CE 507: Building Science and Technology

Assignment #1 – *6% of final grade*

One of the objectives of this course is to create an awareness of buildings as more than just a structure with "things" attached. Buildings are manufactured products filling a need, making a social statement, owned and operated by people and organizations, etc.

This assignment shall be conducted in groups of four. (not two, or five, but four). As a group, choose a building (one to which you have reasonable access and which has interest to you). Examples include the Davis Center, Fed Hall, McGuiness Plaza, the Co-op townhouses, Married Students Apartment, Conestoga Mall, K-W Hospital etc. Avoid choosing a single-family house in which you live unless it is a rental unit within a larger building.

The entire group should arrange to walk around and through this building. Take notes, make sketches, even take photos if you are keen (or go back and take photos later). A one hour visit should be sufficient.

Report

Prepare a report that describes the building as completely and concisely (less than 6 pages of typewritten text) as possible under two broad areas of interest.

The report should describe and document the building in a logical manner, using whatever organization you feel conveys the message. For example, the following information, at a minimum, should be presented

i) building function, e.g., how would the building be classified, what is its purpose, who are its users

ii) shape, size, height. Estimate (pace off) or measure. Are there any repeating spatial modules, what amount of space is public, private, rentable, or non-rentable, etc. general appearance

iii) enclosure, describe the type of wall, roof, foundation and window systems. What are the interior and exterior finishes, insulation, rain and air control mechanisms, etc

iv) superstructure. What is the primary structural system(s) and material(s) of the building.

v) Service systems. How is the building heated and cooled, telecommunications provided, plumbing, elevators, fire control, etc.

vi) economics. Estimate or guess how much the building would cost to construct today (eg a replacement cost) and how long it would take. How much might it take to maintain the building? Guess how much income the building generates and/or how the building affects the economics of whatever goes on within. If

possible attempt to relate the cost of the building and its maintenance to the cost of what goes on inside.

As a separate section, the report should provide an assessment of how well the building is performing its functions, meeting the needs of the owners and users. Basically, describe any issues and rate their significance including but not limited to:

i) safety issues such as deteriorated primary structural members, the potential for falling bricks, dangerous cracks, slipping and trip hazards, inadequate fresh air, fire safety provisions, etc
ii) aesthetic issues such as stains, cracks, discoloration
iii) maintenance issues such as burnt out lights, worn flooring, broken door hinges
iv) performance issues such cracks or failed caulking/sealant which could allow water or air to leak, water stains indicating
v) likely future "health" of the building.

Depending on the building it may not be possible to cover all of the points in either category above, or other points may be needed. Use your judgement.

Further Instructions: Reports will be graded as to <u>how well they convince the reader</u> that the group understands the building, and has described the building and its performance adequately and with sufficient depth. Well-written reports are obviously important. The use of sketches (hand drawn are fine!) is often easier than describing things such as the plan shape of the building, the structural system, the wall or roof assembly, etc.

Level of effort: The group should spend no more than a total of 18 person-hours on the report (4 to 6 hours each). Limit the main body text to 6 pages plus any sketches or drawings. It is your responsibility to ensure that the work is shared approximately equally amongst the group.

Date Due: Submit <u>in class</u>, Tuesday, January the 24th.