

White Paper

UVC Light Enables Hospitality Industry To Ramp Up During & After Covid-19 – A Revolutionary Approach to Room Disinfection

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Introduction / Background / Issue

In March 2020, the government imposed travel restrictions and border closures aimed at containing COVID-19, which brought travel to and from Canada to a near standstill. In fact, in this month, the number of international arrivals to Canada from other countries fell by 54.2% from February 2020, the largest single monthly drop since 1972. Most hotels were empty: by the first week of April 2020, the hotel occupancy rate was below 20% across Canada.

Under these circumstances, many businesses in the tourism industry have had to reduce their hours, or close temporarily or permanently, which led to laying off employees. In 2020, tourism activities generated about 530,000 jobs. Tourism jobs fell 28.7% annually in 2020, with most of the drop occurring in the second quarter. All tourism categories were down in 2020, with food and beverage services (-32.3%) and accommodation (-35.2%) contributing most to the overall decline. Tourism's share of employment fell from 3.8% in 2019 to 3.0% in 2020.

Although travel has edged up each month since the record low in March 2020, travel has still remained far below 2019 levels. For example, following three consecutive years of positive growth, international travel to and from Canada declined 73%, from 96.8 million travellers in 2019 to 25.9 million in 2020. Additionally, travellers to Canada from both the United States and overseas countries were down 93.0% in December 2020 compared with December 2019. Similarly, the number of Canadian residents returning from abroad was down 91.3% year over year. ¹

Consumer Trust is essential.

Trust will play a pivotal role in enabling organizations to recover and rebuild in the near term and thrive in the long term. Allowing businesses to reopen may represent a return to some degree of normality, but Canadian consumers are still worried about COVID-19. They need to be able to trust that organizations are taking sufficient action to protect their health. Every hospitality-sector business will need to actively engage with consumers and communicate the steps they're taking to keep customers and employees safe—and demonstrate how they're living up to those commitments at every point of interaction. Company's that adapt their offerings to reflect changing preferences and behaviours demonstrate their desire to listen, understand, and respond to their customers. In the near term, this can help deepen consumer trust in the organization, fostering the kind of bond that can drive future growth and success. Consumers will remember the brands that paid attention and “took care” of them. ²

Labour Shortages hamper re-start.

A third of former hospitality workers won't return to the industry *during* the labor shortage because they want higher pay, better benefits, and a new work environment.

Half of former hospitality workers said that they would not return to their *previous* job in the industry, according to the survey. A third of former hospitality workers said they weren't even considering re-entering the industry, according to Joblist's second-quarter survey of around 13,000 job seekers, first reported by Bloomberg.³

The Industry is reporting:

- 2 of every 3 of accommodation businesses see labour issues as a significant business impediment.
- Rooms going unsold, business is being turned away, and expansion plans are being curtailed.
- Operations are scaled back or doors open with insufficient staff

Leading to:

Managers Doing Double Duty

Hampered Growth

Foregone Investment, Less Innovation

Higher Operating Costs

Reduced Profits

Eroded Ability to Compete

*Inferior Customer Service*⁴

Business Case

Hotels need a cost-effective solution to:

- Show a clear, clean and safe approach to eradicating potential Covid-19 virus
 - o In all areas of the hotel, but particularly in guest rooms
- Show their solution works on all surfaces – hard & soft
- Eliminate costly “double-handling“ of unused bed linens, towels and consumables
- Eliminate commensurate laundry costs of unused bed linens and towels
- Reduce labour time, and therefore labour cost per room
- Manage current labour shortages
- Provide higher available room numbers
- Build Trust with Guests

Hotels need a solution which brings the above at a net cost reduction as compared to current spending levels.

Hotels need for this solution to be sustainable, for the near term of re-building and for the longer term to continue to build trust with Guests.

Solution

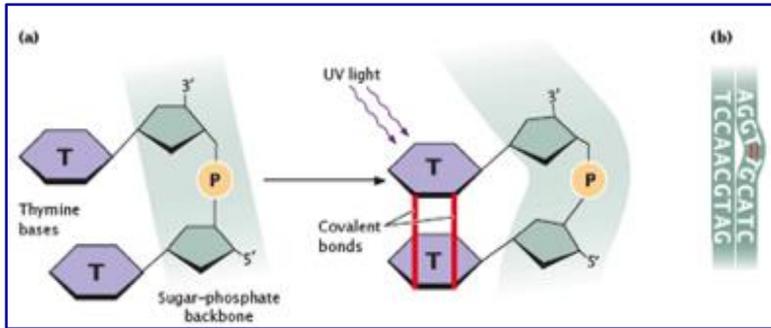
BlueMorph Technology’s UVC Light emission devices sanitize a typical hotel room and accompanying bathroom in 10 minutes. This can be done concurrently with other housekeeping activities.

