ACI Clear Cover Requirements

7.7 — Concrete protection for reinforcement

7.7.1 — Cast-in-place concrete (nonprestressed)

Unless a greater concrete cover is required by 7.7.6 or
7.7.8, specified cover for reinforcement shall not be
less than the following:

(a) Concrete cast against and
permanently exposed to earth ................................. 3

(b) Concrete exposed to earth or weather:
No. 6 through No. 10 bars ........................................... 2
No. 5 bar, W31 or D31 wire, and smaller .................. 1-1/2

(c) Concrete not exposed to weather
or in contact with ground:
Slabs, walls, joists:
No. 14 and No. 18 bars ........................................... 1-1/2
No. 11 bar and smaller ............................................ 3/4

R7.7 — Concrete protection for reinforcement

Concrete cover as protection of reinforcement against
weather and other effects is measured from the concrete
surface to the outermost surface of the steel to which the
cover requirement applies. Where concrete cover is
prescribed for a class of structural members, it is measured
to the outer edge of stirrups, ties, or spirals if transverse
reinforcement encloses main bars; to the innermost layer of
bars if more than one layer is used without stirrups or ties;
or to the metal end fitting or duct on post-tensioned
pretensioning steel; or to the outermost part of the head on
headed bars.

The condition “concrete surfaces exposed to earth or
weather” refers to direct exposure to moisture changes and
direct to temperature changes. Slabs or thin shell members are
do not usually considered directly exposed unless subject to
alternate wetting and drying, including that due to condi-
tioning conditions or direct leakage from exposed top
surface, run off, or similar effects.

CODE

Beams, columns:
Primary reinforcement, ties, stirrups,
spirals ................................................................. 1-1/2
Shells, folded plate members:
No. 6 bar and larger ............................................ 3/4
No. 5 bar, W31 or D31 wire, and smaller ............ 1/2

COMMENTARY

Alternative methods of protecting the reinforcement from
weather may be provided if they are equivalent to the
additional concrete cover required by the Code. When
approved by the building official under the provisions of 1.4,
reinforcement with alternative protection from the weather
may have concrete cover not less than the cover required for
reinforcement not exposed to weather.

ACI 318 Building Code and Commentary