



社會住宅水資源管理及應用

Water Resources Management for Social Housing

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Department of Urban Development, Taipei City Government



Overview

- **社會住宅簡介**
Introduction to Social Housing
- **水資源相關法規**
Water Resources Regulation
- **水資源設計**
Water Resources Planning
- **水資源成果**
Water Resources Achievement

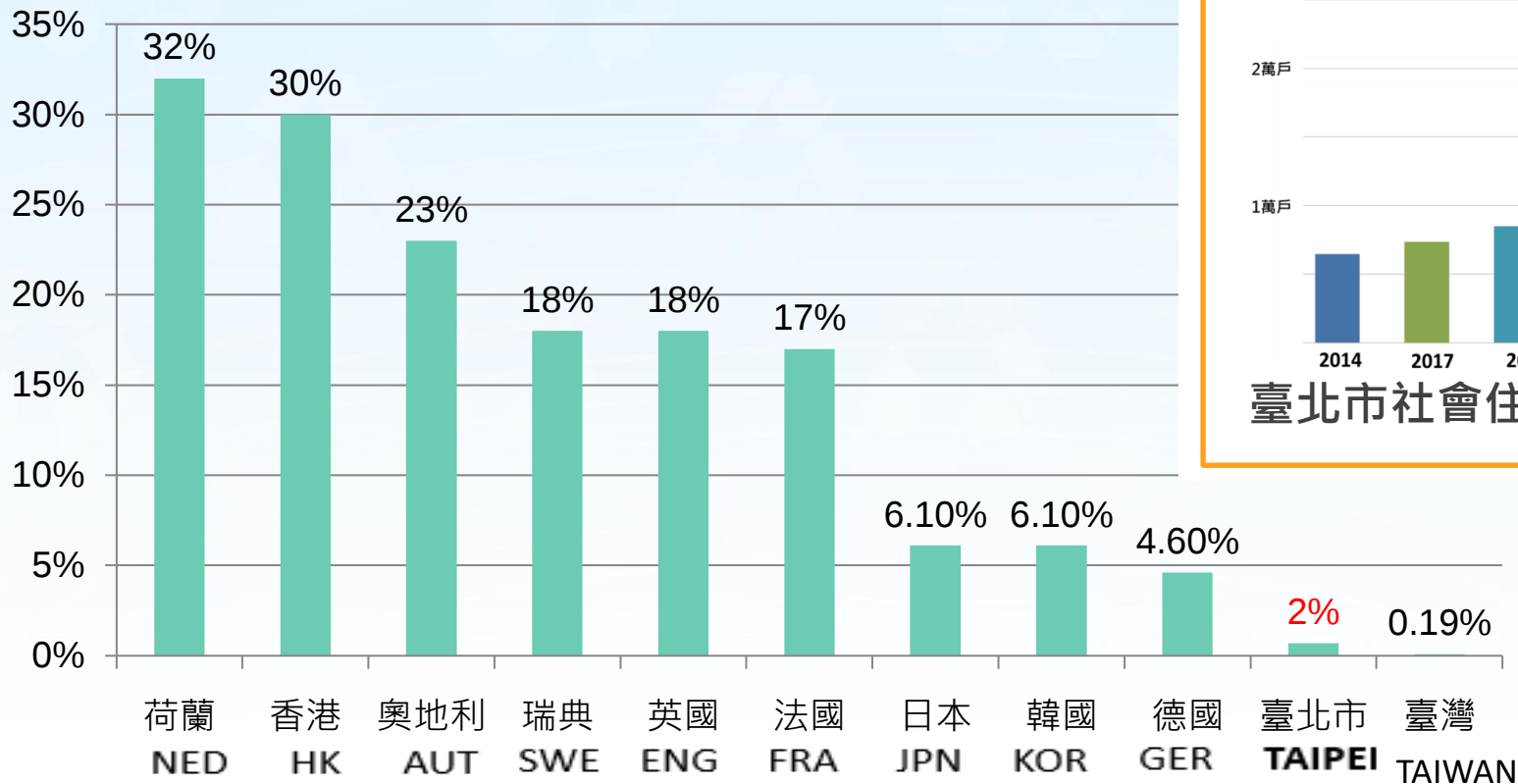


社會住宅簡介

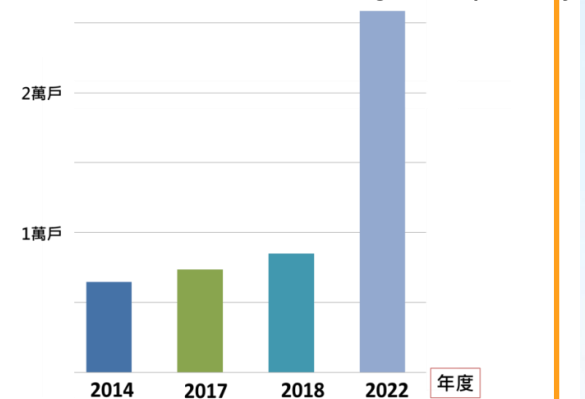
Introduction to Social Housing



- 本市社會住宅存量僅佔全市住宅存量**2%**。(全國0.19%)
 - Social Housing in Taipei only accounts for 2% of housing stock.



