

Growing Movement

Building owners could face costly consequences if they ignore the protocol on management and maintenance of 'green' features.

May Chan Rhodes



Sr Vincent Ho Kui-yip, JP

Immediate Past President of the HKIS, Chairman of the HKIS Building Policy Panel and Managing Director of Freevision



Sr Gary Yeung Man-kai

Past Chairman of the Property and Facility Management Division of the HKIS and General Manager at Shui On Properties Management



Sr Daniel Chang Wai-ip

Chairman of the Building Surveying Division of the HKIS



Photo: SCMP

The City University of Hong Kong has developed an extensive network of green rooftops.

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The popularity of “green” building features continues to blossom in Hong Kong as more and more gardens sprout from walls, rooftops and ceilings in a city famous for its lack of open spaces. However, following the collapse of the sports centre roof at the City University of Hong Kong – one of the city’s many “green rooftops” – the safety aspects of these green building features, especially rooftops, has come under public scrutiny.

Sr Vincent Ho Kui-yip, JP, Immediate Past President of the HKIS and Managing Director of Freevision, now chairs the Institute’s Building Policy Panel. He says that building professionals of various disciplines – including surveyors, architects, engineers, landscapers and designers – have yet to put their heads together and offer a holistic view on what qualifies good green design.

“Green designs have been heavily promoted in the past 10 years,” Ho says. “However, the existing awards and certificates related to sustainable building designs do not really take maintenance issues into consideration. Green designs should not be treated only as a gimmick. They should be evaluated properly on their practicality and their contribution to the longer-term management, operation and maintenance of a building, as well as their environmental impact.”

It is not uncommon for green features to conflict with a building’s maintenance needs, Ho says. While rooftop plants and photovoltaic panels may come with environmental benefits, they can also be a burden. They may, for example, cause waterlogging, which compromises the integrity of roofing materials and accelerates ageing.

Additional construction elements that accommodate plants and gardens could also make it difficult to effectively design and install a building’s expansion joints, which are essential to the design of many large-scale buildings. They are also a hindrance to maintenance and repair work, and waterproofing treatment of the roof.

Ho also says that old buildings with added green features face higher risks because the features were not considered in the original building designs, and this could add to their existing ageing and maintenance problems. He advised existing building owners to assess maintenance and repair needs so that the buildings are appropriately enhanced before adding green features. For example, owners and designers should consider trialling localised green features before rolling out to the whole building.

New buildings, Ho says, are in safe hands as long as all aspects have been considered at the planning stage. “We appreciate the value of green building designs, and that is why we need to work with different building professionals,” he says. “Unfortunately, the relationship between greening experts and building experts is very weak. We hope that we can talk to each other more often to strike a good balance.”

He adds that the government should take the lead in encouraging collaboration between professionals of different building disciplines. The existing building laws and regulations, for example, mainly serve to set parameters for the installation of green features, and do not require applicants to evaluate the overall impact of such features on a building’s long-term operation.

“We need the government to provide both the incentive and pressure for a better green building strategy that acknowledges the operational needs of the building,” Ho says. “If we avoid talking about how green building features could compromise building performance, the consequences can be very costly in the long run.”

Sr Gary Yeung Man-kai, Past Chairman of the Property and Facility Management Division of the HKIS, says it is important to have a sustainable and balanced evaluation of the costs and benefits of green design.

COVER STORY

“The government might consider sample checking green rooftops on a regular basis to further raise public awareness.”

Good green design should be safe, accessible and easily enjoyed by residents and visitors, says Yeung, who is also the General Manager at Shui On Properties Management.

He added that facility managers should be aware of the impact on a building's daily operations of structural and non-structural issues related to green features. For example, the scents of certain plants could attract mosquitoes and lead to pest control issues. Meanwhile, certain plants and trees should be favoured to minimise damage, such as tree collapses during typhoon season.

Yeung says that when it comes to green rooftops, building owners must be aware that the average 10-year longevity of a waterproof membrane is likely to be compromised by waterlogging, not to mention the possible damage caused by growing roots. This implies the need for more regular check-ups, and possibly more expenses for repair and maintenance.

