Facility Management System VHFMS™

Technical Paper

Professional Facility Management System: reduces cost, improves profitability

VHSoft's Facility Management System (VHFMS^{TM}) is an effective means for facilities and building maintenance departments and organizations on space planning and maintenance.

Companies continually strive to achieve the highest possible revenue from their existing assets. Hence, the ability to eliminate unnecessary delays, decrease downtime and reduce errors can enhance profits significantly. Moreover, with the increasing amount of physical assets, organizations must find new ways to minimize maintenance time while maximizing accuracy and efficiency.

VHFMS is an integrated suite of applications that addresses all aspects of facilities management, which is equipped with VHSoft's two advanced CAD applications, VHDrawings (a Drawing Management module) and VHInterior (a Pattern/Furniture & Space Recognition module), to ensure every change made on a drawing is simultaneously reflected in the system.

With VHFMS, facility managers, space planners and plant maintenance professionals can now manage and access as-built records at ease, avoiding lengthy infrastructure downtime, as well as improving operational efficiencies and reducing risk.

VHFMS is a customizable and scalable system that possesses the capability to automatically track occupancies, expenses, costs, movement of equipment and personnel, as well as to determine space usage and perform analysis.

Benefits of VHFMS:

VHFMS can yield an attractive Return On Investment (ROI) in the following ways:

Track & Manage your Facilities more effectively - Add document management features such as workflow rules, access control, and change management to CAD drawings and other facilities-related instruments such as leases regulatory/compliance documents, warranties, maintenance contracts and more.

Improve Operational Efficiency - Synchronizes data-driven facilities management CAD drawings with architectural drawings, effectively eliminating discrepancies between the as-built environment and facilities management drawings.

Enable Strategic Decision Making - Captures the change history of CAD drawings and document the life cycle of buildings and assets to ensure accurate, up-to-date information for decision-making.

Enhance Communication - Enables collaboration between facilities management personnel and outside architects and engineers.

Save Administration Time - Provides a formal structure and index for easy searches in locating facilities-related documents.

Other features:

Pinpoint vacant offices and workspace and provide easy consolidation

Reduce the complexity of office relocations, and gets relocated employees up and running faster

Design for use by people with little or no computer experience, save on labor and training costs

Allow off-site management, eliminates the duplication of space planning efforts at multiple sites

Enhance workspace & facility planning and make better decisions

Streamline and simplify the entire moving & relocation process

Boost overall facility management efficiency and productivity

1. The Application

VHFMS is flexible, designed with modular structure to let users assemble the most complete combination of applications according to the organization's requirements and budget. Data entered into these applications is automatically reflected in other relevant areas, ensuring accurate and up-to-date information.

It helps management to enhance planning and make better decisions, such as when to expand or lease new space. Communications between different service groups such as Space Planning, Occupancy Planning, Information Services, and Telecommunications can be greatly improved.

VHFMS Core Modules:
Space Management
Properties' Operational and Financial Management
Furniture & Equipment Management
Drawings Management
Administration Module
Enquiry/Reporting Module
Location Summary with Map/Building Graphic Presentation

1.1 Space Management = Higher Space Utilization, Higher Opportunities

Create space efficiencies

For organizations that involve lots of moves, adds, and changes, planners making physical rounds of the buildings would not be efficient and it is hard to develop a strategic plan for a dynamic company. VHFMS helps to create space efficiencies.

Data Accuracy

Conventional way of doing facility management is to input space data manually which left opportunity for inconsistency and inaccuracy. VHFMS is equipped with automatic pattern recognition technology, which means areas can be calculated without any manual input. Moreover, users can extract information from layout plans via the drawings management module, coupled with the validation checking function, which alerts the users on any duplicate data input. Both features can eliminate the opportunities of human errors in a large extent.

VHFMS facilitates users to maintain data accuracy by gaining access to accurate, consistent, and timely data from a central database and reliable and up-to-date reports can be generated to reflect the data input from all company.