Number of Social Housing in Taipei City



臺北市社會住宅存量變化





實踐居住正義

Implement the living justice

落實城市美學

Enriching urban aesthetics

成為智慧城市產業實驗場域

Pilot-project for smart city

創造新的居住營運模式

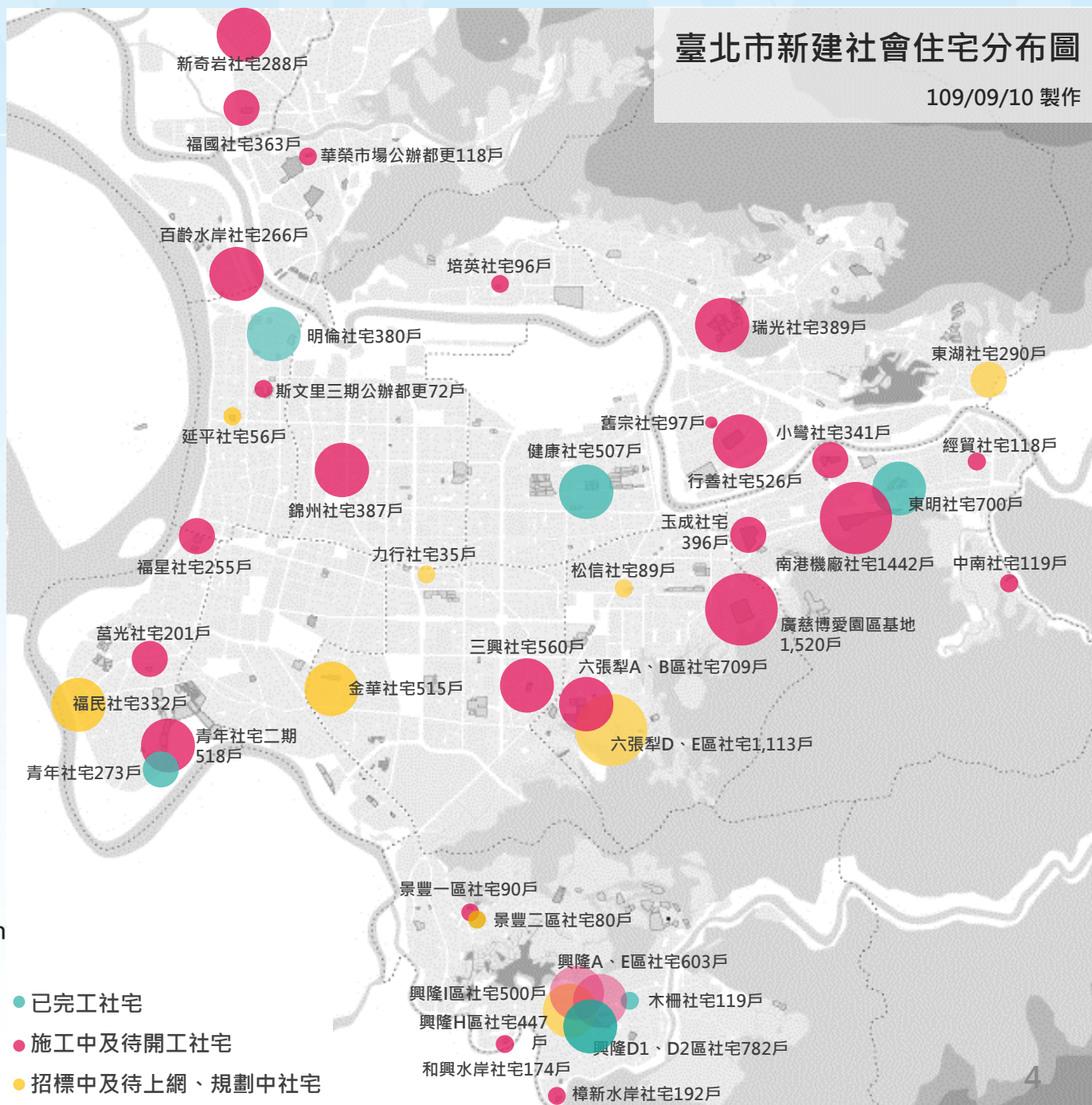
Create new model of residence

經營社區關係

Community relationships management

臺北市新建社會住宅分布圖

109/09/10 製作





社會住宅規劃特色

Social Housing Planning Features



Living Space
實用居住空間



Open Space
開放空間形塑



Transportation
便捷的交通



Social Welfare Facilities
社會福利設施



耐震標章
STRUCTURE ACCREDITATION BUILDING
Structure
Accreditation Building



綠建築標章
GREEN BUILDING
Green Building

銀級



Accessible House
無障礙住宅標章



智慧建築標章
Intelligent Building
智慧建築

銀級





水資源相關法規

Water Resources Regulation



1

雨水再利用系統

- 造價>5000萬元需設置雨水儲水量2噸以上之雨水貯留系統及澆灌系統

法源：臺北市綠建築自治條例

Rainwater Recycling System

- Project Cost > 50 Million, Rainwater Storage > 2 tons

Reference : Taipei Green Building Self-Government Ordinance

2

滯洪量

- 基地面積>300平方公尺，貯留量0.078立方公尺/平方公尺(基地面積)

法源：臺北市下水道管理自治條例

Detention Storage

- Site Area > 300 square-meter, storage 0.078 cubic-meter / square-meter

Reference : Taipei Stormwater Management Ordinance

3

保水量

- 人行步道或廣場等鋪面>50%透水性材料

法源：臺北市新建建築物綠化實施規則

Retention Storage

- Pavement (ex: Sidewalk, Plaza..ect) > 50 % Permeable Material

Reference : Rules of Architecture Technology—Regulations on the Green Building

4

綠化面積

- 公有建築物綠覆率>70%，屋頂平台綠化面積>1/2

法源：臺北市新建建築物綠化實施規則

Green Area

- Green Area Ratio of Public-Owned Building > 70%, Rooftop Greenery Area > 1/2

Reference : Rules of Architecture Technology—Regulations on the Green Building



社會住宅水資源設計

Water Resource Planning for Social Housing



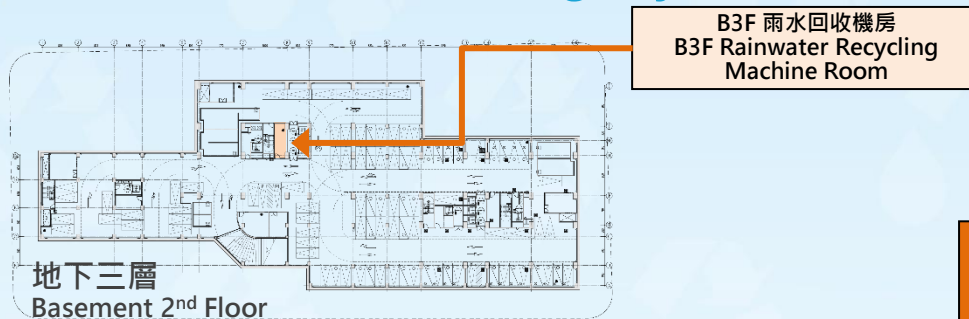
北投區福國社會住宅為例

1. 雨水回收系統
Rainwater Harvesting System
2. 雨水排出抑制系統
On-site Stormwater Detention Tank System
3. 基地保水(含透水鋪面及綠化滲透)
Soil Water Retention(Include permeable pavement and rain garden)
4. 綠化設施(包含屋頂農園)
Green Infrastructure