He also advises developers and property management companies to employ professional consultants and contractors to deal with individual elements.

“It is considered inappropriate to expect a green roof contractor to decide all technical and management issues,” he says. “For example, some buildings are not suitable for green rooftops, as their original design did not provide any buffer for the extra load-bearing capacity needed to carry the extra weight of the soil, water and plants. You may need advice from an Authorised Person or Registered Structural Engineer to evaluate the safety of the building.

“Similarly, you may need a licensed plumber to conduct the installation of a plumbing and drainage system, and professional waterproofing consultant to look at the waterproof membrane.

Yeung warns of the dangers on ignoring these measures. “Unfortunately, and in

order to save costs, some lay property management companies may resort to only one contractor to perform the overall design and build functions. This could lead to poor design and quality, and various issues like water leakage, poor drainage and structural failure.”

Sr Daniel Chang Wai-ip, Chairman of the Building Surveying Division of the HKIS, says buildings with green rooftops should be regularly monitored to assess the soundness of the overall structure.

Over the past few months, Chang has been working with a team of volunteers from the HKIS, in joint force with members from the Hong Kong Institute of Landscape Architects, in conducting check-ups on green rooftops at schools. The team has completed 24 inspections so far. The team also offers to look at rooftop design and building condition, evaluate loading capacity, and inspect buildings for potential structural issues, such as water seepage, cracks on the walls and ceiling, and deformed window frames.

The inspections found the most common issues for green rooftops were partial blockages in the drainage system and poor maintenance of overgrown plants. None of the inspected buildings was found to be in any immediate danger.

Chang also suggested the government step up its review and strengthening of existing statutory control frameworks regarding green rooftop installation. “We need clearer guidelines on designing, constructing and maintaining green rooftops,” he says. “At the same time, the government might consider sample checking green rooftops on a regular basis to further raise public awareness.”

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綠化建築 設施發展趨勢

建築物業主若無視綠化設施的管理及保養規約，或會引致嚴重後果。

May Chan Rhodes

眾所周知，香港公共空間不足，因此花團錦簇、綠意盎然的牆壁、天台和棚頂蔚然成風，令「綠化」建築設施在這城市大放異彩。但是，作為香港眾多「綠化天台」之一的香港城市大學運動中心屋頂坍塌後，這些綠色建築設施（特別是屋頂）的安全問題引起公眾關注。

香港測量師學會上任會長、建築政策小組現任主席兼富匯董事總經理何鉅業測量師、太平紳士表示，各界別建築專業人士，包括測量師、建築師、工程師、園境師及設計師，仍需集思廣益，就何謂良好的綠化設計提供一個全面的觀點。

「過去十年，綠化設計備受熱捧，」何鉅業說：「但是，現時與可持續建築設計有關的獎項和證書並沒有真正考慮到保養的問題。綠化設計不應僅僅是一種噱頭，而應當按其實用性、其對建築物長期管理、營運及保養的貢獻，以及其環境影響進行適當評估。」

何鉅業指出，綠化設施與建築保養需求發生衝突的情況並非鮮見。屋頂植物及光伏板雖可帶來環境效益，但同時亦可能成為負擔。例如，他們可能會導致滲水，損害屋頂材料的完整性並加速材料老化。

為容納植物及花園而搭建附加建築物，亦可能令設計及安裝建築物伸縮接縫變得困難，而伸縮接縫對於許多大型建築設計至關重要，而且胡亂搭建亦不利於屋頂保養、維修和防水。

何鉅業還指出，增建綠化設施的舊建築面臨更高風險，因為這些設施不在原建築設計的考慮範圍內，這可能會加重樓宇現有的老化及保養問題。他建議現有建築物的業主評估保養及維修的需要，確保建築物得到適當加強後再考慮增建綠化設施。例如，業主及設計師應對綠化設施進行局部鑑定後，再考慮推及至整棟樓宇。

