

Manufacture of ~~CS~~ a castellated beam.

For long-span beams tailored to any loading condition, plate girders are custom designed and fabricated.

| Material | Working strength in Tension ^a | Working strength in compression ^a | Density | Modulus of Elasticity |
|---|--|--|--------------------------------------|--|
| Wood (Framing Lumber) | 300 1000psi 2.1 6.9 MPa | 600 1700psi 4.1 12 MPa | 30 pcf 480 kg/m ³ | 1,000,000 1,900,000psi 69 05 13,000 MPa |
| Brick Masonry (including mortar unreinforced) | 0 | 2500 1700psi 1.7 9.0 MPa | 120 pcf 1900 kg/m ³ | 700,000 3,700,000 Psi 4800 25,000 MPa |
| Structural Steel | 24,000 43,000psi 170 300 MPa | 24,000 43,000 Psi 170 300 MPa | 490 pcf 7800 kg/m ³ | 29,000,000psi 200,000 MPa |
| Concrete (unreinforced) | 0 | 1000 4000psi 6.9 28 MPa | 145 pcf 2300 kg/m ³ | 3,000,000 4,500,000psi 21,000 31,000 MPa |

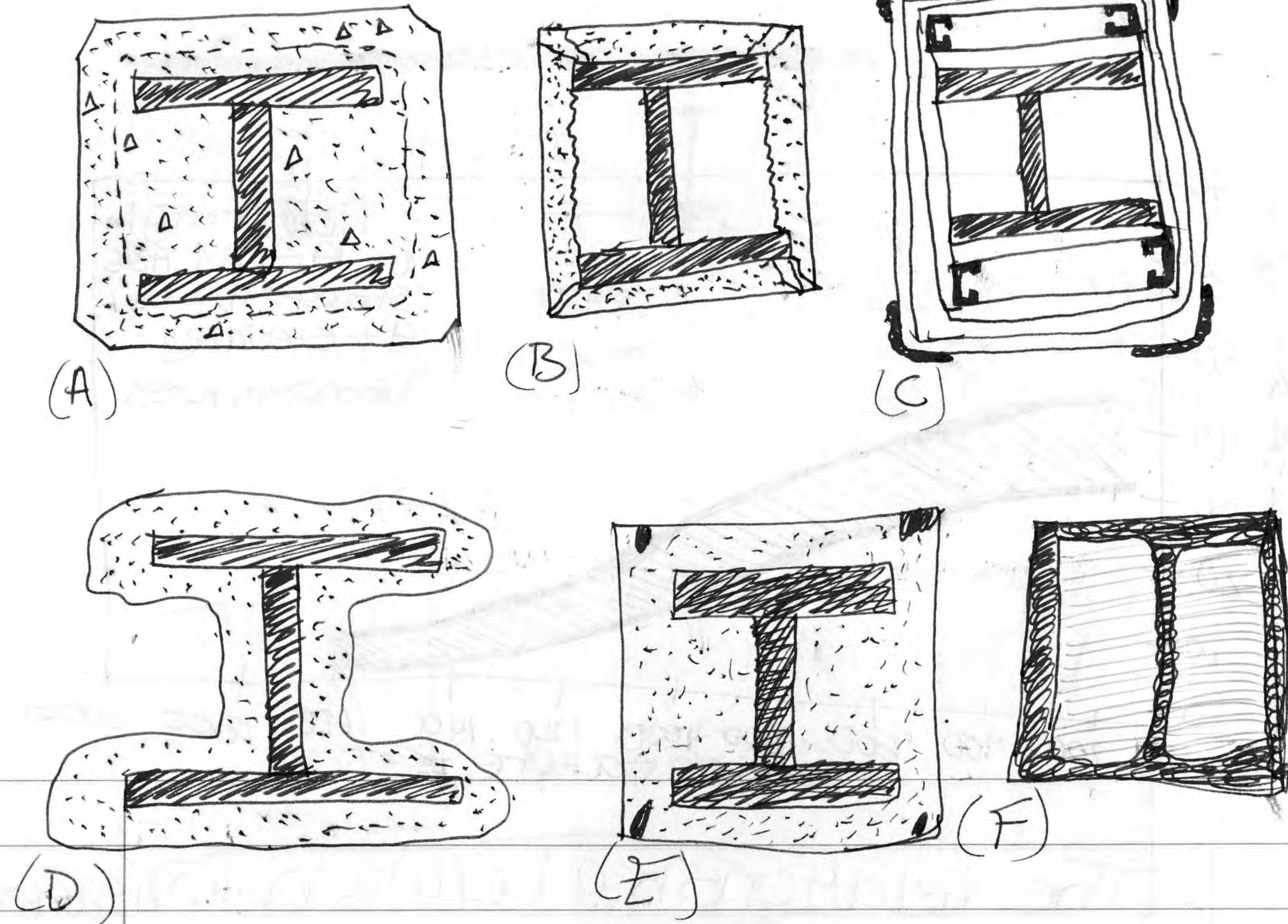
^a Allowable stress or approximate maximum stress under normal loading conditions.

