CABLE CALCULATION, STEP 6: CORRECTION FACTORS, CA AND CG

WHAT DO CA AND CG DO TO A CABLE?

Correction factors (some books call them **derating factors**) tailor the design to the real situation: buried in the ground, grouped with other circuits, passing through thermal insulation, and so on. Two apply here.

Ambient temperature, Ca

There's always an ambient temperature. A house is usually about 20 °C, but summers are getting hotter (remember the 40 °C heat of summer 2022). Good insulation keeps a house cool in summer too. **35 °C** is a sensible, cautious middle ground. And a cooker circuit only works hard while someone is cooking.

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CA
Table 4B1, 70 °C thermoplastic, ambient 35 °C → Ca = 0.94
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BS 7671 · Appendix 4 · Table 4B1 · ambient temperature factors (Ca)

Grouping, Cg

Count **your** circuit too: 2 already in the trunking + ours = **3 circuits**. Table 4C1 doesn't print the symbol "Cg" in its heading, but the notes underneath mention Cg several times.

- Columns = **number of circuits or multicore cables**: 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 16, 20. We use **3**.
- Rows (items) = the arrangement:
  1. **Bunched in air, on a surface, embedded or enclosed** ← ours (in trunking)
  2. Single layer on a wall or floor
  3. Single layer on a perforated cable tray (tray with slots cut in the bottom)
  4. Single layer on a cable ladder (big SWA runs, industrial)

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CG
Table 4C1, item 1 (bunched/enclosed), 3 circuits → Cg = 0.7
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The **higher** the factor, the **less** effect it has on your design.

BS 7671 · Appendix 4 · Table 4C1 · grouping factors (Cg in the notes underneath)

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