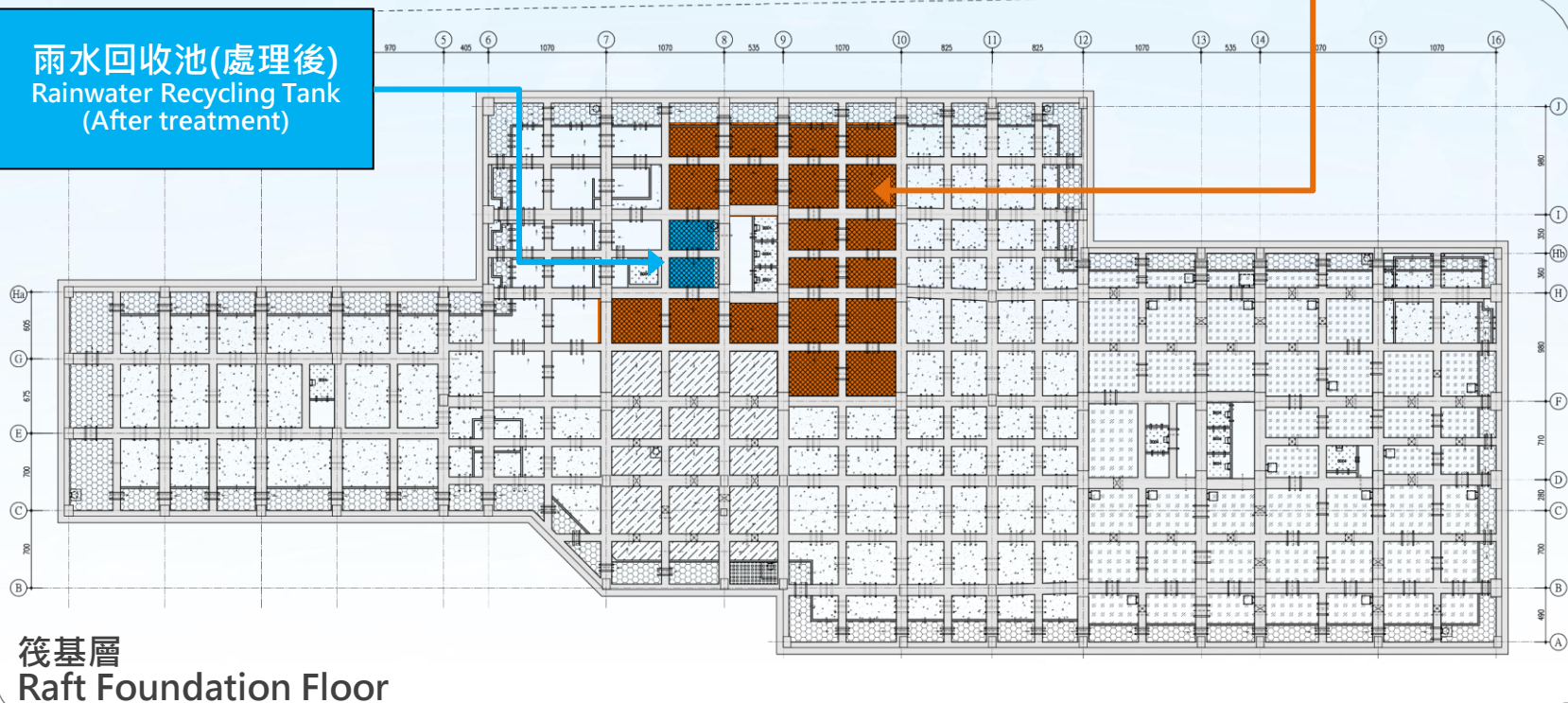
雨水回收系統

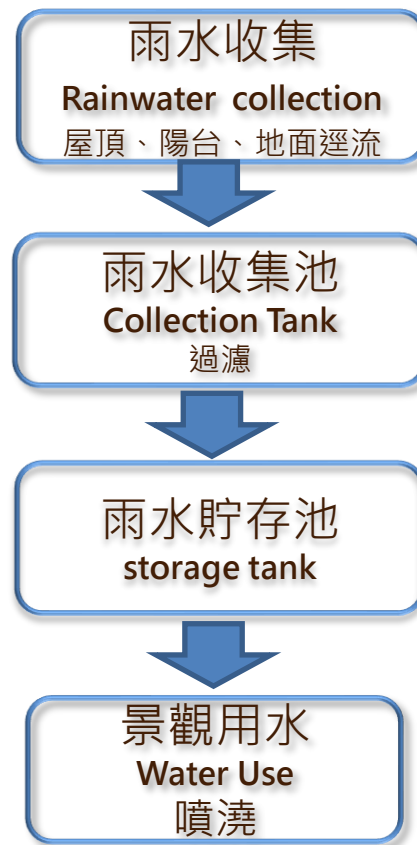
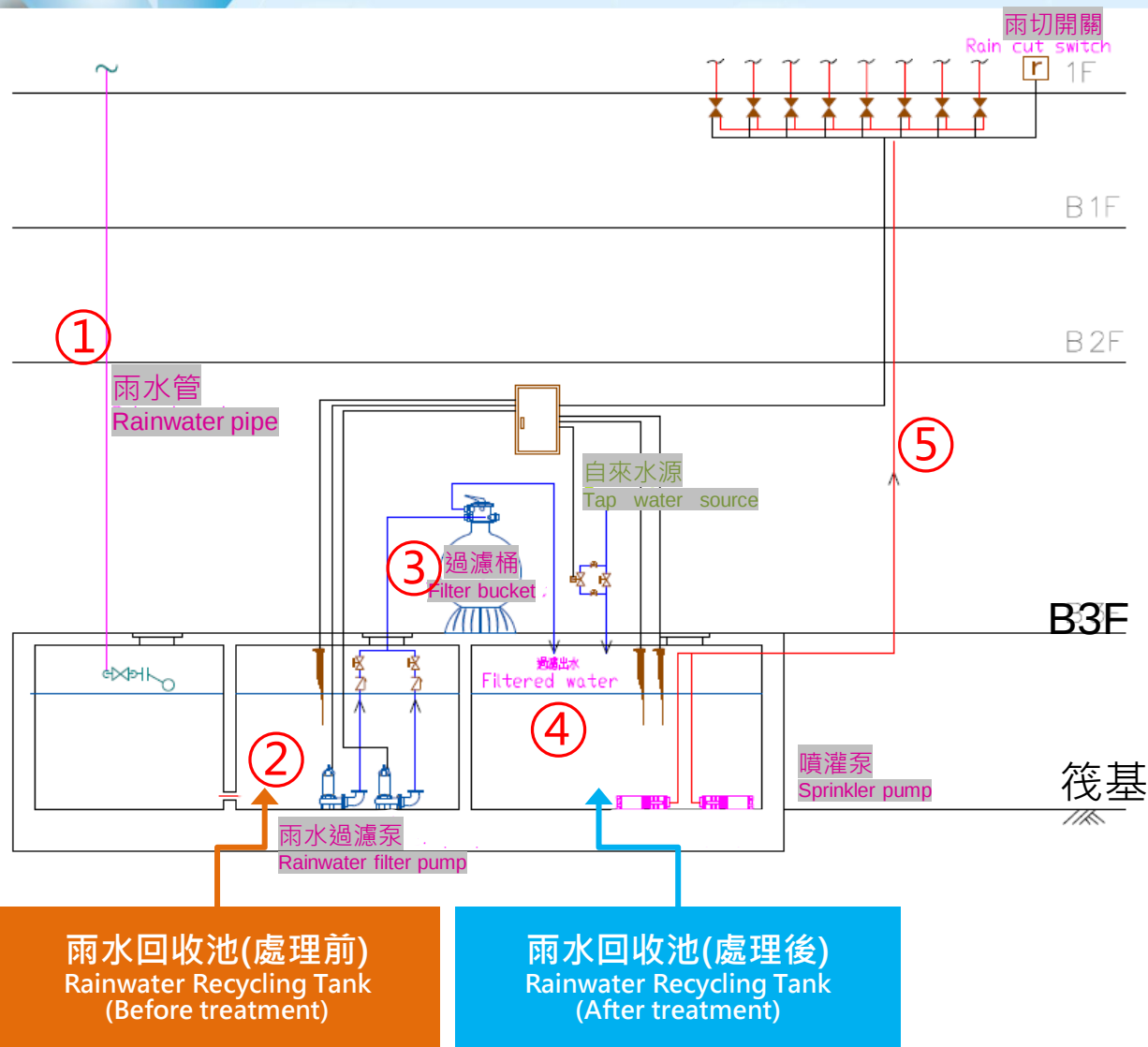
Rainwater Harvesting System



雨水回收池(處理前)
Rainwater Recycling Tank
(Before treatment)

雨水回收池(處理後)
Rainwater Recycling Tank
(After treatment)