何鉅業稱，只要在規劃階段考慮到所有方面，新建樓宇便稱得上安全無虞。「我們認同綠色建築設計的價值，這正是我們需要與不同建築專業人士合作的原因，」他坦言：「遺憾的是，綠化專家與建築專家之間的聯繫非常薄弱。我們希望彼此能夠增進交流，達成共識。」

他補充，政府應率先鼓勵不同建築界別的專業人士攜手合作。舉例而言，現有建築法律法規主要是規範綠化設施的安裝，卻沒要求申請人評估此類設施對建築物長期營運的整體影響。

「我們希望政府能夠恩威並施，制定更佳的綠色建築策略，切合建築營運需要，」何鉅業表示：「如果我們對綠化建築設施如何損害建築性能置若罔聞，長遠而言，後果可能非常嚴重。」

香港測量師學會物業設施管理組前主席楊文佳測量師表示，對綠化設計的成本與效益進行可持續及平衡的評估十分重要。

身兼瑞安物業管理總經理的楊文佳稱，良好的綠化設計應當安全、方便，且讓居民和訪客能輕鬆享受綠化空間。

他補充，設施管理經理應當意識到綠化設施所涉及的結構性及非結構性問題，對建築日常營運帶來的影響。例如，某些植物的氣味會招惹蚊蟲，帶來蟲害防治問題。同時應對某些植物和樹木加以保護，以減少危害，例如颱風季節期間的塌樹事件。

楊文佳指出，就綠化天台而言，建築物業主必須意識到，積水可能會令平均壽命為 10 年的防水膜折壽，更遑論不斷生長的樹根所蘊藏的潛在危害。這意味著需要更頻繁的定期檢查，且可能增加維修及保養開支。

他還建議開發商及物業管理公司聘請專業顧問和承建商處理個別問題。

「要求綠化屋頂承建商解決所有技術及管理問題，實屬強人所難，」他表示：「舉例而言，一些建築在設計之初並沒有計及承載土壤、水及植物等額外重量所需的額外承載能力，因此並不適合搭建綠化天台。在評估建築物的安全性時，可能需要諮詢認可人士或註冊結構工程師的意見。」

「同樣，你或需聘請持牌水喉匠安裝水喉及排水系統，以及聘請專業防水顧問檢查防水膜。」

楊文佳警告輕視有關措施會帶來危險。「很遺憾，為了節省成本，一些缺乏經驗的物業管理公司往往僅依賴一名承建商履行全部的設計及建築職責。此舉可能會導致設計及質素欠佳，以及滲水、排水不暢和結構性故障等各種問題。」

香港測量師學會建築測量組主席鄭偉業測量師指出，應對有綠化天台的建築進行定期監查，以評估整體結構的穩固性。

過去數月，鄭偉業一直與香港測量師學會的義工隊合作，在香港園境師學會會員的通力配合下，對學校綠化天台進行檢查，迄今已完成 24 次巡查，同時亦協助檢查屋頂設計及建築狀況、評估承載能力，以及檢查建築的潛在結構性問題，如滲水、牆身及天花板破裂，以及窗框變形。

檢查發現，綠化天台最常見的問題是排水系統局部堵塞及植物生長過度，保養不當。義工隊沒有發現任何受檢查的建築物存在任何即時危險。

鄭偉業亦建議政府加快審查和強化綠化天台裝置的現有法定管制框架。「我們希望綠化屋頂的設計、建築及保養指引更加清晰，」他表示：「同時，政府不妨考慮定期對綠化天台進行抽樣檢查，以進一步提高公眾意識。」

本文由《Classified Post》撰文。



建築測量組義工隊到學校檢查綠化天台

1. 檢查天花結構及飾面是否有鬆脫現象
2. 觀察植物生長情況
3. 檢查去水口並量度去水渠闊度
4. 使用高爾夫球測試天台地面斜水情況
5. 使用竹桿等量度種植土壤厚度
6. 利用紅外線探測儀協助檢測天面狀況