

## TOGGLE BOLTS

### 1. GENERAL

**1.01** Toggle bolts are of two general types, flop-over and spring (Fig. 1).

They are intended for use in attaching fixtures to hollow tile and similar supports. A secure toggle bolt installation depends on a satisfactory bearing area for the toggle. The hole should be restricted to the size that will accommodate the toggle in the collapsed condition. Tables A and B contain the various sizes of toggle bolts and the diameter to which the drilled hole should be restricted for best results.

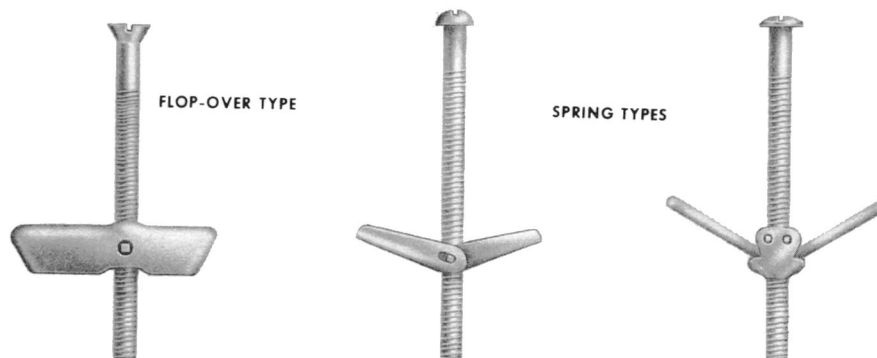


Fig. 1 — Toggle Bolts

TABLE A  
FLOP-OVER TYPE

| Size<br>Dia-Length | Spread<br>of<br>Toggle | Type<br>of<br>Head | Dia<br>of<br>Head | Dia of<br>Drilled<br>Hole |
|--------------------|------------------------|--------------------|-------------------|---------------------------|
| in.                | in.                    |                    | in.               | in.                       |
| 1/4x3              | 2-1/2                  | Round              | 15/32             | 3/4                       |
| 1/4x4              | 2-1/2                  | Round              | 15/32             | 3/4                       |
| 5/16x5             | 2-3/4                  | Round              | 9/16              | 1                         |
| 5/16x6             | 2-3/4                  | Flat               | 19/32             | 1                         |

TABLE B  
SPRING TYPE

| Size<br>Dia-Length | Spread<br>of<br>Wing | Type<br>of<br>Head | Dia<br>of<br>Head | Dia of<br>Drilled<br>Hole |
|--------------------|----------------------|--------------------|-------------------|---------------------------|
| in.                | in.                  |                    | in.               | in.                       |
| 1/8x3              | 2                    | Mushroom           | 5/16              | 1/2                       |
| 1/8x4              | 2                    | Mushroom           | 5/16              | 1/2                       |
| 3/16x3             | 2-1/4                | Mushroom           | 7/16              | 5/8                       |
| 3/16x4             | 2-1/4                | Mushroom           | 7/16              | 5/8                       |
| 1/4x3              | 2-1/2                | Mushroom           | 15/32             | 3/4                       |
| 1/4x4              | 2-1/2                | Round              | 15/32             | 3/4                       |
| 5/16x5             | 2-3/4                | Round              | 9/16              | 1                         |
| 5/16x6             | 2-3/4                | Flat               | 19/32             | 1                         |

## 2. INSTALLATION (FIG. 2)

2.01 To install toggle bolts preceed as follows:

(a) Drill a hole that corresponds to Table A or B.

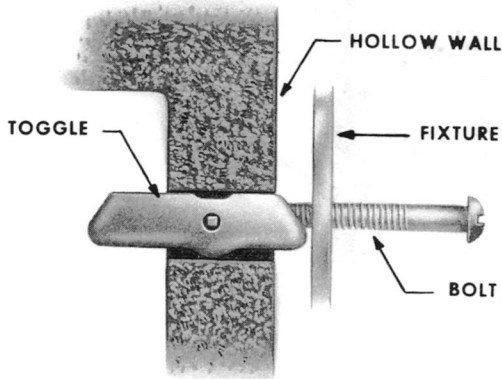


*Drill hollow tile cautiously. If a rib is stuck, tilt drill toward hollow chamber. Use care to keep hole as small as possible.*

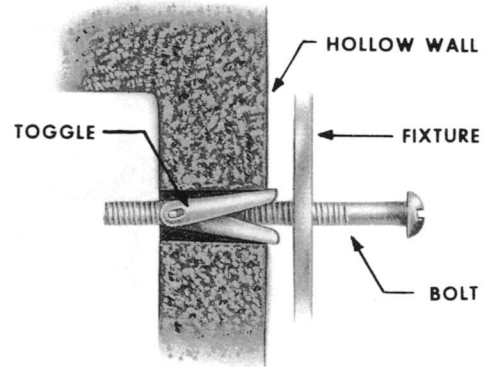
Installation of the  
Flop-Over-Type  
Toggle Bolt

Installation of the  
Spring Type  
Toggle Bolt

(1) Remove toggle to engage fixture. Replace toggle and insert bolt through the drilled hole into the hollow chamber.



When the flop-over type toggle enters the hollow chamber it topples over by gravity to the holding position.



When the spring type toggle enters the hollow chamber it assumes the holding position by spring action.

(2) After toggle has assumed the holding position, draw it up against the surface and turn the bolt down until the head seats firmly.

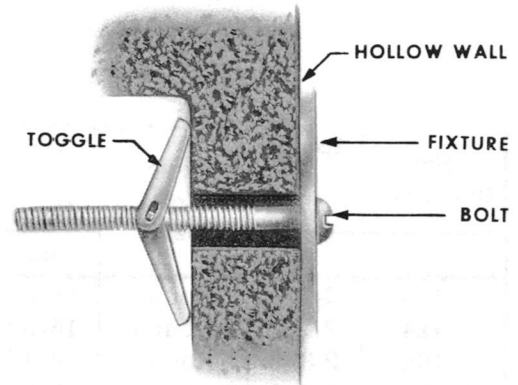
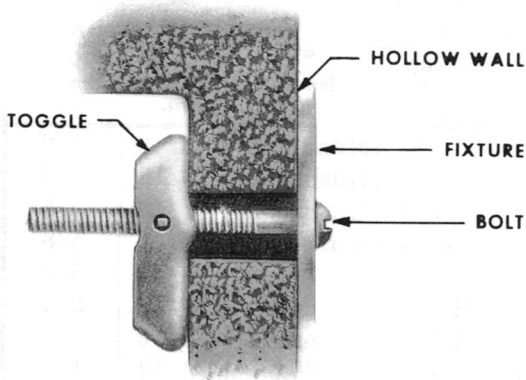


Fig. 2—Toggle Bolts