Save Time

VHFMS helps companies to consolidate, verify, share and manage data, which previously existed in multiple databases, departments and locations. Since VHFMS possesses the ability of pattern recognition, calculations of space can be done automatically without any human input. Users can find the exact location and relevant information of a particular staff by just one mouse click with such technology, eliminating the huge amount of workload on modifying the spreadsheet from Excel files. Much process time can be saved.

In addition, the system offers companies accurate and flexible reports that can be customized to reflect information that is relevant to the users' situation or business requirements.

Save Cost

With VHFMS, expenses and costs associated with a company's use of its space and assets can be reduced and it helps to improve overall productivity of labor, assets and resources. Disposal, redeployment or reuse of space or assets save companies millions of dollars in rent.

Levels of expenditure for all aspects of maintenance can be determined easily and also facilitating top management to have a better understanding of workspace cost in each organization. Since the up-to-date situation can be revealed at all times, a more pro-active approach in controlling contractor costs can be adopted. In addition, it will cut down the paper chase as users now have all the building and asset information from the desktop.

Human Resources

In order to track how and where employees work and the resources they require, accurate occupancy and vacancy figures supplied by VHFMS helps to manage internal move process with the more accurate space records. The powerful database of the system provides customized fields for HR personnel to add and modify data of individual files according to their needs.

VHFMS is a very valuable tool to organizations' planners in communicating space availability to end-users. Managers can view the entire floor where their team resides and better plan their own team adjacencies, as well as adjacencies with other departments.

VHFMS is able to plan contiguous space for employees and arrange for shared space and infrastructure.

1.2 Properties' Operational and Financial Management = Accelerate property ROI by optimizing space utilization

Since real estate often represents an organization's largest asset investment, it is important to understand the financial performance of properties, which helps to develop a strategic plan that addresses these risks and challenges. When an organization has to make investment decisions about its property, whether it is to purchase or lease, accurate information is always crucial. On the other hand, such information is also critical for a company to determine the market value of properties.

VHFMS Real Property & Lease Management model facilitates renters, lessors and owners to record, manage, and analyze detailed real estate and lease information, hence, each party is able to quickly evaluate opportunities and limit risk. Users can carefully monitor lease renewals and expansion options to inform lease decisions and ensure that it does not miss opportunities in the extremely dynamic market.

Coordinating the payment of various contracts is made possible by VHFMS, for example, if rents are scheduled to be paid on a specific calendar day of

the month, then other recurring costs, along with any adjustments, can be scheduled for approval at the same time.

Users can now handle its own lease administration services with the help of the VHFMS. Management is able to plan with certainty, project growth and know precisely the amount of space and infrastructure they need.
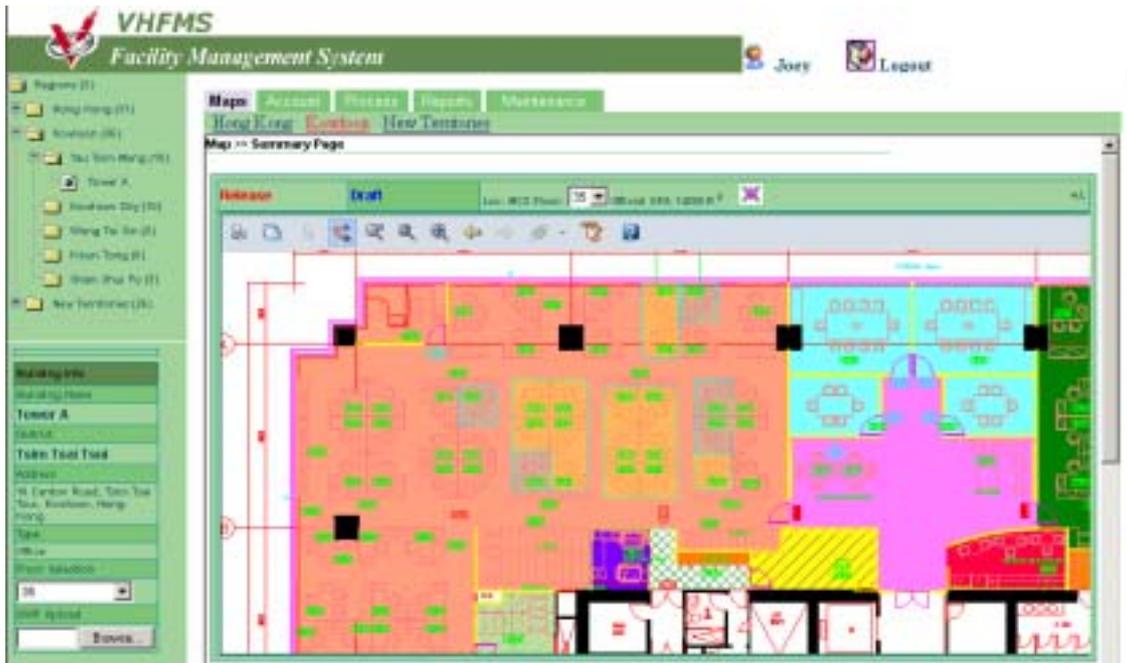
## 1.3 Furniture & Equipment Management = Money-Saving & Resources Sharing

