spaces
- Customer followed DNV GL’s recommendations and achieved approval

For more information please contact: Daniel.Povel@dnvgl.com

MA services and benefit cases
Evacuation Analysis

- Performance-based assessment of evacuation concepts and overall onboard traffic
- Agent-based method considering persons with individual demographic properties
- Analysis of evacuation scenarios with determination of required travel times to e.g. muster stations and life boats (LSA)
- Compliant with IMO MSC.1/Circ. 1238
- Certified by the German Flag administration BG-Verkehr
- Customers benefit from reduced port time by shorten process times of check-in or boarding situations

Microscopic simulation of evacuation process

MA services and benefit cases
Benefit Case - Evacuation Analysis

SITUATION AND CRITICAL ISSUE

Traffic Performance

A Shipyard desired to improve processes of passenger handling on an existing cruise vessel

DNV GL SOLUTION

- DNV GL performed an analysis of the performance of the existing cruise vessel
- We identified room of improvement and proposed process modifications to the customer

VALUE DELIVERED

- Reduced port time by shorten process times of check-in or boarding situations
- Increased time for day trips of passengers by effective handling
- Customer followed DNV GL’s recommendations and achieved a better process of passenger handling

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