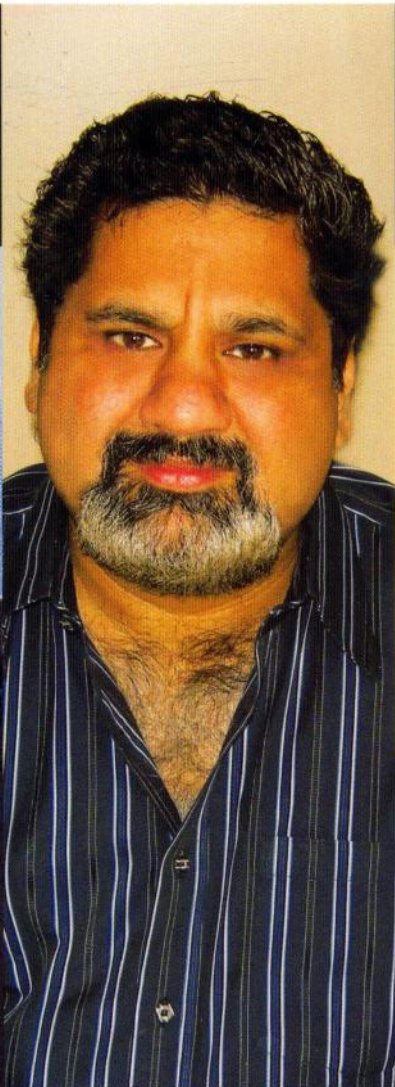


# Clean India Journal

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**'FM inputs can help in designing better'**  
– Brigadier Jaitly



**'FM should complement design'**  
– Kajal Bhattacharya



**'Architects need to be FM conscious'**  
– Ar Sheetal Rakheja

**'Ideally FM should be on the design board'**  
– Ar Vidur Bharadwaj

Facility Manager should be part of Architect's team –

# A DEBATE

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8<sup>th</sup> Edition of Clean India Show  
Nov. 10-12, 2011



Facility Manager  
should be part of  
Architect's team –

# A DEBATE





Maintenance has remained an issue with housekeeping and facility managers. They feel that most of the buildings they service are not maintenance friendly. Right from the glass facade to flooring material to washroom to MEP (Mechanical Electrical Plumbing) equipment designs and maintenance are areas of concerns for facility managers.

Architects and builders involve facility managers at different stages, but rarely at the beginning of the project. Since operations and maintenance of a facility depend on the design of the building and its services (MEP) to a great extent, consulting the service providers at the design stage itself can help immensely, feel FM heads.



Clean India Journal brought together a panel of experts – Architects and Facility Managers – to discuss this issue. In discussion were –

**Sheetal Rakheja**, Architect and Partner at Design and Development, New Delhi: An accredited Green building professional and firm believer of sustainable architecture. She has designed three Platinum-rated and two Gold-rated LEED certified buildings. She is the designer of "Shunya", India's first Net Zero energy home.

**Vidur Bharadwaj**, Director of 3C Company: Chairman of the Indian Green Building Council-Delhi and the recipient of the President's Award for designing Platinum LEED building for Wipro Technologies, Delhi.

**Kajal Bhattacharya**, Head-Facility Management Division, the 3C Company: Driven by the motto of Creating, Caring and Conserving of 3C, he maintains the green developments in Delhi / NCR.

**Brigadier Ashok Kumar Jaitly**, General Manager, Training – FMS & PMS, Knight Frank India Pvt Ltd.

CIJ's **Renu Ramakrishnan**...





**“With energy efficiency and green buildings being the need of the hour, to save our Mother Earth, role of facility management is ever growing and important.”**

**– Sheetal Rakheja**

**CIJ:** Sheetal and Vidur, as architects do you involve FM professionals early on in your design process?

**Vidhur:** In our organisation we are very fortunate to involve the facility managers at our design stage itself. We have a lateral integration process of all our businesses – from design, construction, development, facility management to IT. We have it all.

