

1.1 BACKGROUND

Universal Design is an emerging approach which aims to develop a theoretical framework and practical means to a more user-friendly living environment. It aims to do this specifically by incorporating features accommodating the widest possible range of human needs. In doing this, it has a close relationship with Accessibility Design, yet it is important to differentiate between the two. Accessibility design necessarily focuses on the sometimes specialised needs of groups whose mobility has traditionally been limited. Universal Design takes that body of knowledge and seeks to extract from it, features which can become the norm, for the benefit not only of special groups but of everyone.

Universal Design incorporates accessibility issues but seeks a broader consensus as a means to broader application. In that sense, Universal Design needs to respect the average and to take account of related issues, such as cost effectiveness, space efficiency, flexibility and identity. At its most effective, Universal Design can be invisible. It is an inclusive approach which embodies the hope that the largest number of people can access the widest variety of places with the greatest degree of safety and convenience. It is important to all of us because we are all challenged at various times of our lives. We were all children. We will all become ill. If we are lucky, we will become old. By some definitions, a large proportion of society is in some way disabled; even if people prefer not to think of themselves, or to present themselves in that way. In many societies with an aging population, that proportion will rise, as the number of caregivers declines.

Many countries have legislated on behalf of the aged and people with disabilities and have produced design guidelines, particularly related to accessibility design over a number of decades. The contributors to this Guidebook think that Universal Design is the next step.

We have looked closely at research and legislation around the world before attempting to identify features most relevant to Hong Kong. That is a particular challenge because this is one of the most demanding places in the world for which to design. Nowhere else is space used more efficiently. We want to make Hong Kong buildings even more efficient; by making them more accessible, safer and more convenient to use, particularly by people with specialist needs but also by all of us. This document is a starting point for a process of exploration which stretches ahead.

1.1

1.1 背景

通用設計作為一個嶄新的設計手段，漸漸出現於當代設計潮流中。它將設計理論構架與實踐相結合，使設計元素能盡可能地滿足廣泛人士的不同需求，以創造出一個方便家使用的生活環境。為達到此目的，通用設計與暢達設計（Accessibility Design）有緊密的聯繫，然而二者卻有本質上的區別。暢達設計著重顧及傳統概念上身體活動受到限制的人士的特殊需求，而通用設計取暢達設計概念之精華，並使可普遍使用的元素成為設計的標準，不僅讓有特殊需要的人士，而且讓每一個人都可受益。

通用設計包含了暢達設計，但它亦尋求更廣泛意義上的一致性，以在更廣範圍內得以應用。因此，通用設計需要尊重有一般需求的人，並考慮與其相關的問題，例如成本效益，空間效用，靈活性和同一性。最有效的通用設計可以是無形的。它是一種無歧視的設計途徑並體現了一種希望，即讓盡可能多的人士能以最安全和最方便的途徑，到達不同類型的地方。這對我們每一個人都很重要。因為我們在人生的不同階段都會面臨不同的挑戰。我們都曾是小孩。我們都會生病。若幸運的話，我們都會有終老的一天。根據有關定義，社會上大部分人士都有各種程度的障礙，即使他們不願視自己為殘障人士，或不願如殘障人士般生活。在很多人口老化的社會，由於護理人士數目相應減少，此類殘障人士的比例將會增加。

數十年來，許多國家代表長者和殘障人士立法，並制定了暢達設計指南。本書認為，通用設計將會成為未來路向。

在我們嘗試確認適合香港的通用設計標準之前，我們仔細地查閱世界各地相關的研究和法例。香港是全球在設計方面要求最多的地方之一，並且十分講究有效利用空間。因此，提出適合香港情況的通用設計標準有極大的挑戰性。我們希望利用通用設計，使香港建築物更加暢達和安全，不僅滿足有特殊需要的人士的需求，而且方便每一個人使用，從而使香港建築物更具空間及經濟效益。本書是此長遠探索過程的起步點。

1.2 通用設計定義

Ron Mace（梅斯）在1988年提出一個國際認可的通用設計定義：

「通用設計是一種設計途徑，它集合了能在最大程度上適合每一個人使用的產品及建築元素。」

[Preiser, 2001]

1.3 通用設計原則

於1997年，美國北卡羅來納州州立大學的通用設計中心有一群研究員制訂了以下七項通用設計原則：

原則一：等效使用
該設計為不同能力人士所應用和歡迎。

原則二：方便靈活
該設計切合不同能力人士的喜好和需要。

原則三：簡單易用
該設計簡單易用，不會因使用者的經驗、知識、語文能力或當下精神集中能力而有異。

原則四：資訊簡明
該設計有效地傳達所需要的資訊，不會因環境或用者感官能力而有異。

原則五：容差納誤
遇有意外或不應該有的行動，通用設計把危險和傷害減至最少。

原則六：省力易用
可以有效地和舒適地使用該設計，省力而不倦。

原則七：可用面積和空間
提供大小合適的空間，供使用者前往可及範圍，操作有關設施，不會因其身型、姿勢或活動能力而有異。

[Preiser, 2001]

這七個原則說起來簡單，但實踐起來複雜難行。本指南探索實際的方法，應用於香港的住宅發展。

1.2

1.2 DEFINITION OF UNIVERSAL DESIGN

Ron Mace's definition of Universal Design in 1988 has been recognized internationally:

“Universal Design is an approach to design that incorporates products as well as building features which, to the greatest extent possible, can be used by everyone.”

