

In-Building Wireless Coverage

In addition to an optimal use of the rooftop space available (see YRHspectrum, Volume 1 Number 2 on Effective Site Management) special attention should be directed to the inside of the building and the potential telecommunication services that can be offered to the tenants. The use of wireless technologies provides a multitude of possibilities in the enterprise arena and the public venue, but is often slowed by the inadequate coverage inside buildings. The technologies available to provide indoor wireless coverage to buildings is becoming increasingly essential. As the management of telecommunications in a building becomes ever more complex, property owners can seek the help of experts to assist them with these new needs.

Why such a need?

We often notice that wireless devices do not operate optimally inside facilities. Concrete and steel construction, elevator shafts, underground areas, and other structural features do not allow wireless signals to reach their destination. Furthermore, the increasing demand for seamless access to information can be made easier with the use of an indoor wireless network. A system of repeaters is a simple and inexpensive way to boost coverage in a specific location.

A well-designed system can accommodate multiple service providers, and is popular since the providers can share that same equipment. For example, a repeater system is an effective solution to amplify and retransmit the signal of existing networks, using multiband indoor antennas placed into strategic locations inside a building. Such an infrastructure could support a combination of services and providers; cellular, PCS, wireless data transmission, wireless local area networks (WLAN), and even emergency or maintenance systems specific to the building.

It becomes interesting for property owners to provide access to these types of services with a minimum expenditure of time and labor if it increases their property value and helps to generate revenue. The potential source of revenue can stem from an increased rental rate or from a direct fee for the services offered.

While achieving such financial benefits is clearly an attractive prospect, careful planning is crucial to maintaining a flexible and adaptable infrastructure; an infrastructure that is capable of providing connectivity with current and future technologies.

Your clients request it, your employees will benefit from it, and you will profit by it... a wireless solution can work for everyone.



What are the applications?
Many possibilities... for small or large endeavours... permanent or special events.
A few examples...

- Convention centers
- Showrooms
- Shopping centers
- Hospitals and Hotels
- Tunnels/train stations
- Office buildings
- Apartment buildings
- Parking garages



The number of users of wireless devices is continuously increasing. They all have similar preoccupations... the need for a clear and reliable signal wherever they are.



YRH

Yves R. Hamel
et Associés Inc.

424 Guy Street
Suite 102
Montreal, Qc
Canada, H3J 1S6

telephone:
514 934 3024

fax:
514 934 2245

web: www.yrh.com
e-mail: Telecom@yrh.com

Good management of in-building wireless coverage...

- **Assess the requirements**
Co-ordinate site visits to obtain information about the existing infrastructures for the project. Select the optimal system required to fulfill the needs, establish an action plan and evaluate the associated costs.
- **Evaluate the existing coverage**
Perform existing signal level tests and path loss measurements on all targeted buildings and infrastructures.
- **Perform analysis and construct designs**
Determine optimal antennas and access points locations and provide post-processing data as well as capacity and traffic analysis.
- **Select the hardware**
Develop all required Requests for Quote (RFQ) documents for vendors and provide an unbiased hardware selection and equipment specification review. The space and energy requirements should be minimized and the location of the equipment must remain easily accessible.
- **Conduct and manage all required RF optimization services**
After integration of the system in the existing infrastructure, test to optimize the service provided are performed and recommendations are made for any necessary changes. Controlling the RF inside buildings is crucial in preventing new and unwanted interference from arising inside or outside the building.
- **Perform system verification and equipment test.**
Conduct all post installation testing and processing of data and perform a review of the entire system.

What are the benefits?

For the property owners, improving their in-building wireless coverage is a way to use their real estate to generate additional revenue with minimal capital investment, attract major corporate tenants, provide value-added services, and become well-positioned to provide communications management solutions in the future. In other words, the in-building wireless system is an additional feature that can increase tenant and visitor satisfaction significantly

Yves R. Hamel and Associates possess the necessary expertise to effectively design and implement solutions answering the needs of property owners and its tenants while aiming to improve the in-building wireless coverage of telecommunication services.

Contact us for more information!

Evaluation of the existing coverage using measuring equipment.



Temporary installation used to determine the optimal location of indoor antennas.



Antennas and Aesthetics

The number of indoor antennas used should be minimized while still providing robust RF coverage. The antenna shown below is easily installed and concealed.



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web: www.yrh.com

e-mail: Telecom@yrh.com

Broadcast and

Telecommunications Consultants