

An Investigation into Security in Single-Stall Washrooms
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ABSTRACT

The purpose of this report is to explore the best possible methods of decreasing misuse and vandalism in UBC's single-stall washrooms. This research was prompted by UBC Access and Diversity's concerns regarding the recent trend of students using single-stall washrooms, mainly the ones located in Koerner Library, as private study rooms. This issue creates problems for other users as a legitimate user may be unable to access proper washroom facilities when needed, should any in the vicinity be taken up by students abusing the space. The conclusions found in this report will also pertain to the limitation of vandalism in UBC's washroom facilities, although this issue is secondary to the concerns in regards to misuse and therefore research was performed primarily with misuse as the main focus. The proposed solutions are to be simple to implement, relatively inexpensive and in particular will not limit accessibility for any potential users. Therefore this report will be targeting as wide a demographic as possible, including both students and non-students.

Three main methods of deterrence were found to be most effective. The first is signage employing positive wording to encourage users to limit their time spent in the washroom and not to vandalise. The second is room lighting tied to a timer set off upon entrance into the washroom. The third is signage indicating clearly the phone numbers and other descriptive information as to who to contact to report vandalism. It was found that due to their incredibly simple premise and their excellent cost to effectiveness ratio, the addition of descriptive signage with positive wording placed in UBC's single-stall washroom facilities will serve as the absolute best deterrent to misuse and vandalism.

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1.0 Introduction

One of the most important aspects of human life is the ability for one to relieve themselves in relative comfort and privacy. This can be seen simply by looking through the descriptive examples of published patents for bathroom stall enclosures (L Tramontina, 1997) as well as the large number of organizations and publications dedicated to researching and advocating on behalf of secure and available washroom facilities. Therefore, for such an important process of the human body it is evident that in a modern University setting, such as at UBC, it is a requirement that all that can be possibly be done to ensure that all students are satisfied with the security, privacy and comfort of their washroom facilities is being done.

Due to the importance of this issue, we have acted on behalf of UBC Access and Diversity to explore the possible solutions to the growing problem of washroom misuse on UBC's campus. An audit performed in 2006 (Taillefer) found that at the time, UBC had 391 single-stall washrooms on campus in all public and private areas and this number is only growing as the university expands and new facilities are created. Therefore it is an incredibly important task that any and all issues of washroom misuse, vandalism and other mistreatments be dealt with early so that any solutions are able to be implemented as the new washrooms are built to most efficiently mitigate the problems.

The primary issue of washroom misuse, according to UBC Access and Diversity, stems from students using the areas as private study spaces. This issue was also said to occur more frequently in the washrooms located in UBC's Koerner library as well as the facilities located in other libraries across campus. However, the recommendations we will be making by the end of this report will also take into consideration other causes of extended usage periods, such as drug use and the use of washroom facilities as private areas for sexual meetups, two problems

that have been addressed as issues at other institutions in Canada. The extended periods of use caused by students using the washrooms in this manner cause problems for washroom accessibility as students with legitimate needs of washroom facilities are barred from using them as they are occupied by those using them for purposes outside of their intended one.

We will also be addressing the issue of washroom vandalism in this report. As most of UBC's single-stall washrooms are found in lower-traffic areas it is much more likely for these facilities to be vandalised as compared to their higher-traffic multi-stall counterparts (2006, Taillefer). We will be making recommendations that will hopefully not only increase the ability of the average user to report washroom vandalism that they come across but also limit the number of occurrences of washroom vandalism itself.

Our main demographic for which our recommendations are tailored to is UBC's student body. However, our research has taken into consideration the needs of both students and non-students alike and our recommendations will be non-restricting for either group. Primarily we have made sure that any new features to existing, accessible washroom facilities on campus will not restrict usage by any disabled users.

To model the kind of accessibility we are hoping to attain with our recommendations, it is useful to look at the current system implemented in Koerner Library that we are hoping to replace. Currently a single key system is being used, in which the librarian distributes a single washroom key to prospective users who return the key after use. This system presents a number of barriers to accessible use that we hope to avoid. It is a nuisance for the librarians to have to keep control over the washrooms and monitor their usage which can be a drain on productivity. It is also a nuisance for students to have to check in with a central desk every time they wish to use the washroom and can possibly have ramifications to their feelings of privacy. Finally it is a nuisance for non-students who may be unaware of the current system being used in the library

which can cause them trouble should they need to access the washroom facilities. Therefore it is important that our final recommendations not be hurt by any of the issues and shortcomings of the current system, to ensure that the washroom facilities at UBC remain accessible to use by anyone on the campus.

2.0 POSSIBLE OPTIONS

2.1 UBC STUDENT & ALUMNI CARDS

The Student and Alumni cards are official identification cards issued by the university that function as campus-wide access keys, library cards and meal plan accounts. All students receive a student card as soon as they are enrolled and upon their graduation, they are eligible for the alumni card.