[Preiser, 2001]

1.3

1.3 PRINCIPLES OF UNIVERSAL DESIGN

In 1997, a group of researchers of the Centre for Universal Design, NC State University of United States, developed the following seven principles of Universal Design:

Principle One: Equitable Use
The design is useful and marketable to people with diverse abilities.

Principle Two: Flexibility Use
The design accommodates a wide range of individual preferences and abilities.

Principle Three: Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle Four: Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle Five: Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle Six: Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle Seven: Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

[Preiser, 2001]

The seven principles are simple in words but complex to attain. This Guidebook explores practical ways to apply them to Hong Kong residential development.

1.4 UNIVERSAL DESIGN PYRAMID

Different groups can have different needs. Universal Design aims for appropriate balance with considerations for the group of people who have the greatest need for care. The following pyramid describes the hierarchy of different groups' needs:

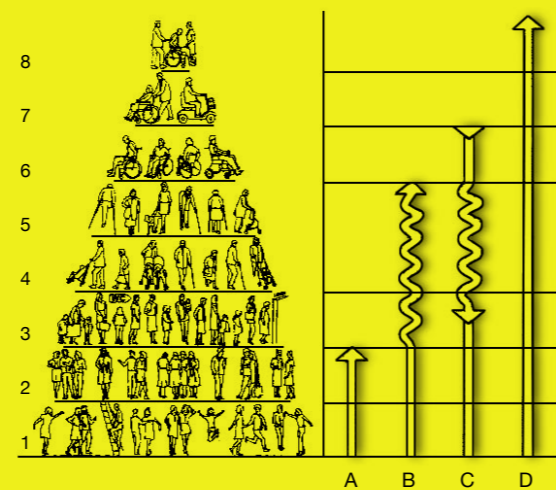
In the above pyramid, Group A, including Row 1 and 2, are able-bodied people. Current architecture design aims for a full consideration of this group. Group B including rows 3, 4 and 5, are people who need caregivers or who have disabilities. They need more design features than Group A. Group C, namely row 6, are people in wheelchairs able to live independently. People in wheelchairs have higher requirements of spatial design. Group D includes people in wheelchairs who need caregivers. In this Guidebook, more efforts will be taken for the residents of Group B, C and D, whose special needs are not fully provided for by current architecture practice in Hong Kong.

1.4 通用設計金字塔

不同組別人士有不同需要，通用設計的目的是在照顧最有特別需要的人士同時，提供適當的平衡，以滿足不同組別人士的需要。以下的金字塔顯示各組別需要的層次：

以上金字塔的A組（即第1和第2行）是健全人士，現有的建築設計完全考慮到這組別的需要。B組（即第3、第4行和第5行）是需要別人照顧的人或殘障人士，這組別比A組需要更多的特殊設計元素。C組（即第6行）是可以獨立生活的輪椅人士，在空間設計上有較高的要求。D組是需要別人照顧的輪椅人士。香港現時的建築設計未全面顧及B組、C組和D組人士的特別需要，因此本指南會著重討論。

1.4



Universal design pyramid
通用設計金字塔

[Preiser, 2001]

1.5 目的與範疇

本指南有關通用設計的目的和範疇，可作如下定義：

通用設計是一種嶄新的設計途徑，創造可供不同界別社群使用的環境，包括嬰兒、幼兒、孩童、年青人、一般人、長者、殘障人士、體弱者和孕婦；其設計安全、方便、具靈活性並可變更多用途。此設計途徑必須先瞭解和體諒使用者在一生中不同階段的各種需要和能力的改變。

本指南的目的是為住宅發展提供通用設計的指南，以切合最大部分住客的需要。當中必須了解到住客的能力會因年齡、殘障和疾病而改變；除了等效使用外，此指南也考慮到靈活性、簡易性、舒適、健康、安全、方便、暢達、實用、容易維修、耐用和可持續性等因素。

編寫本指南的目的如下：

- 為建築師和設計師引進設計策略和推薦方案；
- 提出可持續住宅發展規劃的指引
- 協助發展商明白各種組別居民的需要，吸引最大的市場，和更切合居民的建築和管理需求；
- 為居民提供整修、使用和管理策略的建議，幫助他們改善居住環境。
- 在相關的公眾地方和公眾設施推廣通用設計的原則。

1.5

1.5 OBJECTIVES AND SCOPE

The objectives and scope of Universal Design for this Guidebook can be defined as follows:

Universal Design is an emerging approach to create environments which are usable by the whole spectrum of community, including infants, toddlers, children, the young, the average, the elderly, disabled, weak, and pregnant, with safety, convenience, flexibility and convertibility. It is a design approach which requires understanding and empathy for the range of human needs and abilities throughout life.

