The Daily Star

AGENDA FOR URBAN CONCERN

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The heart of the matter: Late action will make us sorry

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THIS week we run the second part of the findings on the deplorable state of the core in the fast growing high-rise commercial buildings in Dhaka City. Indeed in any high-rise building the most important part is the area of vertical circulation, referred to as the core. Occasionally the core also accommodates toilets and fire fighting equipment.

As mentioned in Part 1, as per the Building Construction Rules 1996, popular as 'RAJUK rules', structures seven-stories and above are high-rise as elevator/ lift has been made obligatory from that level. Since the Rules also have special clauses for buildings 10-storied and higher, the students of Final Year Architecture, BUET in conducting the survey considered only those as high-rise.

Although the survey focussed only on commercial buildings, the requirements of a good core design are also true for apartment buildings, hotels, etc. In view of the alarming state discovered in commercial buildings, it is most likely that grievous faults lie hidden behind the posh facades of most apartment and other buildings that are boasting the status of high-rise. The cry for 'safety first' is stifled by the burden of commercial greed, ornamentation and valour in violation.

The second set of examples that we present today, as were those of the first edition, is representative of the alarming situation and in no way are the only ones that are beset with an "ineffectual, ineffective and inadequate" core (see Part 1). The disease is widespread in all types of buildings and must be arrested now.

Through this exercise it is expected

(a) that the findings of the students shall be an eye-opener,

(b) that existing buildings shall arrange immediately for an effective alternative route of escape from an emergency situation to save lives,

(c) that in future Architects and Owners shall be committed to incorporating in the design a safe Means of Escape, and

(d) that Users shall maintain an effective way out in an urgent situation as designed by the Architect.

In order to make our buildings safer, no Architect or Owner in future should conceive of a building, particularly large and high-rise, without proper, adequate and effective Means of Escape and in the least that means alternate routes and of course more than one staircase.

Lives will be lost if buildings with badly designed core are not corrected. It is possible in most cases to remedy the serious flaw and violation by sacrificing some space on each floor to channel at least a second staircase, if not more, at a suitable location. Buildings with two adjacent staircases will perhaps lose no additional space as they can recover some space by blocking off one of the two.

It is perhaps not late even now to fix things. If there indeed is a fire, surely we shall be late and sorry. In a commercial building the unassuming public and the employees do not deserve these man-made death traps.

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BUET

As mentioned in our Part 1 editorial the major problems associated with core design and operation are:

1. Provision of one staircase
2. Provision of two staircases in same lobby and within close proximity of each other, sometimes next to each other
3. Provision of staircase from the upper floors up to the basement as there should be a separate staircase for travel between basement and ground/plaza/escape floor
4. Lack of natural light and air, making the space extremely uncomfortable, and dangerous too in a fire if emergency lighting has not been catered for, making a mockery of the contemporary concept of energy conservation
5. No provision of mechanically pressurised staircase to keep away smoke
6. Core is presently serving more and more air-conditioned buildings, making the enclosed space more hazardous in a fire than a naturally ventilated building
7. Access to staircase is through open core, the most vulnerable space in a fire situation, and/or through other office space that may be under someone else's control and locked when a fire occurs
8. Provision of narrow and concealed staircase, designated as 'fire escape', which is a misnomer as all staircases should be of equal value under normal daily use with one being the alternate 'fire escape' if the other is under fire
9. Unused designated 'fire escape' very readily becomes a rubbish stack and is under lock and key; total turnaround to the spirit of escape
10. Smoking and indiscriminate dumping of cigarette ends

The just-graduated final year students of the Department of Architecture, BUET, concerned about violation of rules and safety factors carried out a study late last year on about fifty commercial buildings in Dhaka City that were ten stories or higher. In order to create awareness among Architects, Engineers and allied professionals, as well as building owners, the class arranged an exhibition of their findings at BUET.

Today we present the second set of the cases only as an attempt to build better understanding of the issue such that human lives can be saved during emergencies in the future.

