Table 10.12.: Jet Fan Smoke Clearance System

ITEMS	REQUIREMENTS
9. CFD GUIDELINE	**1. FIRE SIZE** i. The design fire size shall be based on at least 4 MW steady-state fire (i.e. car fire). For a general goods vehicle, the design fire size shall be based on at least 10 MW steady state fire. **2. TYPE OF FIRE** i. The type of fire shall be flaming polyurethane. **3. LOCATION OF FIRE** i. Generally, the fire should be located furthest away from the exhaust or discharge points and in between zones. The relevant Professional Engineer or Fire Safety Engineer should decide on the fire location(s) that is (are) deemed most demanding. **4. DOWN-STAND BEAMS AND OTHER OBSTRUCTIONS** i. The CFD model shall take into consideration the presence of any down-stand beams and other obstructions that are of depths of more than 1/10 of the floor to ceiling height of the volume so as to account for any resistance to airflow and turbulence. **5. JET FAN VELOCITY PROFILE** i. The validation model of the velocity profile is to be carried out for a single jet fan. The data from the model shall be compared against physical test data. As such, the jet fan shall be tested for a velocity profile by an accredited testing laboratory for comparison with the simulated velocity profile. The test report is to be attached to the Fire Engineering Report. ii. The equation to be used for the deviation between the CFD profile and actual test profile is as follows: Deviation = [(A-B) / B] X 100% , Where: A = distance/width/height from CFD profile , B = distance/width/height from actual test profile iii. The deviation of the distance, width and height of the actual profile from the simulated profile at the various air velocities should be within 10%. **6. DURATION OF FIRE SIMULATION** i. The duration of the fire simulation shall be at least 20 minutes. **7. SPRINKLER ACTIVATION** i. The model shall assume there is no sprinkler activation for the design fire size specified in **Table 10.12.9.1.**