Disinfection with BlueMorph Technology’s UVC Light emission applies to hard *and* soft surfaces, as well as the room atmosphere, eradicating 99.9% of human coronavirus **and** many other bacteria and viruses.

The technology is delivered from a light array on a portable cart – about the size and shape of a typical housekeeping cart. The cart is easily maneuvered by housekeeping staff and works remotely in the opposite adjoining space to that in which the housekeeper is working (bathroom vs bedroom; bedroom vs. bathroom).

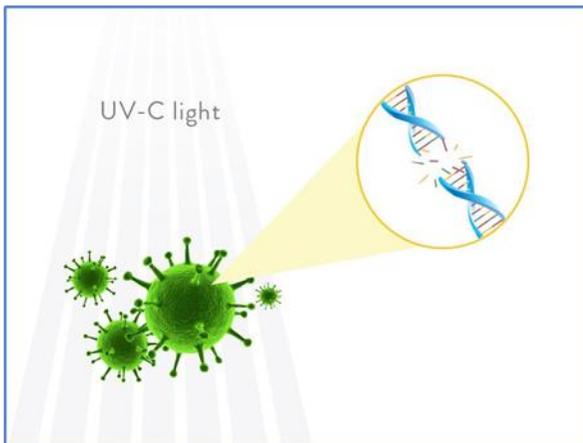
Plan Automation holds *exclusive* distribution rights for BlueMorph Health Solutions in Canada.

UVC Technology



Once exposed to UVC, DNA/RNA forms two photoproducts (one being a cyclobutane ring between adjacent pyrimidines)

This results in a distortion of the DNA (kinks), rendering the organism non-viable



UVC sanitation is a proven technology used in many areas such as water treatment, health care, tank disinfection and many other industries.

The CDC lists UVC as a germicidal process that is FDA and CDC approved.” The wavelength of UV radiation ranges from 328 nm to 210nm. Its maximum bacterial effect occurs at 240-280nm. Mercury Vapor lamps emit more than 90% of their radiation at 253.7 nm, which is near the maximum microbial activity...Bacteria and viruses are more easily killed by UV light than are bacterial spores.”

Solution – application



C1 System
Easily Transported Between Floors
Easily Moved Between Buildings
Variable Geometry for Efficient Light Distribution
No Batteries or Recharging, retractable 110v power cord.
Easy on / Automatic start / Automatic stop
Room Logging Function
Low Maintenance
Low Cost

BlueMorph Technology’s UVC Light emission devices use a patented method that employs advanced software & proprietary algorithms to determine the required UVC dose to sanitize rooms and other enclosed spaces. The units **use variable light emission geometry** to help **overcome shadow effects**.

Third party testing has demonstrated the BlueMorph emitters are capable of inactivating **Human Coronavirus in 6 min by 99.99%**.

Independently Tested and Approved by 2 different FDA-certified labs.

BlueMorph UVC	vs. Chemical
5-10 min cycle time	Can take hours to reach all surfaces with appropriate contact time
More consistent	Employees may miss areas due to fatigue
Safer	Employees exposed to hazardous chemicals (Ethanol is a class I carcinogen)
Reduced exposure to infected environment	Employees exposed to infectious environment for longer
No residual	Chemicals may require time to dissipate

Pilot project

- Pilot site: Privately-managed 4-story 100 room property under franchise of major international hotel chain in an urban area in Canada.
- Duration: 90 days
- Equipment: BlueMorph C1 Cart, Remote controlled
- Application: sanitation of hotel room and bathroom; multiple rooms on multiple floors; trial with multiple members of housekeeping staff, maintenance personnel and management.
- Sponsorship: hotel ownership group; hotel general manager

Result: positive acceptance by staff; reduction in room cleaning time by up to 50% as compared to Covid-19 protocols; reduction in water and laundry consumables by 50% as compared to Covid-19 protocols.

