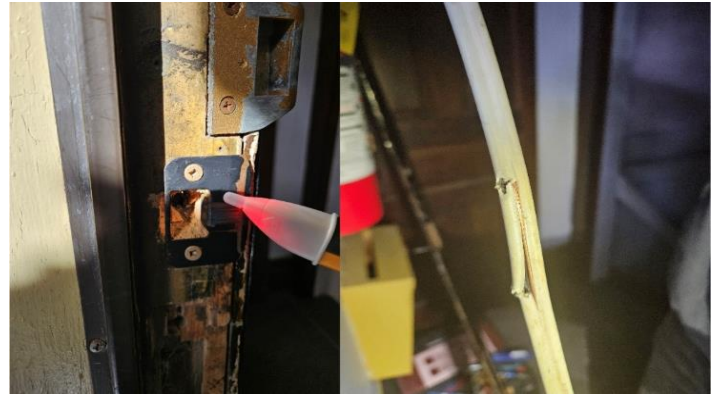


### Re: Protecting Non-Metallic-Sheathed Cable in Concealed Locations

Earlier this year, ESA was notified of an individual receiving an electrical shock when touching a metal doorknob in a building under construction.

An investigation found **non-metallic-sheathed cable (NMSC)** had been installed too close to a doorframe without proper protection. When the strike plate was installed, the screw pierced the cable insulation, energizing the strike plate. When the door closed, the metal doorknob contacted the strike plate and also became energized.

**A small miss behind the wall can create a serious hazard.** Situations like this can occur when cables are installed too close to finished surfaces and later damaged during drywall, trim or hardware installation.



*Energized doorframe and damaged NMSC*

#### Where the Risk Occurs

There are two common ways NMSC is installed in wood-frame construction:

- Through holes drilled in studs
- Along the face of studs using staples

In both cases, cables installed too close to finished surfaces can be damaged by screws or fasteners.

#### When Protection is Required

##### Running Through Studs

If a drilled hole is **within 32 mm of the finished edge**, cables must be protected using:

- A steel protection plate (smash plate), or
- A properly sized cylindrical bushing installed in the drilled hole.



*Cylindrical bushing*

##### Running Along Studs

The **28<sup>th</sup> edition of the Ontario Electrical Safety Code** clarified requirements for cables run along studs (or other framing members). If cables are installed **within 32 mm of a finished edge**, protection is required:

- Metal protection plates at least **1.3 mm thick**, or
- Installation methods that keep cables away from screw contact.

#### Practical Ways to Reduce Risk

Consider these approaches during rough-in:

- **Use staples approved for multiple cables**
- **Use approved cable stackers**
- **Keep switch drops centered in the stud cavity**
- **Plan cable routing early to avoid finished edge zones**



*Approved cable stacker prevents fasteners from piercing NMSC*

#### Further Reading: NMSC Installation Guidance

Please review **ESA Bulletin 12-19-17** ([ESAsafe.com/Bulletins](https://www.esasafe.com/Bulletins)) for more information on NMSC requirements.