Core of High-rise buildings of Dhaka City - II

(Part 1 appeared on 9 April 2004)

Extract from the Building Construction Rules,1996 that are relevant to today's discussion:

Building Construction Rules, 1996 (from original in Bangla)
Framed under Building Construction Act, 1952

Persons qualified to sign and submit drawing

& Residential building above five stories & all other buildings and building along VIP roads can only be designed by degree architect

Emergency exit & other necessary arrangements

& Emergency exit, separate from stair and lift lobby, must exist within 25m from any point on a floor.

& Elevator/escalator will not be considered as emergency exit.

& Necessary number of fire extinguishers or alternate arrangement in any visible space, with written operational instruction, and fire alarm for quick exit must be provided.

Special rules for 7-storied or higher buildings

& Elevator

& Electricity generator for emergency lighting to staircase, corridor, elevator, water pump, kitchen, etc.

& Fire prevention and control measures as per National Building Code and Fire Services

& For aeroplanes - RED security light in buildings above 45.70m (150')

& 10-storied or higher buildings

& OPEN SPACE:Rear - 3.00m; Sides - 2.50m

& Community space - 5% of total floor area; not on the roof

BTA Tower

General information:
& Building name: BTA TOWER
& Location: Kamal Ataturk Avenue
& Building type: Educational
& Storey : 16
& Office space per floor: 6500 sft
& No. of lifts: 2
& Main stair : One (each flight 3' wide)
& Fire escape: None
&**Criticisim:**

& This building has only one stair and no separate fire exit, violating "Rajuk Building Construction Rules, 1996 , rule no 17/1 (pg.8).

& But this only stair will not be effective in time of fire attack because:

--It shares a common lobby with the lift core, which is the most vulnerable area during a fire hazard.

--It has no fire proof and smoke proof enclosure and no fire door.

--At ground level it does not give direct access to the street, the roof of a building or any designated refuge area which affords safety from the area of incidence.

Mascot Plaza

General information:
& Building name: MASCOT PLAZA
& Building type: Commercial
& Storey : 15
& No. of lifts: 4
& Main stair: No separate main stair (one stair only upto 3rd floor)
& Fire escape: One
Criticism:

& This building has two stairs. One stair goes up to third floor and another runs all the way.

& The stair which runs all along is termed as the 'Fire Escape" and is located at the lift lobby.

& But the function of this stair as a fire escape could be seriously questioned because:

--To reach the stair one has to cross the lift lobby through which fire travels the most. It is required in Rajuk Building Construction rule that there should be an emergency exit separated from the main lift and stair lobby.(rule 17/1,pg.8)

--Again emergency lobby should not reach the basement but here it does.

--The fire escape opens at the ground floor lift lobby not giving access to any safe place.

--Absent of a Standard fire door.

Hotel Sarina

General information:
& Building name: HOTEL SARINA
& Location: Kamal Ataturk Avenue, Banani
& Building type: Residential Hotel
& Storey : 22
& Office space per floor: 3825 sft
& No. of lifts: 3 (2 circulation lifts and 1 service lift)
& Main stair : No separate main stair only one stair as fire escape
& Fire escape: One
Criticism:

& -This building has only one stair , termed as "Fire Escape".-But according to The "Rajuk Building Construction Rules, 1996",rule no. 17/1 (pg.8), "each building should have an emergency exit separated from the main lift lobby and stair lobby, within 25m (75') from any point of the building."

& If this stair is the emergency exit then this building doesn't have any main stair. its vertical circulation is solely dependent upon the two passenger lifts and one service lift.

& Again this emergency exit, though within 35' from any point of the building, is just beside the lift lobby. The emergency door opens at a place which is not separated from the lift lobby. In case of fire hazard the workability of this stair as a fire escape is seriously jeopardized due to this non separation.

& Has no fire lobby.

