

INTRODUCTION

These notes on Modular Coordination in the Buildable Design Appraisal System are produced as part of BCA's Buildability Series. Its objective is to introduce designers to the concept of modular coordination and its benefits. At the same time, it gives some practical advice on the application of modular coordination using actual projects as examples. The recommended modules in these notes take into consideration the need for flexibility in design and the sub-module has been introduced for this purpose. As modular coordination becomes more widely practised in the local industry, these notes may be revised and the recommendations will be reviewed to achieve a higher level of modular coordination that will benefit the building industry.

Background

Modular Coordination was first explored as an aid to design shortly after the introduction of prefabrication in the construction industry in the industrialised nations. It was conceived as a further step in the development of systematic design and construction of buildings. This subject has been discussed and attempted in actual building experiments in practically every developed country. At present, the actual application of Modular Coordination varies in different countries. For Scandinavian countries and the Republic of Ireland, it has become an essential tool in their building design and construction.

Modular Coordination was first studied in Singapore when metrication was introduced, in the early seventies. The Housing & Development Board implemented the concept in 1973 in the new generation flats. Through standardisation, it had to some extent solved the problems faced by the construction industry then: material shortage in steel, cement, timber and plywood, manufacturing delay; and labour shortage, especially the skilled labourers such as carpenters and plasterers. Prefabrication and standard components were subsequently introduced. Modular blocks and bricks were introduced in 1983. There are merits to extend the use of Modular Coordination in other components as well.

Basis Of Modular Coordination

Modular Coordination is essentially based on:

- (a) the use of modules (basic module, multi-modules and sub-modules);
- (b) a reference system to define coordinating spaces and zones for building elements and for the components which form them;
- (c) rules for location of building elements within the reference system;
- (d) rules for sizing building components in order to determine their work sizes;
- (e) rules for defining preferred sizes for building components and coordinating dimensions for buildings.

Benefits Of Modular Coordination

Modular Coordination is a useful design tool that provides modern design principles and rules which combine freedom in architectural planning and free choice of construction method, with the possibility of incorporating standardised modular components in the project. When applied throughout the industry, it brings the following benefits:

- (a) better coordination and cooperation between various parties in construction;
- (b) reduction in design time, especially with the use of standard details and dimensional coordination;
- (c) benefits through the increased use of Computer Aided Design and Drafting;
- (d) reduction in manufacturing and installation costs;
- (e) reduction in the wastage of materials, time and manpower in cutting and trimming on site;
- (f) facilitating prefabrication.

As in the case of introducing a new machinery, designers who intend to apply the Modular Coordination principles must realise that it would require considerable effort and discipline and the process may not be pleasant, at least initially. However, in the long term, it is likely to pay off when the tool is understood and used effectively; more so if implemented throughout the industry.