Cathodic Protection Current Requirement

Protection current for a buried or submerged steel structure from its surface area, coating breakdown factor and design current density.

Method: I = A × f_c × i_c (cathodic protection design practice)

Input parameters

Unit system: SI

Parameter	Value	Unit
Surface area to protect	2,500.0	m²
Coating breakdown factor (bare share) From your CP design basis for the coating and life.	5.0000	%
Design current density on bare steel From your design basis for the soil or water.	0.020000	A/m²
Design margin	25.000	%

Calculated results

Parameter	Value	Unit
Current without margin	2.5000	A
Design current	3.1250	A

Formula and method

$$I = A f_c i_c (1 + k)$$

Variables

A	Surface area to protect	m²
f_c	Coating breakdown factor (bare share)	-
i_c	Design current density on bare steel	A/m²
k	Design margin	-
I_b	Current without margin	A
I	Design current	A

Method and standards

Current balance.

Assumptions and limits

- Uniform current density.

References

- I = A × f_c × i_c (cathodic protection design practice)

Report details

Report reference	FCC-1F79-WM7F (the same inputs always give the same reference)
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Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/materials/corrosion/cathodic-protection-current

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.