CSI/CSC

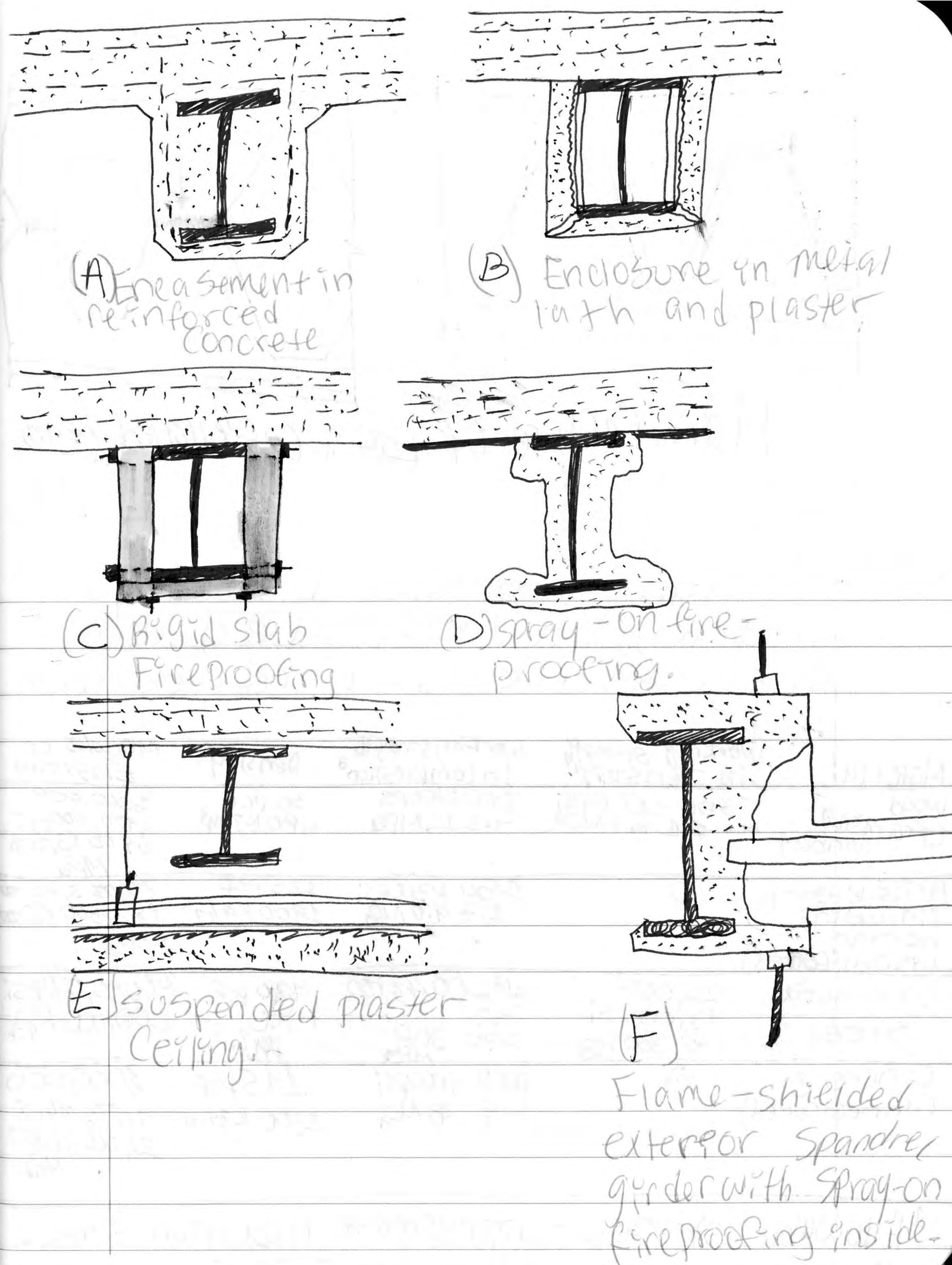
Master Format Sections for Steel Frame Construction