Results ROI:

Example:	100 unit hotel - almost all 2 beds /room			Rooms:	100				
Activity:	"Covid-precaution Activity"		(min per rom)		60				
	"Pre-Covid Activity"		(min per room)		30				
	Utilizing 4 C1 BM Carts.								
Occupancy:	30%	40%	50%	60%	70%	80%	90%	100%	
Rooms	30	40	50	60	70	80	90	100	
Housekeeping:									
Labour Hrs/day - pre-BM	30	40	50	60	70	80	90	100	
Staff # - pre-BM	3.75	5	6.25	7.5	8.75	10	11.25	12.5	
Labour Hrs/day -post-BM	15	20	25	30	35	40	45	50	
Staff # - post-BM	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	
Staff # Savings	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	
Staff \$ savings	67,500	90,000	112,500	135,000	157,500	180,000	202,500	225,000	
Consumables & Laundry:									
Savings (1x vs 2x)	42,048	56,064	70,080	84,096	98,112	112,128	126,144	140,160	
Total Savings	109,548	146,064	182,580	219,096	255,612	292,128	328,644	365,160	
CapEx - Financing	154,000	154,000	154,000	154,000	154,000	154,000	154,000	154,000	
Payback (Months)	17	13	10	8	7	6	6	5	
Lease Financing 3 yrs.	60,144	60,144	60,144	60,144	60,144	60,144	60,144	60,144	
Benefit net of lease cost	49,404	85,920	122,436	158,952	195,468	231,984	268,500	305,016	

ROI - notes

Research / Assumptions / Notes:							
1) General							
C\$, Annualized costs, Freight & ESA included, Taxes extra as applicable, Approximate numbers for illustration purposes. E&OE.							
2) Housekeeping							
pre-covid: 14 -16 rooms / cleaner/ day; currently: 10 rooms; so = 60% increase in work (but occupancy rate much lower)							
overall timing estimate 1 hr vs 30 min / room							
Unused Linens: stripping / remaking all beds regardless of use or not - estimate: additional 10-15 min							
Unused Towels: removing & replacing regardless of use or not - estimate: additional 5 min							
Toiletries - removing & replacing regardless of use or not - estimate: additional 2 min							
TV Remote - sanitizing and wrapping in plastic bag - estimate: additional 2 min							
Wipe downs: Phones, coffee maker, etc. - very difficult - estimate: additional 5 min							
Not able to do anything about curtains, fabric chairs, etc. (and guests ask at check-in about this)							
3) Consumables							
estimate: approx. 2x use of toiletries vs. pre-covid							
having to add 1x-use alcohol wipes in rooms as guests are asking for them 4							
have had to remove high-touch items such as pens, paper, etc. from rooms - only provided on an as-requested basis							
Per \$130 room: Linen cleaning: 1%, Guest supplies: 1.7%; Paper supplies: 0.25% (\$1.30, \$2.21, \$0.33)							
4) Laundry							
pre-covid: 1 person; Covid: 2x staff prox.							
estimate: 30% cost increase for water, machine time, chemicals							
consider also, lifecycle of linens, towels, equipment being affected							
5) Meeting Venues Impact:							
Not included in analysis, but should make business case even more compelling.							

Conclusion

Plan Automation's BlueMorph Health Solutions UVC Light Disinfection System provides the Canadian hospitality Industry with a very viable solution which:

- Eliminates the need for chemical application on both hard and soft surfaces
 - o Reducing overhead costs
 - o Providing an environmentally-friendly solution
- Eliminates the need to launder unused bed linens and towels
 - o Reducing direct labour costs in laundry and ancillary areas
 - o Reducing overhead costs in laundry supplies, water and electricity
- Reduces labour time to half of current Covid-19 experience
 - o Reducing both direct and indirect / overhead labour cost
 - o Helping to manage current labour shortages
 - o Helping to ensure greater availability of "ready" rooms
 - o Helping to reduce stress among staff members
 - o Providing a better working environment
- Provides a net cost reduction as compared to current Covid-19 protocols
 - o Allowing for a very short pay-back period on capital investment of technology
 - o Or: immediate cashflow benefit on the basis of a leasing program for technology

Most importantly, however, it provides the industry with a very real method to illustrate to its Guest Constituency that the Industry is taking firm action as the properties fully re-open

.....and this will help deepen consumer trust in the organization, fostering the kind of bond that can drive future growth and success. Consumers will remember the brands that paid attention and "took care" of them. ²

About Plan Automation

Plan Automation is Canada's leading automation distribution organization, delivering turnkey consulting and support for packaging & general automation, x-ray, and metal detection projects.

Since 2009, Plan Automation has been Canada's only *national* source for automation solutions, with technical sales offices located in all major industrial corridors.

Notes:

1. StatCan COVID-19: Impact of COVID-19 on the tourism sector, second quarter of 2021
2. Deloitte – The future of hospitality; Leslie Peterson, Partner July 17, 2020
3. Business Insider, Grace Dean, Jul 8, 2021
4. Hotel Association of Canada