流出抑制設施配置

On-site Stormwater Detention Tank System

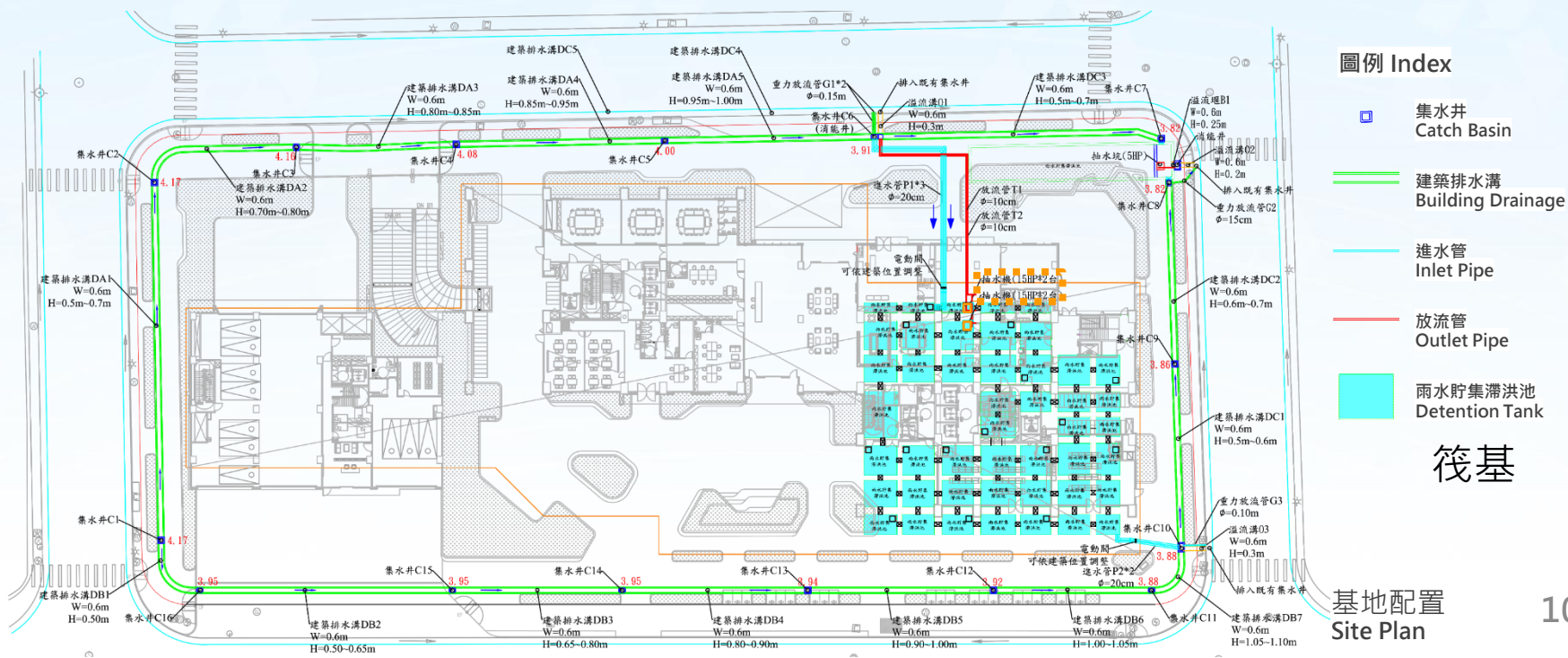


1. 基地內四周設置建築排水溝以收集建築物及空地地表雨水後經由進水管排至戶外雨水貯集滯洪池或筏基內雨水貯集滯洪池。

Setting drainage around the site to collect the runoff from the entire sites and routes via inlet pipe to the outdoor detention tank or raft detention tank.

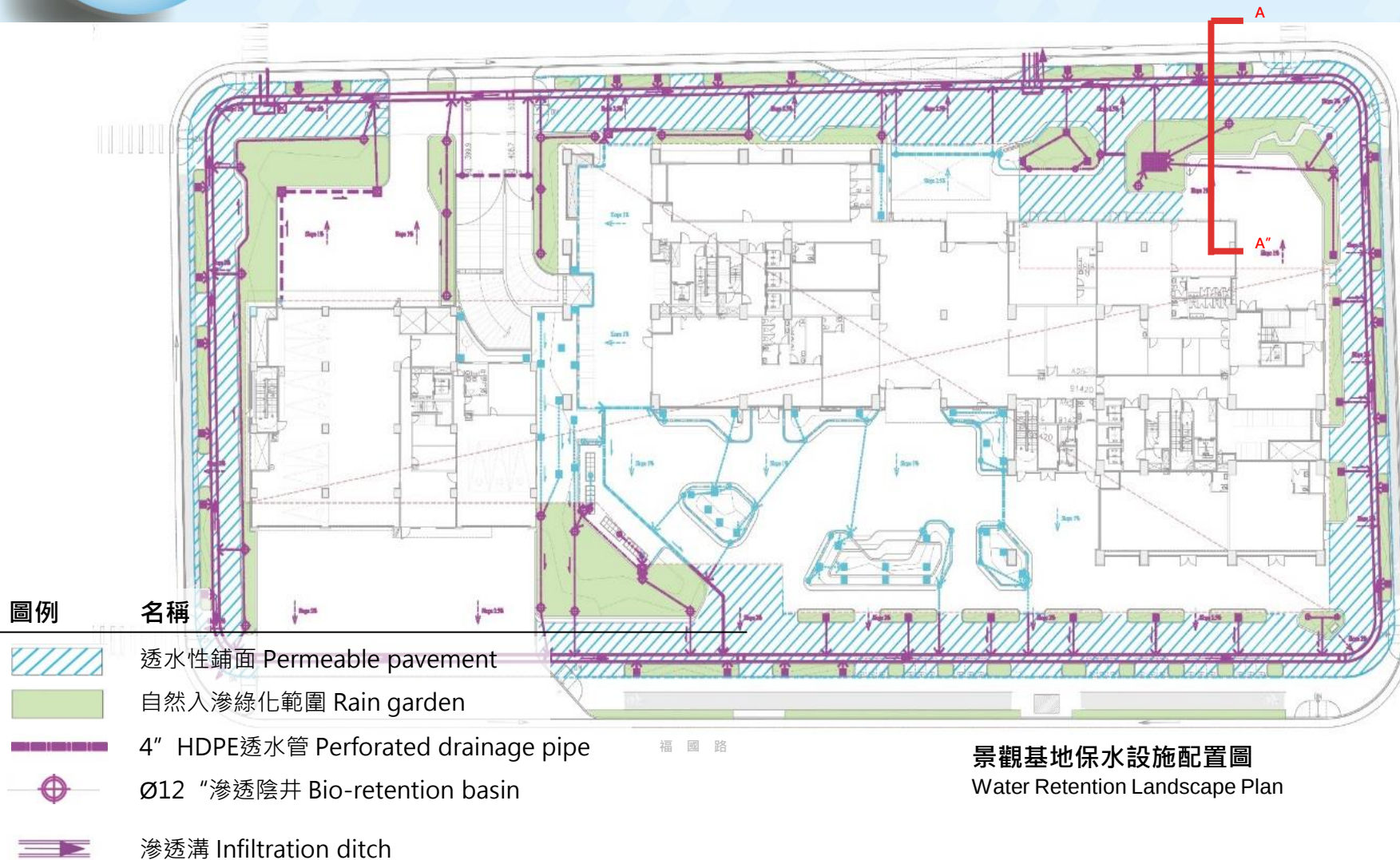
2. 雨水貯集滯洪池內設置抽水機抽排至基地外既有排水溝或集水井內。

Pumps installed in the detention tank will discharge water to the outside drainage system or wells.