To locate the exact positions of furniture and equipment of the entire organization manually can be chaos and affects a company's productivity.

Conventionally, facility management department has to pull out drawing prints to track project progress, which can be rather complicated. Areas of a printout would be manually colored to indicate shared spaces, and physically draw in lines to represent new construction projects. Space information database is generated from Excel spreadsheets and the hand-drafted drawings and spreadsheets are not integrated. If any organizations posses various administration and maintenance facilities, this will not be an easy task.

With VHInterior (a Pattern/Furniture & Space Recognition module), users are now able to achieve fast and accurate search of exact items locations from CAD drawings files by means of the intelligent pattern recognition technology of VHFMS. Such function can help users to count all locations of staff from the drawings and update the database directly and automatically in a quick manner.

Another core function of VHFMS is the capability of space and area recognition and calculation. It can extract items quantities from drawings. The results are exported in worksheet formats for easy handling. Hence, asset ownership can now be assigned and managed to increase accountability and reduce life cycle costs. The need for write-offs by tracking the location and depreciation of assets is hugely reduced.

The database of VHFMS holds comprehensive details of each asset which includes department, model, serial number, purchase price, location, supplier, maintenance history which can be defined by users according to their needs. Field descriptors are user configurable.
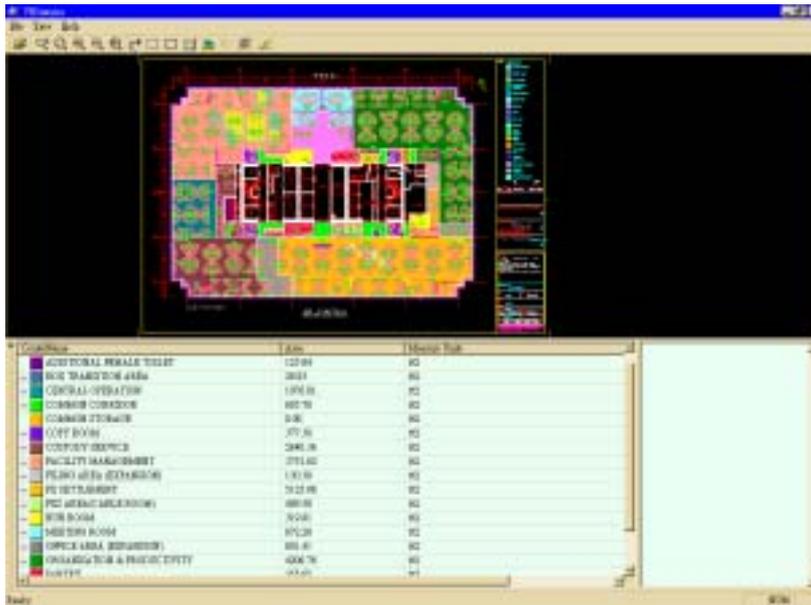
With VHInterior, users are able to achieve fast and accurate search of exact items locations from CAD drawings files by means of the intelligent pattern recognition technology of VHFMS

## 1.4 Drawings Management = Simplify CAD Files Management

VHFMS possesses a dynamic link between the FS System and a CAD suite, VHDrawings (a drawing management module) and VHInterior (a furniture & item recognition module), which automatically reflects all changes, providing accurate and up-to-date data to all managers.