The card is made of plastic and features a wide black magnetic stripe which is encoded with the student number of the individual. The card provides students with access to campus buildings that are secured with a magnetic card reader and other Point of Sale services such as restaurants and the bookstore.

The Student and Alumni cards enhance security around campus as they prevent wrongful access to unauthorized personnel. Also, the card holds the user's information and swiping it leaves an electronic footprint at points of sale. These two features of the card make it a useful technology in enhancing accessibility and security in single stall washrooms.

FRONT



Image 2.1 : A generic image of the UBC student card (Source: ubccard.ubc.ca)

How does it work?

The use of UBC cards in this context would involve installing magnetic strip readers at the entrance of single stall washrooms around campus. These electronic devices would then be connected via a wireless network to a computer database possibly manned by Campus Security. To gain access into the washroom, the user would have to swipe their UBCcard and await affirmation from the machine. An electronic record of the card's use will be logged into the database system detailing the identification number, time of use, and location.

In the case of suspected inappropriate use, the database log would provide the details of all users over a period of time and the individual can be identified.

For example, suppose that a certain single-stall washroom has been singled out for being inappropriately used (such as students staying there for long durations or being repeatedly vandalized). The database log of all users of the washroom over a specified range could reveal behavioral patterns of individuals. Such information could lead to closing in on the individual(s) responsible.

This system would allow the users of single stall washrooms to be accountable for their use. Knowing that their usage of the washrooms can be traced back to them will make them conscious of their decisions. This method would deter individuals who intended on using the washroom with ulterior motives.



Image 2.2: A magnetic strip reader (Source: www.highpowersecurity.com)

The implications of this method have been divided into three categories, economic, environmental, and social, and are presented below.

Economic Implications

The primary economic cost to applying this method is the purchase and installation of the magnetic strip readers on every single-stall washroom door on campus. Beyond this, a computer system has to be installed to log usage records into a database. Regular system maintenance and support is required for the continuous and effective usage of the system. Several UBC buildings already feature magnetic strip readers and therefore it is appropriate to use the same models. As every student already has a UBCcard, this approach would not incur the cost of producing new cards.

Environmental Implications

The magnetic strip reader operates using an external current and its electrical power usage is

the primary concern. Another concern arises in the disposal of the machines. The improper disposal of heavy metals and plastics poses a threat to the environment in that their combustion releases toxic chemicals and they do not readily decompose.

Social Implications

The most significant implication of the UBCCard approach is that it denies access into single-stall washrooms to those who do not have a card, such as guests to the campus and students/alumni who may have forgotten theirs. Accessibility is the key driving factor in the solution and this method fails to assure it.

2.2 DIAL OR TEXT A PHONE

This solution method involves introducing a phone service whereby people dial a number to report cases of vandalism or inappropriate use. Signboards (or posters) should be put up outside every single-stall washroom containing the phone number to dial and reasons to use the number such as:

- To report a case of vandalism such as graffiti on the walls
- To report inaccessibility of the washroom such as an individual staying there for prolonged hours.
- To report suspicious behaviour of individuals who have been in the washroom

Nearly every individual on campus has a mobile phone, thus this approach is convenient.

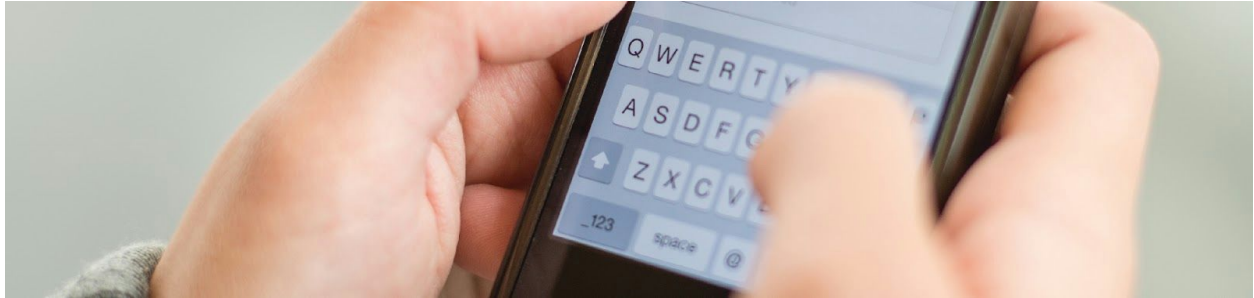


Image 2.3 : Individual using their phone to text. Getting the community involved is an effective solution (Image source: security.ubc.ca)

How does it work?

The phone number to be called can either be an existing UBC services number such as UBC Building Operations, or a new number specifically for this program. The number should also be easy enough to be remembered after seeing the posters repeatedly. The number will be a direct reach to UBC Building Operations who are responsible for the maintenance and renovations of UBC's property. If one bathroom has several reported cases of inappropriate use, then it would warrant further investigation.