基地保水 (含透水鋪面及綠化滲透)

Soil Water Retention
(Include permeable pavement and rain garden)





基地保水 (含透水鋪面及綠化滲透)

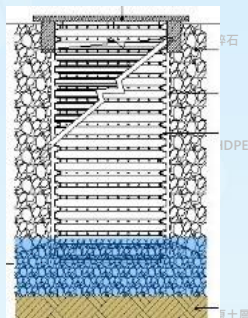
Soil Water Retention (Include permeable pavement and rain garden)



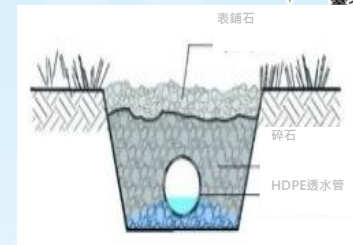
生態保水設施示意圖
Water Retention Landscape illustration



雨水花園
Rain Garden



滲透陰井
Infiltration ditch



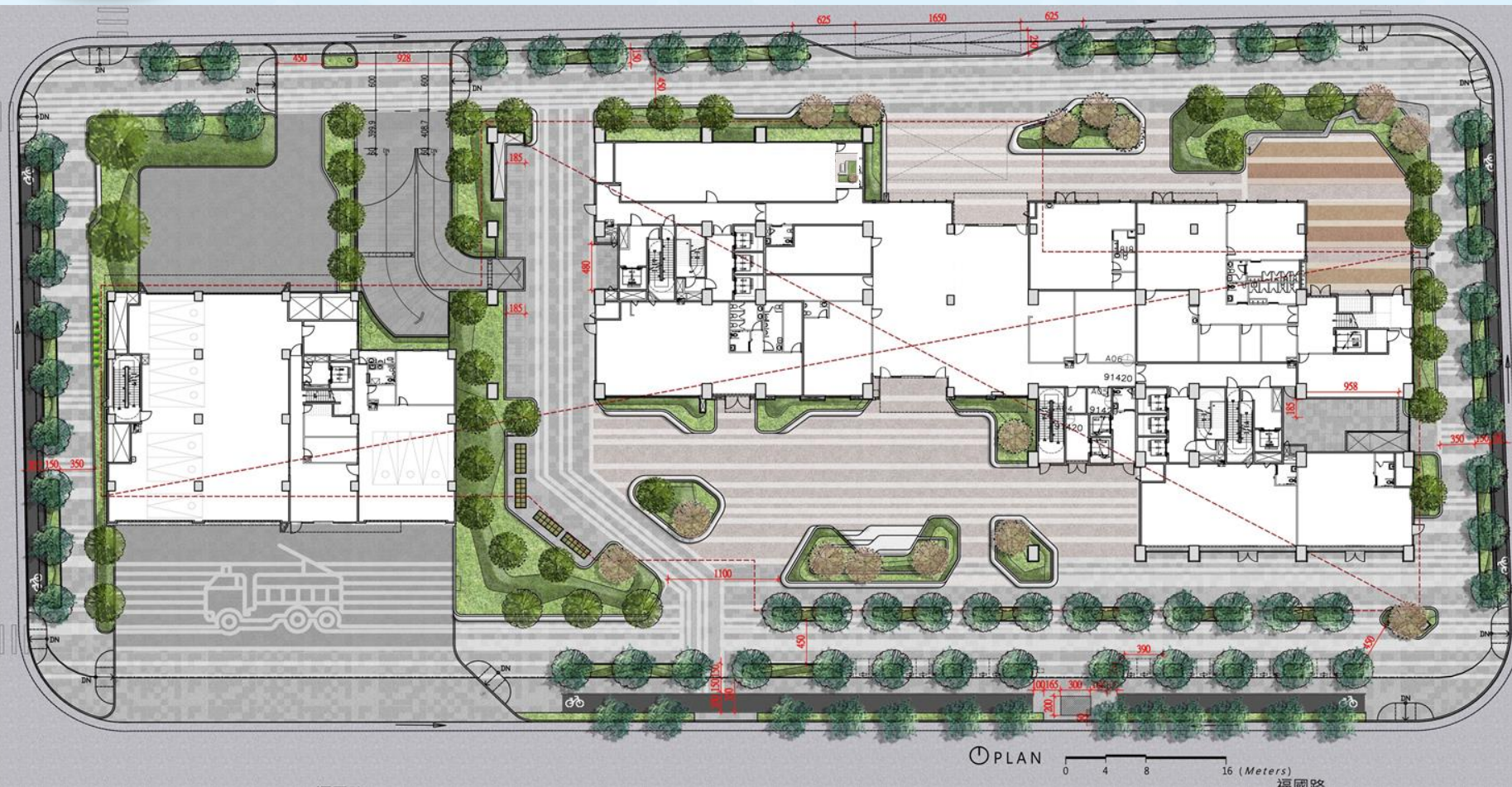
透水管
Perforated Drainage Pipe





綠化設施

Green Infrastructure



1F綠化平面圖 /Master Plan



綠化設施

Green Infrastructure



露台示意圖
Rooftop Garden



露台模組1(6、7、10F)
Modular Rooftop Garden 1



露台模組2(14、16F)
Modular Rooftop Garden 2



2,3F綠化平面圖 / Second / Third Floor Plan



綠化設施 (屋頂農園)