With this CAD suite, users can track where items of equipment and furniture are located at any given time. VHFMS also enable users to track furniture inventory and condition, to determine what needed to be replaced. When details of all the furniture plus drawing layouts of the buildings, relating items of a building to drawings, under- and over-utilised space can be identified at once! VHFMS helps users to keep track of their facilities and assets and determine their requirements for space and thus managers are able to cater strategic planning needs.

VHFMS possesses the capability to directly edit CAD drawings. The system can insert individual CAD items into the databases, and hyperlink to other file formats, enabling the display of any data held in MS Word, Excel, PDF, etc. or as an image format, shortening total operation time. It also links drawings with facilities data, which ensure information is always

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accurate. The system also facilitates trial layouts for analyzing various move options before executing them.

Moreover, when organizations are required to provide accurate drawings and documentation on their facilities to Electrical and Mechanical Services Department (EMSD) of the HKSAR Government. VHFMS is an ideal means for this submission process.
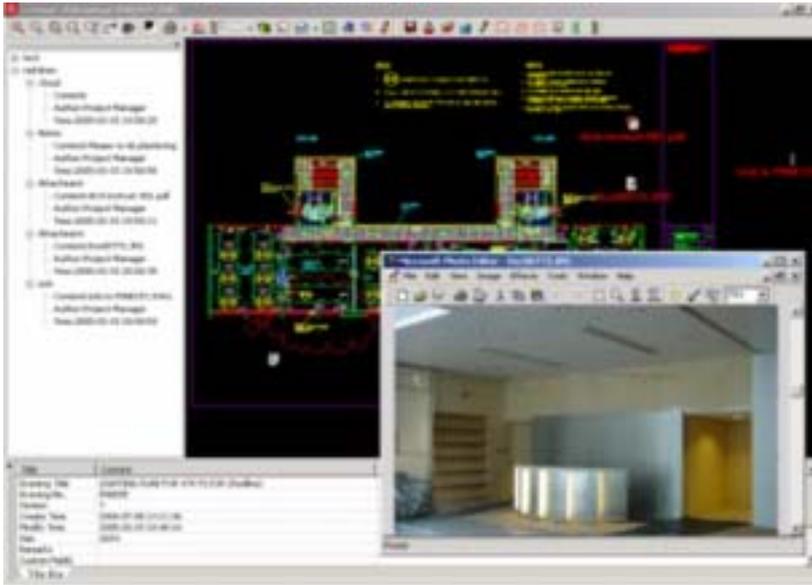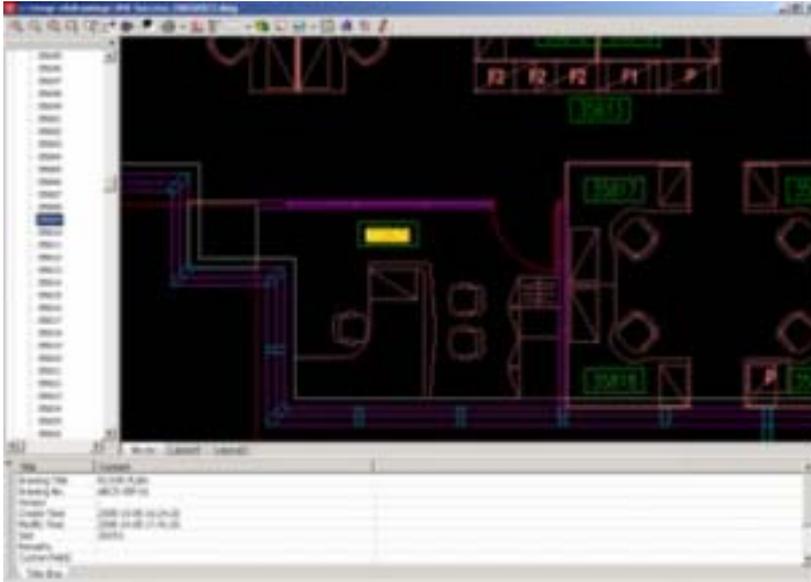