The economic, environmental, and social analysis of using this approach is given below:

Economic Implications

The greatest cost of this approach is in purchasing/acquiring posters or signboards. The use of an already existing phone service, such as UBC Building Operations, would save on the costs of having to get a new one. The use of this approach would also imply that the availability of staff is essential. This means that perhaps increasing the number of staff, or increasing working hours.

However, the system can be integrated to accommodate the schedules they already have.

Environmental Implications

The choice of material used for the posters/signboards is an environmental concern. Paper can be easily vandalized and disposed off wrongly creating a mess.

However, with the increased maintenance from staff and the increased community involvement, we expect the single-stall washrooms to be cleaner.

Social Implications

This approach relies on community involvement as faculty, staff, and students alike have to take up the initiative to address issues of vandalism and inappropriate use of single-stall washrooms.

The method is ineffective if concerned individuals don't take the next step to report the incidents they believe require more attention. Therefore, this approach aims at creating a more involved, conscious and interdependent community.

2.3 BATHROOM SIGNS

This solution method involves posting signs inside washrooms reminding users that the bathroom is a shared space and asking them to not vandalize or waste time in the washroom.

How does it work?

Signs can be cheaply posted around washrooms reminding students not to vandalize or litter and to not waste time in the washroom. We found that this is surprisingly effective at reducing graffiti at other university campuses, so it would likely have an ever greater effect at preventing less malicious behaviour such as studying in the washrooms. In one study, a sign was posted

saying “A local licensed doctor has agreed to donate a set amount of money to the local chapter of the United Way for each day this wall remains free of any writing, drawing, or other markings. Your assistance is greatly appreciated in helping to support your United Way.” which was found to completely prevent further graffiti for the remaining months of the study. The author of the study suggests that positive signage gives potential offenders a sense of connection to the community making them not want to vandalize the space.

The economic, environmental, and social analysis of using this approach is given below:

Economic Implications

The greatest cost of this approach is in purchasing/acquiring posters. The posters would need to be replaced periodically based on wear or vandalism, but overall this approach would have very low cost, roughly a few dollars per washroom per month.

Environmental Implications

The choice of material used for the posters/signboards is an environmental concern. Paper can be easily vandalized and create waste if disposed of incorrectly.

Social Implications

Classical signs threatening fines or prosecution can lead to adversarial views between potential offenders and the university. Although effective, this could make even non-offenders uncomfortable and feel like they’re being threatened just for going to the washroom. On the other hand, positive signs reminding people that it is a shared space or creating incentive based on a donation to charity would not create the adversarial relationship and would create a positive feeling between normal users and the university.

2.4 TIMER WITH FLASHING LIGHTS

This solution method involves placing a timed flashing light enabled by a motion detector. The flashing light triggers when the time limit has been reached. This system reduces loitering as the low frequency flashing lights causes public discomfort. The system can be connected to a console monitored by the facilities security team.

This system:

- Prevents loitering.
- Prevents vandalism as user cannot stay for prolonged periods as lights start to flash.
- Alerts security personnels to prevent incidents.



Image 2.5 : GE Motion sensor which can be connected to a light source (Image source: <http://images.lowes.com/product/>)

How does it work?

The motion sensor has a timer with a fixed limit, if the sensor is triggered, the lights will start to flash at a fixed frequency. The sensor is connected to the building's security system. If the sensor is triggered for a prolonged period of time, the security console will receive a beacon alerting security personnels.

The economic, environmental, and social analysis of using this approach is given below:

Economic Implications

Installation is the greatest cost of this system as it requires sensors, lights, logic board and internal wiring with security systems and labour. Maintenance has high costs as replacement of each parts require labour and hardware.

Environmental Implications

The choice of material used for hardware is an environmental concern as parts may use plastic and heavy metals. However some parts can be recycled safely.

Social Implications

This approach can cause public discomfort and possibly trigger epilepsy if the light is set at a high frequency. However this approach is very effective as security personnels are alerted before incidents of vandalism.

3.0 Conclusion and Recommendations

We found signage, phone service, and timed lighting to be the three most viable options for the reasons outlined above. We recommend that signage is tried first as it has the lowest operational cost and is likely to be effective enough on its own. For the signage, we recommend positive language as it is shown to be as effective as threatening language without causing the social conflict between students and the university. Some recommended sign text are:

- “This is a shared washroom, please study elsewhere”
- “All students share this washroom, please keep it clean”
- “For each day that this washroom is not (vandalised, studied in, occupied for long periods), UBC donates (small sum) to (charity)”

Or any other similar idea relating to the type of behaviour that’s trying to be prevented.

If the signs are seen to be ineffective, the motion sensor light would be best to prevent studying or hookups as it would make the area unpleasant after long periods, but the phone service would be best to quickly clean or repair vandalized washrooms to prevent repeat offenses.

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