This Guidebook aims to provide Universal Design guidelines for residential development intended to cater for the broadest range of residents. It requires an understanding of varying abilities with age, disability and illness. In addition to equitable use, it considers flexibility, simplicity, comfort, health, safety, convenience, accessibility, practicality, ease of maintenance, durability and sustainability.

This Guidebook has the following objectives:

- To introduce design strategies and good practice for architects and designers;
- To provide guidelines for sustainable residential development planning;
- To help developers identify the needs of different groups of residents in order to appeal to the broadest market and better meet the needs of residents in terms of both of building and management;
- To suggest renovation, utilisation and management strategies for residents to improve their living environment;
- To promote Universal Design principles for related public areas and provisions.

The Hong Kong Government has made provisions with regards to accessibility and development planning in statutory documents such as the Disability Discrimination Ordinance, 1996, the Residential Care Homes (Elderly Persons) Ordinance and Hong Kong Planning Standards and Guidelines (HKPSG). Subsequently, the Design Manual - Barrier Free Access 1997 was published by the Buildings Department, as a design standard. To enhance this Design Manual, the Buildings Department has commissioned a consultancy study and the revised Manual is currently under formulation.

In addition, this Guidebook will introduce good practice and guidelines for Universal Design. It also aims to draw public attention to the issues of universal design for residential development, and hence help to improve the living environment in Hong Kong.

1.5 香港特區政府在《殘疾歧視條例1996》、《安老院條例》和《香港規劃標準與準則》等法定文件中，設定了關於暢達設計和發展規劃的法律條文。此後屋宇署在1997年出版的《設計手冊：暢通無阻的通道1997》是無障礙設計的規範條文。為加強此設計手冊的內容，一個顧問研究小組受屋宇署委託，現正制訂此手冊的修訂版。

在此基礎上，本指南將引進通用設計的推薦方案和設計指南，目的是吸引公眾關注住宅發展的通用設計問題，從而協助改善香港的居住環境。

1.6 綱要

本指南共有七章，分列如下：

第1章 引言

第1章介紹通用設計的理論，闡明本指南的範疇和目的。

第2章 規劃和空間設計指南

第2章提出有關通用設計的城市規劃問題和討論不同組別居民對空間的要求，包括年青人、長者、殘障和體弱人士，並且舉例說明適用於香港的通用設計。

第3章 無障礙設計

第3章介紹無障礙設施的設計，涉及住宅使用空間的規劃和設計，及住宅內交通設施設計。

第4章 家居安全

第4章介紹無障礙疏散設計，並闡述預防受傷和家居安全的策略，以滿足各組別居民的需求。

第5章 環境因素

第5章說明通用設計與優質生活的關係，包括促進健康元素、室內空氣質量、溫度和視聽環境。

第6章 裝修詳細設計的推薦方案

第6章介紹扶手、裝修物料和其他關於通用設計的建築詳細設計。

第7章 整修和改建

第7章把通用設計應用於現有樓宇，並為發展商和居民提供整修和改建策略。

1.6 1.6 FRAMEWORK

There are seven sections to this Guidebook, as follows:

Chapter 1 Introduction

Chapter One introduces the theory of Universal Design. It also provides the scope and objectives of this Guidebook.

Chapter 2 Planning and Spatial Standards

Chapter Two introduces urban planning issues related to Universal Design and discusses the spatial needs of particular residents, including the young, elderly, disabled, and weak. It provides examples of Universal Design, applicable for use in Hong Kong.

Chapter 3 Barrier-Free Access

Chapter Three introduces barrier-free provisions. It considers the planning and design of residential spaces and associated circulation areas.

Chapter 4 Home Safety

Chapter Four introduces standards for means of escape. It describes injury prevention and home safety strategies for different groups of residents.

Chapter 5 Environmental Factors

Chapter Five relates Universal Design to quality of life. It considers wellness in relation to in-door air quality, thermal, visual and acoustic considerations.

Chapter 6 Good Practice Detailing

Chapter Six provides architectural details for handrails, finishes and other factors related to Universal Design issues.

Chapter 7 Renovation and Conversion

Chapter Seven applies Universal Design to existing buildings, and introduce renovation and conversion strategies to developers and residents.