**Sheetal:** But not many people may be doing it and not many people are fortunate enough to have these systems in place.

**Ashok:** That is precisely my point. Designers should work with FM early on so that maintenance issues that come up with difficult or innovative designs can be easily tackled. Let me give you an example of a building we were associated with where a dome, which formed the top of the atrium, was so high that it could not be cleaned efficiently at all. Sure it looked lovely, but what is the point when it cannot be maintained?

**Sheetal:** Quite right. For this reason we have workshops with facility services consultants while the design is being finalised so that they give their inputs and points of view. A lot of times, the architect can skip certain aspects related to maintenance. But if the FM managers are involved at design stage, they can look at it from the maintenance angle.

Let me give you an example of Green Boulevard, which we designed as a LEED Platinum certified green building. This is one of the largest CORE & SHELL platinum

certified building in the world. Generally, when you design buildings, you plan one tonne of air-conditioning for every 150sqft of the office space. This was designed for one tonne per 350sqft of air-conditioning. In reality, it is performing even better, as 800sqft of space requires only one tonne of air-conditioning. So this is a positive feedback we are getting from FM team.

**Vidur:** Yes, it gave a fantastic performance in energy savings. But Kajal and our MEP consultant came back to us and said that in the free cooling, if we had a variable motor, we would find that the energy efficiency would go up even further. It was learning for all of us, and now we are in the process of changing to variable motors which will further enhance the energy efficiency. Though these buildings are not so common, we can use this learning in our other projects.

**Sheetal:** This is where architects should continuously stay in touch with the building through the facility managers for the entire life of the building. This interaction should not stop because that knowledge can help to improve the performance of the same building as well as future buildings. FM helps architects to maintain a relationship with the building throughout.

**Vidur:** What this boils down to is that, whether what we have designed and contractors have implemented are as per design intent, and really being functioned into operations. That is the feedback the facility managers can give us. If it is not, it is learning



for us architects. Let's learn from our mistakes and do it even better. FM can always give us valuable inputs before construction and also after a year post construction.

**Ashok:** A very important point that has emerged from this discussion is that once you get an input from facility managers, either during the design stage or after usage, you get an input which you can use and so in the next design you know what is to be done. And these are examples of best practices and these should be shared within the industry so we can all benefit. I am not sure if there is a mechanism to share this as of now.

**CIJ:** So how do we get more architects to share and get the involvement of the facility managers?

**Sheetal:** I think it has more to do with the owner or the client. If owners or clients can involve FM in the beginning stage of design it can be very useful for the project.

**Vidur:** I don't think architects really control it. And in a way, it will be hard, because some of them really don't care. They may not think about how a building is going to perform post construction or may be that they don't want to face up to it. If you look at it, in a way, it is a suppression of their architectural impression. They could have made the dome smaller or accessible, as Brigadier Ashok Jaitly said, if they had all thought about it together, but that might not have been what the architect had wanted.

**Sheetal:** But there are times when architects want the facility managers' input, but they have no control if the owners want to get them on board only at a later stage. I feel architects should also strongly advise owner of project to get FM on board at earlier stage. FM should be well informed and advised on design intent and design concept. So that they know which areas of the building have to be critically monitored for performance.

**Vidur:** It has been our experience that what the MEP consultant specifies and what the facility manager wants are same to about 80-85%. The difference will be just about 20%. For example, if our MEP consultant recommends using an electric part that comes from company A which is a reputed company, we will agree and so will our contractor. But the FM knows that if something goes wrong with a system, Company A will take 20 days to revert. That is something the architect and the consultant won't know and the owner also won't know. The facility manager can suggest going with Company B whose service is very

good. Those are the kinds of inputs which are very important. It is very crucial but I don't think that it is yet mandatory anywhere in the world, even in the US where you have to have a facility manager on board before you go in for design.