| | |
|----------|----------------------------|
| 05 10 00 | STRUCTURAL METAL FRAMING |
| 05 12 00 | Structural Steel Framing |
| 05 16 00 | Structural Cabling |
| 05 20 00 | METAL JOISTS |
| 05 21 00 | Steel Joist Framing |
| 05 30 00 | METAL DECKING |
| 05 31 00 | Steel Decking |
| 05 35 00 | Raceway Decking Assemblies |
| 05 36 00 | Composite Metal Decking |
| 05 50 00 | METAL FABRICATIONS |
| 05 56 00 | Metal Castings |

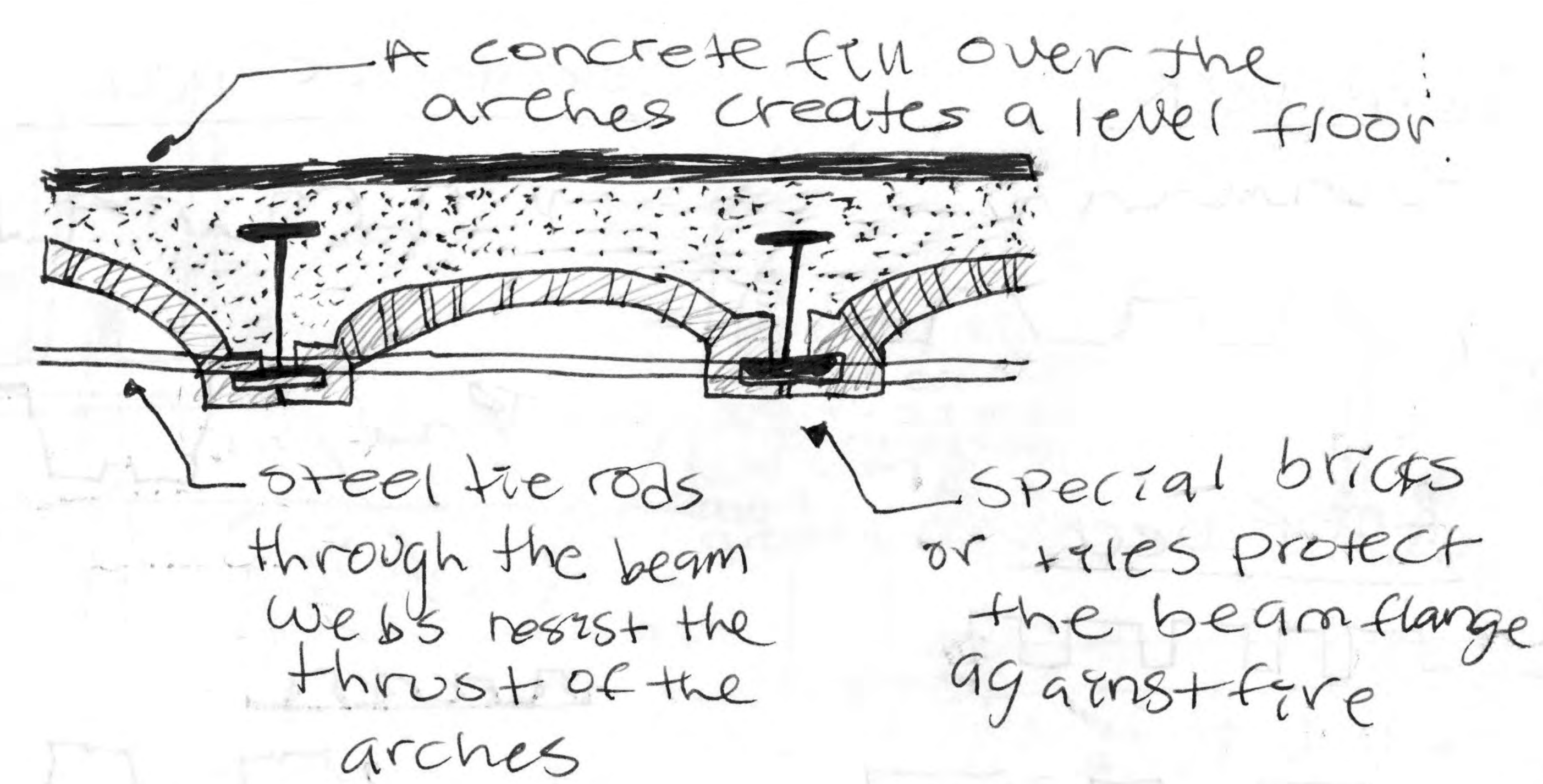
Some methods for fireproofing steel columns.



