CLAIMS

1. An insulated fire panel shutter adapted to close off an area including:

a guide, adapted to receive a shutter and having one or more retractable members moveable between a retracted and extended position; and

a shutter, moveable between an open and closed position and formed from a plurality of panels each of which is moveable between a stowed and deployed position;

their arrangement being such that as the guide receives the shutter during shutter closure the panel arrangement alters from a stowed side by side relationship to a deployed stacked end to end relationship.

2. An insulated fire panel shutter as claimed in claim 1, wherein the shutter is adapted to bias the one or more of the retractable members into the retracted position as the shutter moves from its open to its closed position and when in the closed position, the shutter no longer biases the one or more retractable members enabling the one or more retractable members to move from the retracted to the extended position, enabling the guide to engage the front and rear face of the or each panel.

3. An insulated fire panel shutter as claimed in claim 1 or claim 2, wherein some or each of the panels are stowed in an parallel overlying front face to rear face facing staggered relationship when the shutter is in the open position.

4. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein during movement of the shutter, at least one panel undergoes translational movement in two directions, the final position of the panel being parallel with but within a different plane to the first.

5. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the guide is fitted with one or more intumescent strips.

6. An insulated fire panel shutter as claimed in claim 5, wherein at least one intumescent strip

is fitted to a retractable member.

7. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the or each retractable member is fitted with a camber adapted to eliminate the bias exerted on the or each retractable member by the shutter when the shutter is in the closed position.

8. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the or each panel includes a plurality of metal components, which do not contact each other in the finished panel to form an insulated metal panel.

9. An insulated fire panel shutter as claimed in claim 8, wherein the metal panel includes:

a) a frame having a front and rear face;

b) a sheet of material fitted to and extending across the front and rear faces of the frame; and

c) a thermally resistant wadding housed within the volume between the sheets of material and perimeter of the frame.

10. An insulated fire panel shutter as claimed in claim 8 or claim 9, wherein the frame is metal and the exterior faces of the sheets of material are covered with a metal sheet in a sliding fit arrangement.

11. An insulated fire panel shutter as claimed in any one of claims 8-10, wherein the wadding comprises a ceramic material and a silica fabric material.

12. An insulated fire panel shutter as claimed in any one of claims 8-11, wherein the metal is steel.

13. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein when the shutter is closed, the metal components forming each of the panels do not contact each other.

14. An insulated fire panel shutter as claimed in claim 13, wherein the metal components between adjacent panels are kept apart by a separating member.

15. An insulated fire panel shutter as claimed in claim 14, wherein the separating member is a

ceramic material.

16. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein movement of the shutter is actuated by a chain and sprocket mechanism powered by a driver motor.

17. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the guide is a vertical guide in its normal attitude of operation.

18. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the panels forming the shutter are provided with complementary inter-locking members adapted to lock the panels together once the shutter is formed.

19. An insulating fire panel shutter as claimed in claim 18, wherein the complementary inter-locking members extend across the length of each panel.

20. An insulated fire panel shutter as claimed in claim 18 or claim 19, wherein the complementary inter-locking members are in the form of a tongue and groove arrangement.

21. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the shutter once formed is also provided with a flexible flame baffle sheet adapted to span any gap between the top of the shutter once formed and the top of a doorway to which the insulated fire panel shutter is fitted to.

22. A building or structure incorporating an insulated fire panel shutter as claimed in any one of the preceding claims.

CLAIMS

1. An insulated fire panel shutter adapted to close off an area including:

a guide, adapted to receive a shutter and having one or more retractable members moveable between a retracted and extended position; and

a shutter, moveable between an open and closed position and formed from a plurality of panels each of which is moveable between a stowed and deployed position;

their arrangement being such that as the guide receives the shutter during shutter closure the panel arrangement alters from a stowed side by side relationship to a deployed stacked end to end relationship wherein the shutter is adapted to bias the one or more of the retractable members into the retracted position as the shutter moves from its open to its closed position and when in the closed position, the shutter no longer biases the one or more retractable members enabling the one or more retractable members to move from the retracted to the extended position, enabling the guide to engage the front and rear face of the or each panel and wherein some or each of the panels are stowed in an parallel overlying front face to rear face facing staggered relationship when the shutter is in the open position.

2. An insulated fire panel shutter as claimed in claim 1, wherein during movement of the shutter, at least one panel undergoes translational movement in two directions, the final position of the panel being parallel with but within a different plane to the first.

3. An insulated fire panel shutter as claimed in claim 1 or claim 2, wherein the guide is fitted with one or more intumescent strips.

4. An insulated fire panel shutter as claimed in claim 3, wherein at least one intumescent strip is fitted to a retractable member.

5. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the or each retractable member is fitted with a camber adapted to eliminate the bias exerted on the or each retractable member by the shutter when the shutter is in the closed position.

6. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the or each panel includes a plurality of metal components, which do not contact each other in the finished panel to form an insulated metal panel.

7. An insulated fire panel shutter as claimed in claim 6, wherein the metal panel includes:

a) a frame having a front and rear face;
b) a sheet of material fitted to and extending across the front and rear faces of the frame; and
c) a thermally resistant wadding housed within the volume between the sheets of material and perimeter of the frame.

8. An insulated fire panel shutter as claimed in claim 6 or claim 7, wherein the frame is metal and the exterior faces of the sheets of material are covered with a metal sheet in a sliding fit arrangement.

9. An insulated fire panel shutter as claimed in any one of claims 6-8, wherein the wadding comprises a ceramic material and a silica fabric material.

10. An insulated fire panel shutter as claimed in any one of claims 6-9, wherein the metal is steel.

11. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein when the shutter is closed, the metal components forming each of the panels do not contact each other.

12. An insulated fire panel shutter as claimed in claim 11, wherein the metal components between adjacent panels are kept apart by a separating member.

13. An insulated fire panel shutter as claimed in claim 12, wherein the separating member is a ceramic material.

14. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein movement of the shutter is actuated by a chain and sprocket mechanism powered by a driver motor.

15. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the guide is a vertical guide in its normal attitude of operation.

16. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the panels forming the shutter are provided with complementary inter-locking members adapted to lock the panels together once the shutter is formed.

17. An insulating fire panel shutter as claimed in claim 16, wherein the complementary inter-locking members extend across the length of each panel.

18. An insulated fire panel shutter as claimed in claim 16 or claim 17, wherein the complementary inter-locking members are in the form of a tongue and groove arrangement.

19. An insulated fire panel shutter as claimed in any one of the preceding claims, wherein the shutter once formed is also provided with a flexible flame baffle sheet adapted to span any gap between the top of the shutter once formed and the top of a doorway to which the insulated fire panel shutter is fitted to.

20. A building or structure incorporating an insulated fire panel shutter as claimed in any one of the preceding claims.