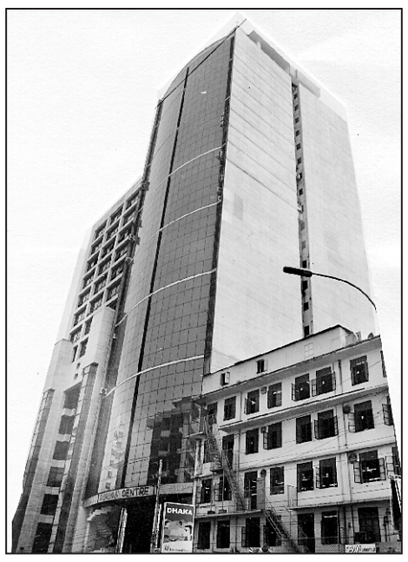
& The rule of emergency exit says that all ppl should reach to safety within 2.5 minutes From this the width of the stair is calculated. Standard is, a 22" stair enables 40 persons to reach safety within 2.5 minutes.

According to the standard this building, with an occupancy of around 230, requires a stair of 126". That means atleast two stairs with 5' width But it has only one stair of 3'2".

& Emergency exit should not reach the basement. But here, as there is only one stair, it reaches the basement.

Rupayan Center

General information:



& Building name: RUPAYAN CENTER
& Location: Mahakhali, Wireless gate
& Building type: Commercial (shopping cum office)
& Storey : 22
& No. of lifts: 3
& Main stair : One
& Fire escape: One
&**Crticism:**

& Though this building has a separate fire exit, its workability as an emergency exit could be seriously questioned

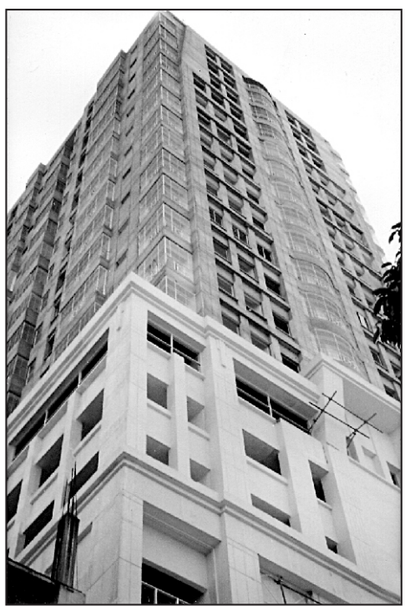
& The fire exit shares a common lobby with the main stair and lift core. In time of emergency one has to cross the lift lobby which is, as said earlier, the most vulnerable area during a fire attack.

& It has no standard fire to resist fire attack.

& It opens at ground floor lift lobby instead of any safe access.

& The diameter of the stair is 5'2" and riser is 10".Thsi proportion is very much unusual and puts its workability under serious question.

Concord Regency



General information:
& Building name: CONCORD REGENCY
& Location: Panthapath
& Building type: Mixeduse
& No. of lifts: 3 (1 capsule lift, 2 passenger lifts)
& Main stair : One
& Fire escape: One
Criticism:

& This building also has the same problem of having two stairs too close. Meaning sharing a common lobby. If fire attacks at this lobby then there is no escape way from any other part.

& A highrise building should be provided with minimum two stairs in opposite direction. So that in case of emergency atleast one could be used. Having two stairs sharing the same lobby is like having one stair , none of them could be used if the lobby is under attack. Which is very much possible cause fire travels fastest through the lift core.

& Again the fire escape reaches the basement which it should not.It should ive access to a safe place.

Sonar Tori

General information:

& Building name: SONAR TORI
& Location: Banglamotor
& Building type: Commercial office
& Storey : 18
& Office space per floor: 3751 sft
& No. of lifts: 2
& Main stair : One
& Fire escape: None
Criticism:

& This 18 storied building has only one stair.

& Shares a common lobby with the lift core.

& One has to cross the lift lobby to reach it.

& This only stair is not clearly discernable and accessible from al the parts it serves.

& It has no fire door or fire lobby.

& If the lobby is under fire attack then there is no means of escape for the occupants of this building.