EVALUATION OF DAMAGING EFFECTS OF EXPLOSIONS ON HUMANS USING ANTHROPOMORPHIC TEST DEVICE

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The conventional explosions in general are primarily accompanied with blast, ground shock, fire and high velocity projectiles. The intensity and proportion of these effects depend on the configuration of the explosions. The damaging effects of explosions are a matter of great concern and consideration in the design of blast resistant and hardened facility. An attempt has been made to study the effects of explosions on human beings by using Anthropomorphic Test device (ATD). A highly instrumented Anthropomorphic Test Device (ATD) was subjected to the blast and shock effects of an explosion of 2 kg and 6 kg TNT. The blast pressures impinging at different parts of the ATD were measured using dynamic blast probes. The accelerations, forces, and displacements experienced by the ATD at its different parts were measured by using embedded sensors in the dummy. The paper presents the analysis of the results and their correlation with likely injury to the human beings when exposed to the blast and shock effects of explosions

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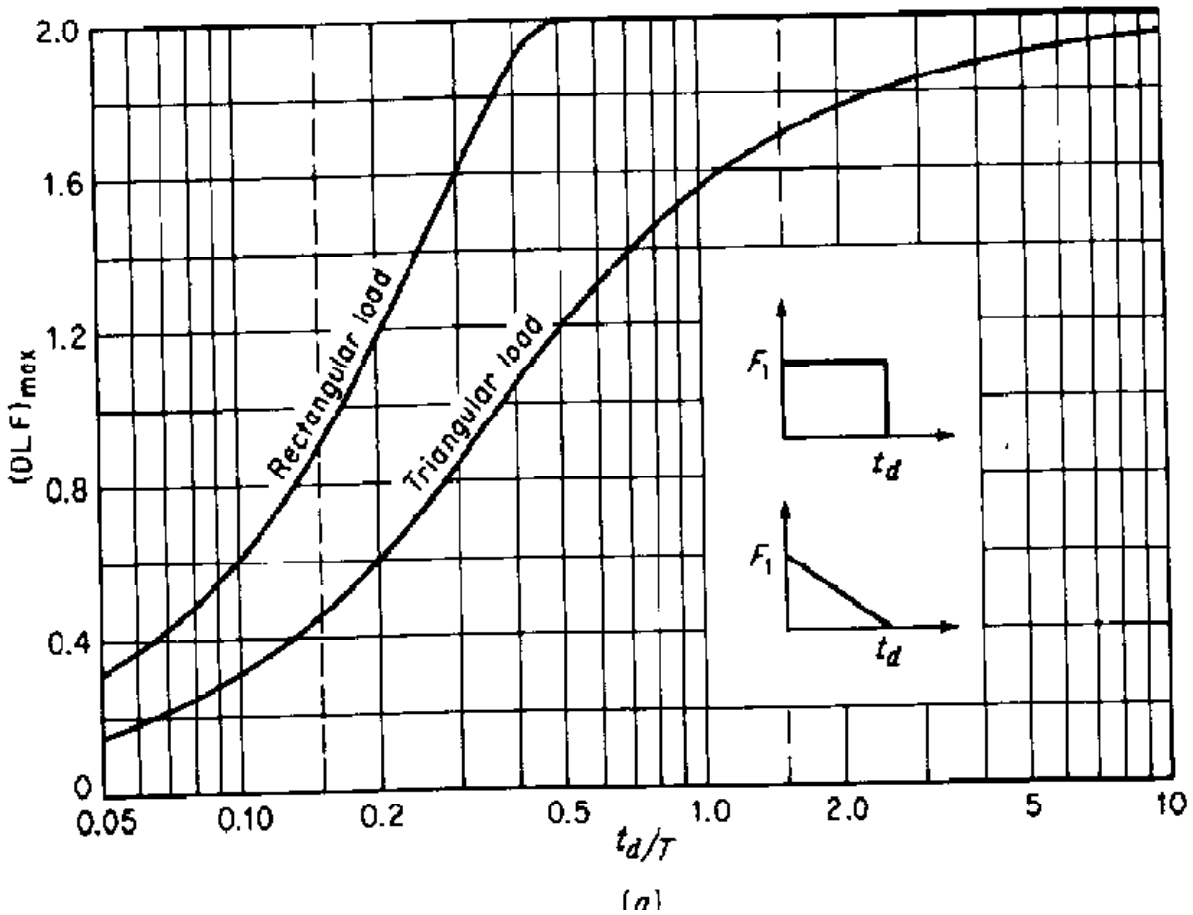
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1.2
0.8
0.4
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Rectangular load
Triangular load
F_1
t_d
F_1
t_d
0.05
0.10
0.2
0.5
1.0
2.0
5
10
t_d/T

(a)