411.3.1.2 Part 2

Main protective bonding conductors are required to connect extraneous-conductive-parts to the main earthing terminal of the installation. An *extraneous-conductive-part* is a conductive part, such as a metal pipe, liable to introduce earth potential into the installation or building. It is common, particularly under certain fault conditions on the LV supply network, for a potential to exist between true earth, i.e. the general mass of Earth and the earth of the electrical system. Therefore, buried metallic parts which enter the building are to be bonded to the main earthing terminal of the electrical installation.

Examples of extraneous-conductive-parts are:

(a) metallic installation pipes
(b) metallic gas installation pipes
(c) other installation pipework, for example, heating oil
(d) structural steelwork of the building where rising from the ground
(e) lightning protection systems (where required by BS EN 62305).

It is also necessary to consider not just metallic supply pipework but also internal metallic pipework which may have been buried in the ground for convenience, for example, central heating pipework cast into the concrete or buried in the screed of a floor at ground level. Such metallic pipes would normally be considered to be extraneous-conductive-parts.

4.4 Earthing conductor and main protective bonding conductor cross-sectional areas

The minimum cross-sectional areas (csa) of the earthing conductor and main protective bonding conductors are given in Table 4.4(i). For TT supplies, refer to Table 4.4(ii).

▼ **Table 4.4(i)** Earthing conductor and main protective bonding conductor sizes (copper equivalent) for TN-S and TN-C-S supplies

	Line conductor or neutral conductor of PME supplies	**mm²**	4	6	10	16	25	35	50	70
542.3 543.1	**Earthing conductor not buried or buried and protected against corrosion and mechanical damage – see notes**	**mm²**	6	6	10	16	16	16	25	35
544.1.1	**Main protective bonding conductor – see notes**	**mm²**	6	6	6	10	10	10	16	25
Table 54.8	**Main protective bonding conductor for PME supplies (TN-C-S)**	**mm²**	10	10	10	10	10	10	16	25

NOTES:

543.2.4 **1** Protective conductors (including earthing and bonding conductors) of 10 mm² cross-sectional area or less shall be copper.