All kinds of attachments, e.g. DWG, MS Word, Excel, PDF, etc are able to be hyperlinked to the system.
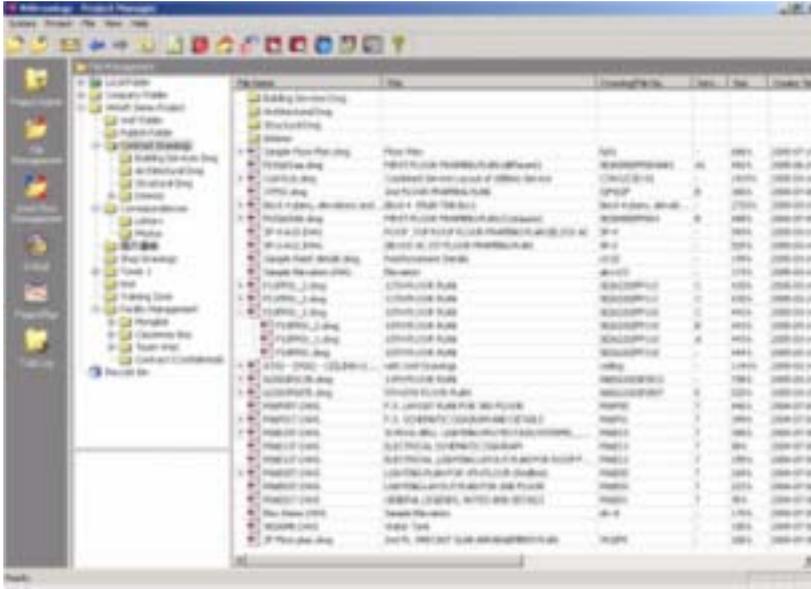
Comprehensive Drawings Management – easy to view and retrieve with clear files listing
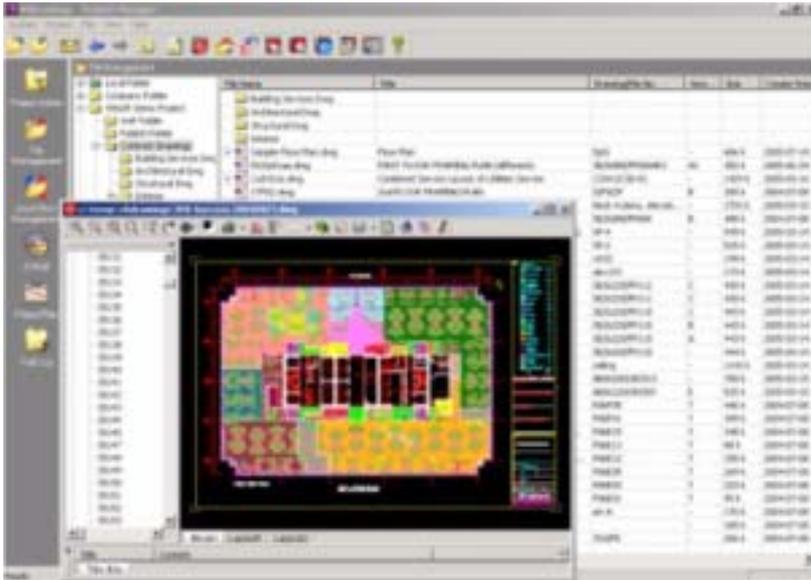
The system is equipped with built-in drawing browser to view CAD drawings

The system is able to search and show exact locations, which are desired by users.

1.5 Administration Module = Effective Means of Communication

Today, facilities managers are the ones who have been updating most space information as changes occur. They are the ones who have been performing the database adjustment when a building is remodeled or when departments relocated. The facility management staff are required to input changes such as individual employee moves.