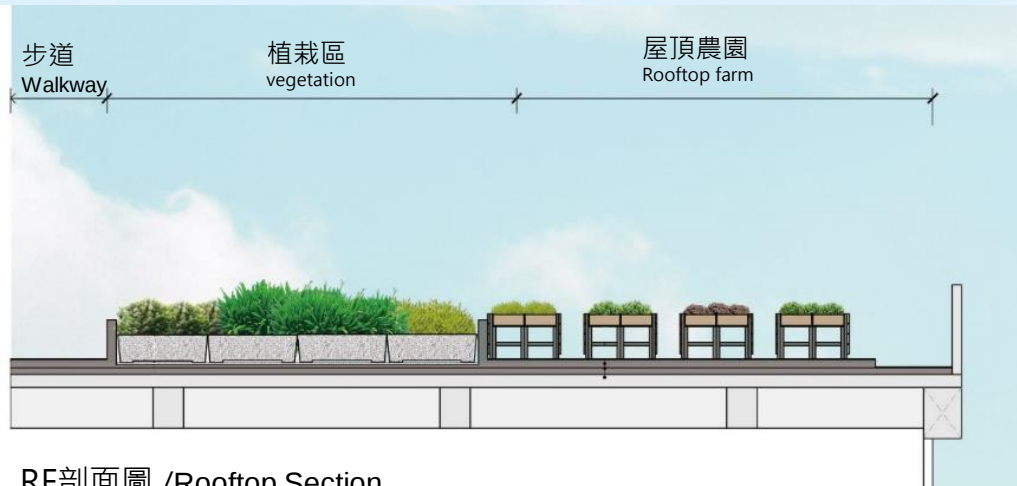
Green Infrastructure



露台示意圖
Rooftop Garden



屋頂農園示意圖
Rooftop Farm



RF剖面圖 /Rooftop Section



RF綠化平面圖 /Roof Plan



流出抑制設施配置-廣慈

On-site Stormwater Detention Tank System



● 蓄水框架

A標雨水貯集容積 = $1,332\text{m}^3$

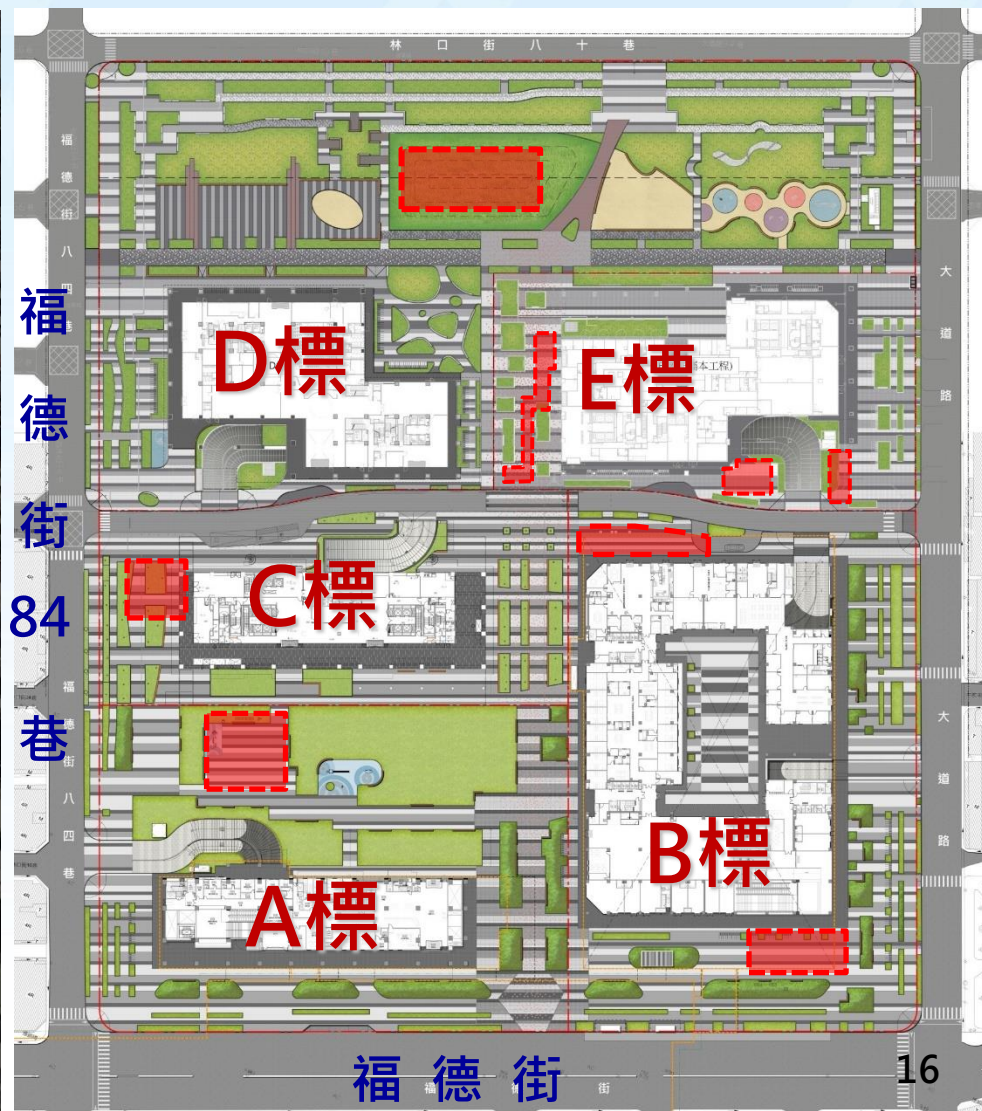
B標雨水貯集容積 = $1,509\text{m}^3$

C標雨水貯集容積 = 910.70m^3

D標雨水貯集容積 = $2,037.69\text{m}^3$

E標雨水貯集容積 = 602.53m^3

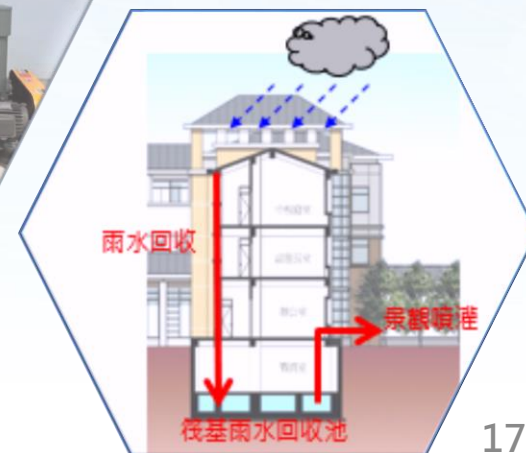
總計: $6,391.92\text{m}^3$





社會住宅設置成果

Water Resources Achievement in Public Housing





社會住宅設置成果

Water Resources Achievement in Public Housing



透水鋪面



透水鋪面&綠化

健康社宅
106/12



一樓綠化



社會住宅設置成果

Water Resources Achievement in Public Housing



屋頂農園



雨水回收系統

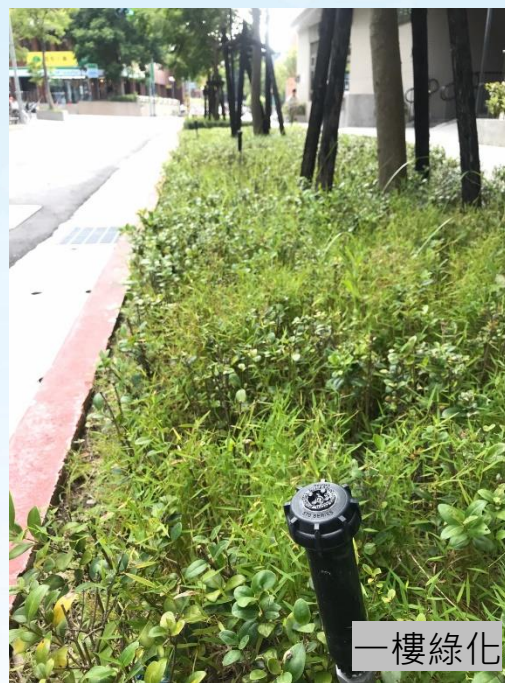


雨水過濾



社會住宅設置成果

Water Resources Achievement in Public Housing





社會住宅設置成果

Water Resources Achievement in Public Housing



東明社宅
108/07



屋頂綠化



透水鋪面&綠化



透水鋪面&綠化



社會住宅設置成果

Water Resources Achievement in Public Housing



木柵社宅
109/04





社會住宅設置成果

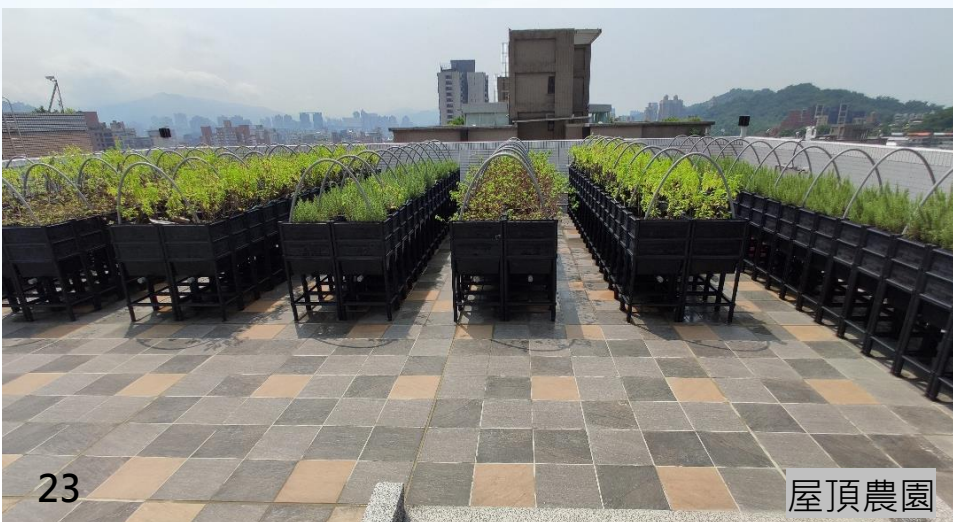
Water Resources Achievement in Public Housing



雨水過濾



雨水貯集



屋頂農園



屋頂農園



水資源成果-綠建築節水效益

Green Building Achievements in Water Conservation



依內政部建築研究所指出，綠建築標章之**節水效益約有30%**。

臺北市現推動47處社會住宅興建，

According to Architecture and Building Research Institute, green building can save 30% of water usage.
All social housing must to obtain the Green Building Mark in Taipei city.



**每年節水量約200萬立方公尺
約為801座標準游泳池之水量**

