

## **CHAPTER 8 CONSIDERATIONS IN RETROFITTING DESIGN AND CONSTRUCTION**

When conducting retrofitting with the external cable method, the bonding and jacketing method and the overlaying and jacketing method, design and construction must ensure that the following requirements are met:

- (1) Ensure bonding of existing members and retrofitted members
- (2) Prevent deterioration of the retrofitted members resulting from load action and environmental action during service life

### **[Commentary]**

(1) With the external cable method, the bonding and jacketing method, the overlaying and jacketing method and many of the other retrofitting methods used today, retrofitting will be suitably effective when bonding of the existing members and retrofitted members has been ensured. The performance evaluation methods for retrofitted structures covered in Chapter 9 of these (draft) guidelines are designed to evaluate performance with bonding having been secured. Accordingly, when using these three methods for retrofitting, it is crucial to conduct retrofitting design and construction so the existing members and retrofitted members will bond together.

(2) There are also currently no technologies established for general prediction of changes over time in retrofitted members due to the effect of load or environmental action during the service life of the structure. Accordingly, thorough measures to prevent deterioration are generally conducted at the retrofitting stage to ensure that the deterioration of retrofitted members is extremely slight, or so no deterioration will occur within the range that can be predicted with existing technologies.

(1)(2) The Retrofitting Manuals accompanying these (draft) guidelines contain considerations for design and construction for the external cable method, the bonding and jacketing method and the overlaying and jacketing method to enable requirements (1) and (2) above to be fulfilled, based on existing technologies. If, as a result of technical progress, methods are established that enable the performance of the structure after retrofitting to be evaluated with suitable accuracy, regardless of the method used to design and construct retrofitted members, the matters in these Retrofitting Manuals need not be strictly observed.