With VHFMS, an effective means of communicating is created between the facility management department and different departmental organization. Once a particular sector is made aware of the amount and type of space that it has occupied, it can now communicate its needs to the facility management department via VHFMS.

VHFMS is an effective means of communicating is created between the facility management department and different departmental organization.

Key Administration Features:

User Account Management

- LDAP-base design of user account module provides flexibility to integrate central users accounts library directly.

- Individual user account administration features are equipped with permission levels, access right and audit trail.
- Role/Group-base account permission setting.

Security Management

VHFMS understands the importance of system security within your organization. The system is designed with the following security features:

- Transaction locking feature to ensure the data integrity for safeguarding the accuracy and completeness of information when process the concurrent users change.

- Data filtering by show/hide virtual fields so users will not be overwhelmed with irrelevant data.

- Self defined hidden or read-only fields
- Encryption of all passwords
- Audit Trail

Others Administration Features

- Common Area Maintenance
- Building Type Maintenance
- User-Defined data field Maintenance
- Asset Item Maintenance
- Housing Keeping
- Batch of Data Importing Tools

1.6 Enquiry/Reporting Module = Analysis & Planning

Once information is centralized in VHFMS, management reports with Multiple Report Parameter/Fields Selection can be easily obtained, duplication can be eliminated, complexity reduced, and users' processes are now integrated.

With User Defined Selection Criteria enquiry feature, users can specify their own selection criteria so that only required data are shown for each inquiry on the web pages without re-selecting whenever users logon to the system.

VHFMS creates accurate and defensible reports on vacancies, occupancies, and infrastructure usage, optimizing space efficiency by easily identifying excess space and finding ways to put it to better use. When users can capture the information they need in meaningful ways and

reports are easily customized to accommodate these different work styles, as a result, proactively plan for future needs can be produced in a simple manner. Top management is able to monitor all facility information directly from their desktop computer.
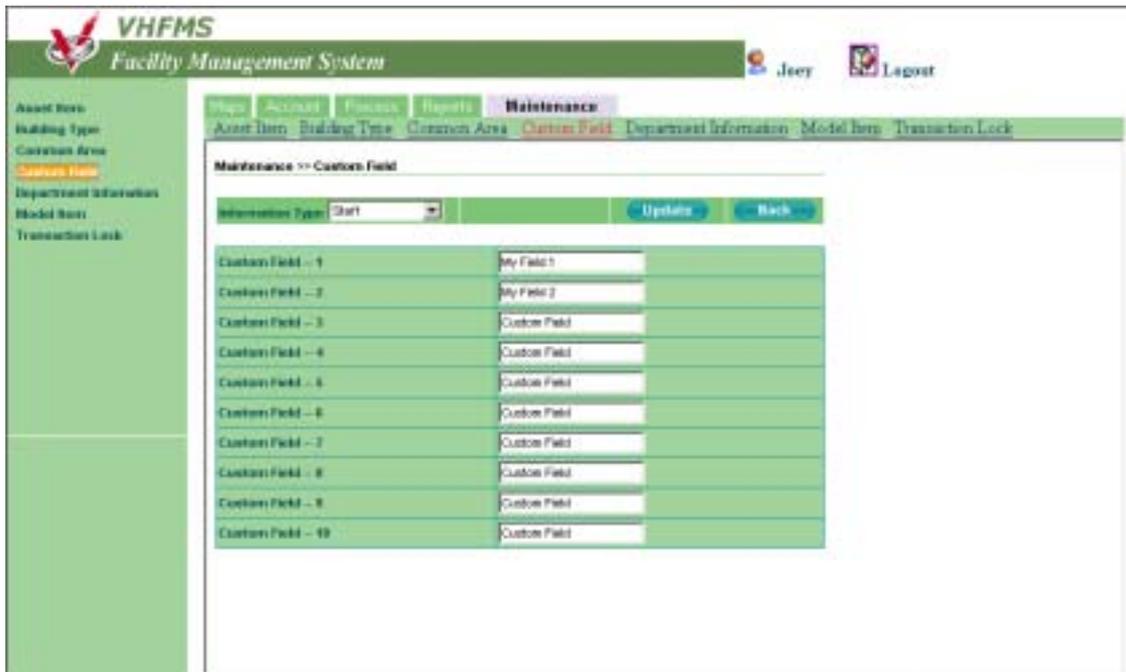
VHFMS can provide a very flexible enquiry criteria setting for users to define their templates, which results in shortening of searching time.