Saving 2 million cubic meters of water a year, which equals the amount of water that can fill 801 standard-size swimming pool.



**以每度6.7元用水費計算，
推估一年節省水費1342.5萬元**

The average meter rate for regular housing is 6.7 yuan.
Based on this number, social housing can save \$13,425 thousand dollars for water usage per year.



水資源成果綠建築減碳量估算

Calculate Carbon Reduction for Green Building



統計104 ~ 115年間共計47處社會住宅 47 Social Housing Units from 2015 to 2026		總樓地板面積(m ²) Total Floor Area (m2)	≒1,830,000
		綠化面積(m ²) Greening Area (m2)	≒128,000
項目 Item	碳排放係數 Carbon Emission Factor	減碳量(噸/年) CO2 Reduction Amount (ton/ year)	
節電 Energy Saving	0.533 kgCO2e/kwh	$34 \times 1,830,000\text{m}^2 \times 20\% \times 0.533 \div 1000 \approx 6,633$ 住宿類 EUI 總樓地板面積 節電效率 用電碳排放係數 公斤換算成噸	
節水 Water Saving	0.693 kgCO2e/cmd	$10 \times 1,830,000\text{m}^2 \div 1000(\text{L/度}) \times 365\text{天} \times 30\% \times 0.693 \div 1000 \approx 1,389$ 住宿類單位 面積用水量 總樓地板面積 水之用量 換算成度 1年天數 節水效率 用水碳排放係數 公斤換算成噸	
綠化	0.66 kgCO2e/(m · yr)	$1.5 \times (0.5 \times 128,000\text{m}^2 \times 0.66) \div 1000 \approx 63.36$ 綠化面積 綠化固碳當量 基準值 公斤換算成噸	

資料來源：內政部建築研究所、2019綠建築評估手冊(基本型)

Reference: Architecture and Building Research Institute

預估每年減碳量約等於20.7座大安森林公園碳吸附量
The carbon reduction amount will be equivalent to 20.7 times the carbon sink of Daan Forest Park in a year.
(一座大安森林公園每年的碳吸收量 = 389噸)
(Volume of the carbon sink of Daan Forest Park = 389 tons)



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