

Longitudinal Joints & Tie bars for CC Pavements in Rural Areas

CC Pavements for low volume rural roads are designed as per IRC-SP-62, which provides for carriageway width of 3.75 m. Hence details of longitudinal joints are not provided in this code. Longitudinal joints are to be provided when the width of pavement is more than 4.50 m. The relevant provisions are available in IRC-15, IRC-58 (Design of CC pavements for Highways), and MoRTH clauses 602.2.6.4, 602.6.4, 602.6.4.2, and 602.6.6.

The key points of above provisions are given below:

1. Initial joint cutting (3-5 mm) should be done after initial set of concrete and before final set of concrete (about 4-8 hours, when concrete can take operational loads of joint cutting, but in any case, before 12 hours)
2. Depth of cutting is at least one-third of slab depth (+/- 5 mm tolerance)
3. The joint should be widened after curing period (10-12 mm) to facilitate pouring of sealing compound.
4. Tie Bars
 - a. Plain bars as per IS:432 (Grade-I) or HYSD bars as per IS:1786 (Fe500)
 - b. Bars shall be coated with BT paint (normal areas) or epoxy paint (in coastal regions) for protection against corrosion
 - c. Tie bars shall be made into rigid assemblies with adequate supports and fixings to remain firmly in position during casting of slab
 - d. The bars shall be positioned in the middle (or upper middle third) of the slab
 - e. Spacings & lengths for tie bars based on slab thickness as well as type of steel used and diameter of bars is given in table 6 of IRC-58 as given below
 - f. Where adjacent lanes of pavement are constructed separately using slip form pavers or side forms, the tie bars may be bent at right angles against the vertical face/ side of the first lane constructed and straightened before placing concrete in the adjacent lane. Broken or damaged tie bars shall be repaired or replaced as required

Table 6 Details of Tie Bars for Longitudinal Joint of Rigid Pavements

Slab Thickness mm	Tie Bar Details				
	Diameter (d) mm	Max. Spacing, mm		Minimum Length, mm	
		Plain	Deformed	Plain	Deformed
150	8	330	530	440	480
	10	520	830	510	560
200	10	390	620	510	560
	12	560	900	580	640
250	12	450	720	580	640
300	12	370	600	580	640
	16	660	1060	720	800
350	12	320	510	580	640
	16	570	910	720	800