3 MATERIALS ASPECTS

3.1 EFFICIENT USE OF MATERIALS

3.1.3 OFF-SITE FABRICATION

EXCLUSIONS
None.

OBJECTIVE
Encourage off-site fabrication of building elements in order to reduce wastage of materials and quantities of on-site waste.

CREDITS ATTAINABLE
2

PRE-REQUISITE
None.

CREDIT REQUIREMENT
1 credit when the manufacture of 50% of listed building elements has been off-site.
1 additional credit where the manufacture of 80% of listed building elements has been off-site.

ASSESSMENT
The listed building elements includes:

- facades;
- staircases;
- slabs;
- external elements;
- balcony/utility platform;
- bridge-decks;
- footbridges;
- pavement paving;
- partition walls; and
- internal fittings.

Additional or alternative elements may be included, which the Client believes to demonstrate a significant contribution to the assessment criteria. Off-site in this context means a factory or similar purpose built facility but not a temporary site set up for the purpose of producing said elements.

The Client shall demonstrate through the submission of contract specifications, drawings and other supporting documents the quantities (by weight or volume) of those building elements fabricated off-site in accordance with the Code of Practice for Pre-cast Construction 2003. The assessment shall take into account the number and quantities of building elements in the building development that can be fabricated off-site and award credits where the assessment criteria have been met.

BACKGROUND
Off-site fabrication is the manufacture of sections of a building at the factory so they can be easily and rapidly assembled at the building site, improving the buildability of the building. Since the factory fabrication of building elements are produced under controlled conditions, it allows for more efficient disposal of debris and waste. Noise, dust, site traffic and other environmental nuisances can also be reduced. Interior millwork and custom metalwork should be detailed to be shop-finished and installed to the highest degree to limit the need for on-site painting and finishing work.

The Hong Kong construction industry is under continual stringent pressure to raise productivity, reduce costs and improve the quality levels of constructed facilities. All these requirements are the key drivers
for change in the industry [1]. A new research agenda has therefore been embarked by the Construction Industry Institute, Hong Kong (CII-HK) to explore the existing state of implementation of prefabrication and preassembly, and how they could be successfully applied to construction services. This paper provides a succinct review of the application of prefabrication and preassembly in the local public housing construction industry, followed by the significant ingredients of the captioned research agenda. A wider use of prefabrication would help overcome many of the hurdles inherent in traditional in-situ construction, and engender more technically feasible and cost-effective installations.

Prefabricated components are widely used in the construction of public housing blocks [2] for better workmanship and quality control and to maximize construction efficiency. Please click on the links below to view the application of prefabrication in a New Harmony 1 block, the latest standard block of today's public rental housing. The Code of Practice [3] provides guidance on the design, construction and quality control of precast structural and non-structural elements.