1.7 Location Summary with Map/Building Graphic Presentation = Overall View of Locations

Maps of specific regions, e.g. Hong Kong and PRC, can be incorporated in VHFMS, allowing users to select locations to access their targeted premises with images whereby users can click on the floors of the graphic to access the drawing files and their details.

With VHFMS, users can view the current or proposed layout plans from web-interface. User defined property location on Map Presentation is also made possible.

Key Features:

- Work/Space management with both preventative and requested work on an interactive web platform
- Property Location recording
- Work requestor to eliminate telephone tag and sticky note requests
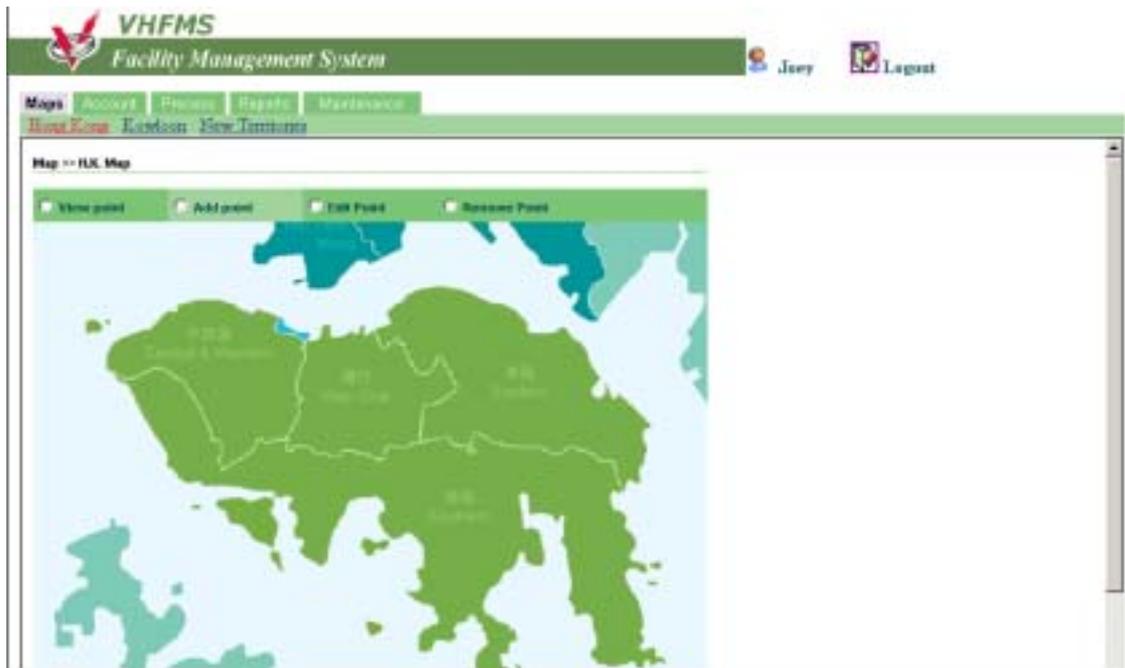
2. Core Features of VHFMS suite:

Facility Management

- Map/Building Graphic Presentation
- Staff Information Maintenance
- Furniture/Asset Information Maintenance
- Space Charging Rate Maintenance
- User Account Maintenance
- Enquiries & Reports

Drawings Management

- Quick Search
- Drawings Comparison
- Drawings Version Control

- Audit Trail
- Easy Sharing of Information
- Compression Technology
- Chinese Language Support
- Automatic Title Box Recognition
- Redlining

Pattern Recognition

- Drawings Recognition
- Locate Items
- Extract Quantities from Drawings
- Export Worksheet Formats
- Area Calculation Tool