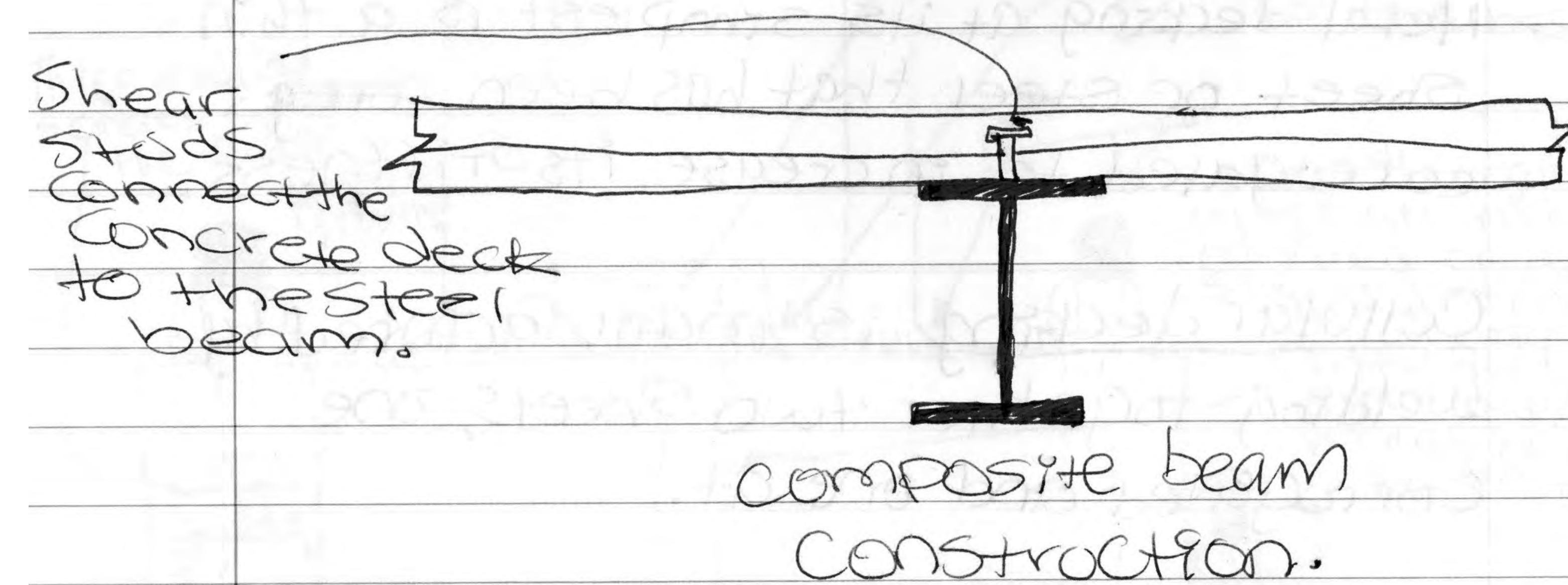
- (A) Encasement in reinforced concrete.
- (B) Enclosure in metal lath and plaster.
- (C) Enclosure in multiple layers of gypsum board.
- (D) Spray-on fireproofing.
- (E) Loose insulating fill inside a sheet metal enclosure.
- (F) Water-filled box column made of a wide-flange shape with added steel plates.



