

Report on Washrooms in the McConnell and FDA Buildings Fall, 1998

1 Introduction

Washroom renovation and addition is an infrequent and expensive undertaking. For good planning, wide consultation with representatives of all building user groups is essential, as is the involvement of people with expertise in campus security, facilities maintenance, access for wheelchair and disabled users.

This report is authored by a single person, at the request of Dean of Engineering John Dealy. It is intended only as a starting point for planning. No doubt there are inaccuracies and oversights that wider consultation would repair.

1.1 Terminology

Toilets and urinals are termed *units* in this report. The intent is put the focus on what facilities are necessary to provide reasonable service to the all the users of the washrooms in these buildings.

An *adequate number* of a particular kind of unit (urinal, mens' toilet, womens' toilet) is a quantity that generally does not lead to a waiting period to use that kind of unit, even at peak times. Note that as building use changes over the years between washroom renovations, the adequacy of a number may change.

An *overabundant number of urinals* is one such that, at peak times, only a small proportion are in use at once. Note that urinals are typically installed with no space between adjacent units, so that for long rows of urinals, roughly half the units serve as spacers between the other units.

An *overabundant number of toilets* for men or women, is one such that, at peak times, many toilets have full reservoir tanks and are standing idle. Note that a toilet whose tank is filling should not be regarded as idle, as use at this time can lead to blockage.

The term *suitable number* has a technical meaning in this report. A *suitable number* of a particular kind of unit is a quantity that is adequate but not overabundant.

2 Current Status

Who uses the buildings and how:

The McConnell and FDA buildings are used by many types of people for a variety of purposes. Loosely, these people may be divided into three groups:

- undergraduate students who have lockers there and are based there;
- people who work in these buildings and may have offices there (graduate students, technicians, secretaries, faculty members, advisors, administrators, librarians, food service workers, porters, custodial staff);
- casual users of the building (students attending daytime or evening classes, movie goers, people using the building as a passage way, visitors).

Undergraduate students constitute a major user group. Some of these are engineering and science students whose "home base" is in these buildings. Their activities include using lockers, attending classes, visiting faculty and department offices, working in laboratories, partying in student lounges, eating meals and snacks in the cafeteria, participating in the many activities of the undergraduate student organizations, and working on homework in any available space. Organized student activities include intramural sports, blood drives, recycling, publishing a newspaper, running a store, a copy centre, etc. Sometimes sales, exhibitions and fairs are held in the lobbies of McConnell and FDA.

Undergraduate students outside engineering and science also attend classes in these buildings, have meals in the cafeteria, and use the buildings as a passageway.

People from around the university, including staff, students, administrators, campus visitors, use the main floors of FDA and McConnell as a passage way, particularly during cold or wet weather. This passage way connects Burnside Hall, the Roddick gates and the University St. entrance to the FDA Building to the Physical Sciences and Engineering Library (PSEL) and the northeast area of the main campus.

Likewise, the cafeteria in McConnell attracts a variety of people, including McGill employees, students and visitors.

The main areas of use of the buildings by undergraduates and casual users are the basement of McConnell and the ground floor, first and second floors of McConnell and FDA. Washrooms serving these areas must deal with large numbers of people at peak times determined by lunch hour, class start and finish times, and special events.

Equal area does not provide equal access.

In the design of public buildings, it is often the case that equal area washrooms are provided, because mens' and womens' washrooms are placed side by side or placed symmetric with respect to some building feature such as elevators or stairs (e.g., Burnside Hall, Leacock). In mens' washrooms, urinals accommodate most of the usage while requiring very little area. In womens' washrooms, *all* of the usage must be accommodated by toilet stalls. Hence equal area washrooms for men and women accommodate far fewer women than men.

Overuse of womens' washrooms causes plumbing problems.

Toilets must recover between uses: if the tank has not refilled before the next use of the toilet, the bowl accumulates a backlog which the water in the tank will

not be able to flush. Toilet users on the way to appointments, classes, exams, meetings, etc., are unlikely to wait for tanks to refill.

Womens' washrooms handle high solid waste loads.

The average male user weighs more than the average female user, and presumably produces more solid human waste. However, the average female user discards paper with *every* use (assuming it is available), and often fibre waste from sanitary products as well.

Toilets in womens' washrooms are highly susceptible to blockage

In womens' washrooms, toilets accommodate all usage. A toilet handles paper waste each time it is used. In addition, it handles fiber waste as well as human solid waste.

Blocked toilets in womens' washrooms reduce the level of service to the public to a greater extent than blocked toilets in mens' washrooms

Urinals do not handle solid wastes and paper, and typically are not subject to blockage (they may run, but they don't block).

Thus most usage of men's washrooms is accommodated by units that are not susceptible to blockage, whereas all use of womens' washrooms is accommodated by units that are highly susceptible to blockage.

Once a toilet is blocked and perhaps filled to the brim, it is offline until it can be repaired. In a womens' washroom, this reduces the number of units available for any purpose. In a mens' washroom, this reduces the number of units available for solid waste disposal.

3 Basic Design Principles

Here are some basic, common sense principles for planning washroom facilities.

- Do not assume adherence to city codes will insure adequate washroom facilities. Evidently, the city code in Montreal is outmoded: there are long lines in the womens' washrooms at peak times at such places as Place des Arts, movie theaters, and at rest stops on autoroutes.

- Design for peak usage, such as meal times, exam times, winter time. At a university, the peak times are also the times when most building users are most stressed and most pressed for time.

- Design for equal numbers of men and women users. Women constitute more than 55% of the undergraduates at McGill. The classrooms, corridors and cafeteria are used by the entire student population. The labs and the PSEL are used by Engineering and Science students.

- Provide a *larger proportion of units for women than for men*. To accommodate equal numbers of men and women users at a minimum acceptable level (i.e., assuming that there are not large numbers of unused units at peak times), There are two reasons for this.

a) women require more time at the unit – they are attending more biological functions, they sit down every time, and they use tissue (if available) every time and

b) the unit used by women is always a toilet whose tank should refill between uses – otherwise, blockage rapidly occurs. Hence, to accommodate women and men in equal numbers, the number of toilets for women must be *greater* than the total number of units (i.e., toilets plus urinals), for men.

- Remember that changing or increasing facilities is rarely undertaken. Planning must be longrange.

- Remember that planning for wheelchair users requires additional special considerations: access to the room (entry and exit assists for doors), reachability of all items such as soap, hand dryers, faucets, towels, waste cans and boxes, vending machines, hooks and latches on stall doors, lights and mirrors. Also, manoeuvring room is required for the chair itself, both in the washroom and on either side of the door to the washroom.

4 Maintenance

5 Recommendations

6 Appendix: Existing Floor Plans

7 Condition of Existing Washrooms