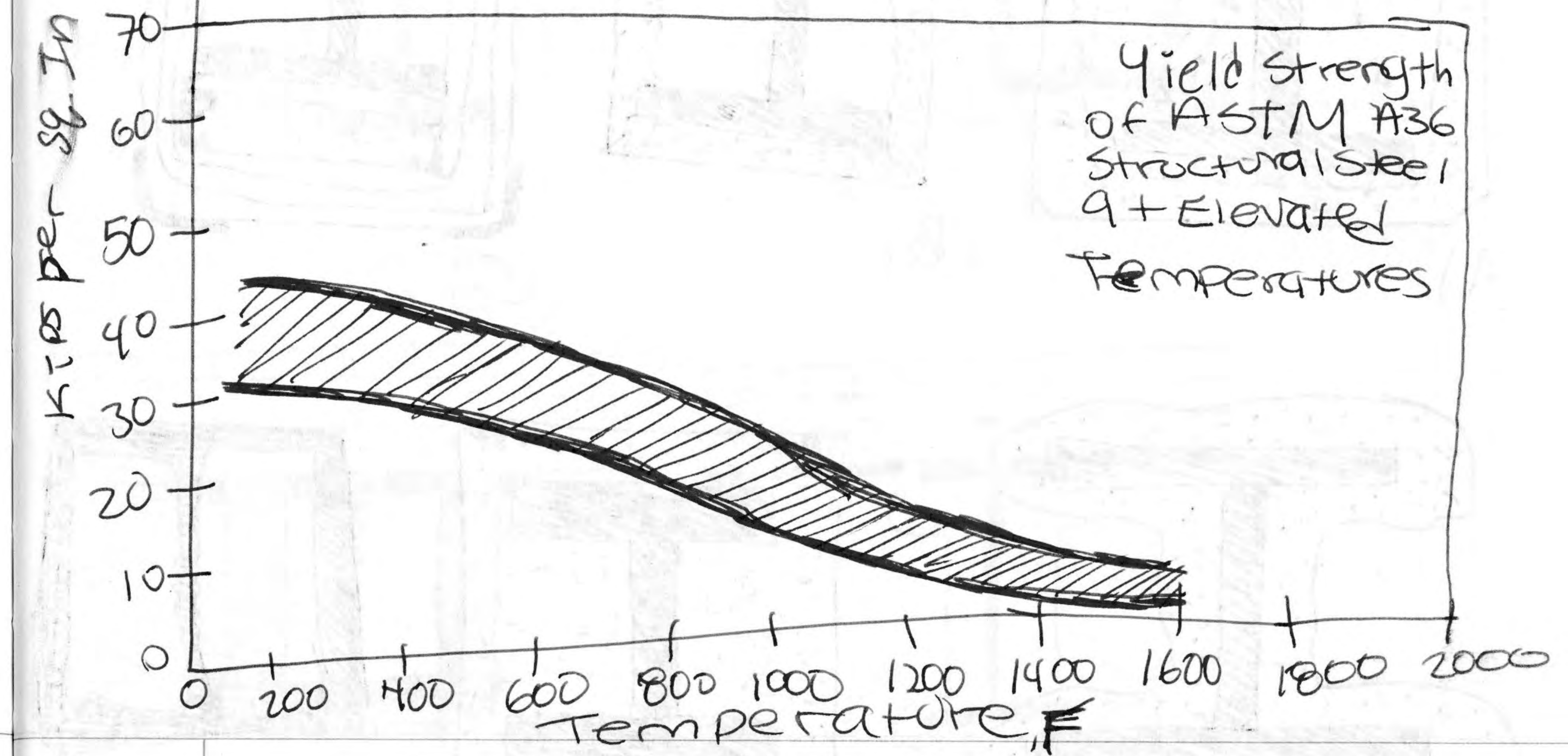
- (A) Encasement in reinforced concrete.
- (B) Enclosure in metal lath and plaster.
- (C) Rigid slab fireproofing.
- (D) Spray-on fireproofing.
- (E) Suspended plaster ceiling.
- (F) Flame-shielded exterior spandrel girder with spray-on fireproofing inside.



Tile or brick arch flooring is found in many older steel frame buildings.



Composite construction is often carried a step beyond the decking to include the beams of the floor.



The relationship between temperature and strength in structural steel.