**Ashok:** I think they are mature in the developed countries to an extent. More often than not, the facility manager is on board or facilities inputs are on board.

**Vidur:** When you have people who are doing repeated projects, who have gone through this grind and understand the necessity of having a facility manager on board, things can improve. And it is very rare, still.

**Ashok:** In this curve, I think we are right at the bottom and it will take 10-15 years for us to get there. But if we can bring about awareness and if this information is shared, you will have to have lesser replacements costs and better functioning facilities and services in any building.

**CIJ:** Are there any areas on the building that are more critical to get the facility managers on board when you are designing the building?

**Sheetal:** Glass and the façade cleaning and maintenance are definitely important and need to be given importance in planning and so are energy and water consumption in buildings and landscaping.

**Vidur:** What happens is that 90% of the time for the passive aspects you don't need somebody highly trained. However, for certain design applications you do. For example, we are doing this project called Delhi One. It has a very peculiar incline surface like a 'K' and this has even got us struggling as to how this glass is going to be cleaned. So now in the architectural structural part, we are already incorporating the façade cleaning system along with the structural design. This is because we have the experience and the awareness to understand that this will be an issue later.



“Whether the design implemented is functional or operational, is a feedback that the facility managers can give us. If it is not, it is learning for us architects. Let's learn from our mistakes and do it even better.”

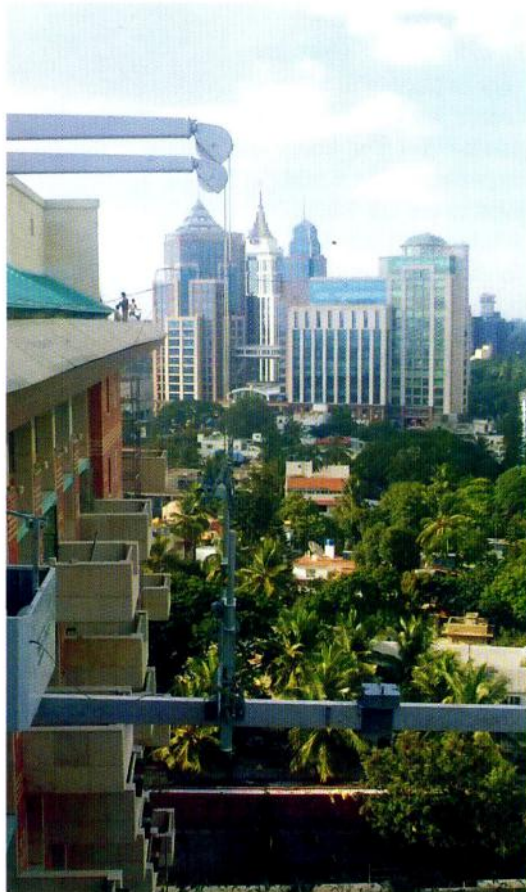
– Vidur Bharadwaj





“The design and development stage when the building is coming up is maximum two to three years, but the next 40 years of maintenance is the facility manager's job, so we need to plan it right.”

– Brigadier  
Ashok Jaitly



**Sheetal:** A lot of times architects are not aware that the building—they have designed with so many protrusions and recesses, would be very tough to clean and maintain.

**Kajal:** My point is that facility manager should not restrict any architect or designer from doing what they want to. But the only thing we ask is that at the time of design the provisions should be made so that the facilities can be maintained.

**Ashok:** In many buildings, arrangements have been made. If not, then it becomes a major problem. So that is one part. The second part is that from the functional point of view, it is important to have the option to isolate facilities area wise. Say, you have five water tanks and you need to clean one water tank. You should not be faced with a situation where all the five tanks need to be emptied out. Very simply, in the design stage you can have valves incorporated, so you can isolate and clean one by one. Again, if there is a problem on one floor and you can isolate that one floor, by whatever design you make, then you do not need to shut down the entire building for maintenance. So these are aspects of planning that come in the design stage.



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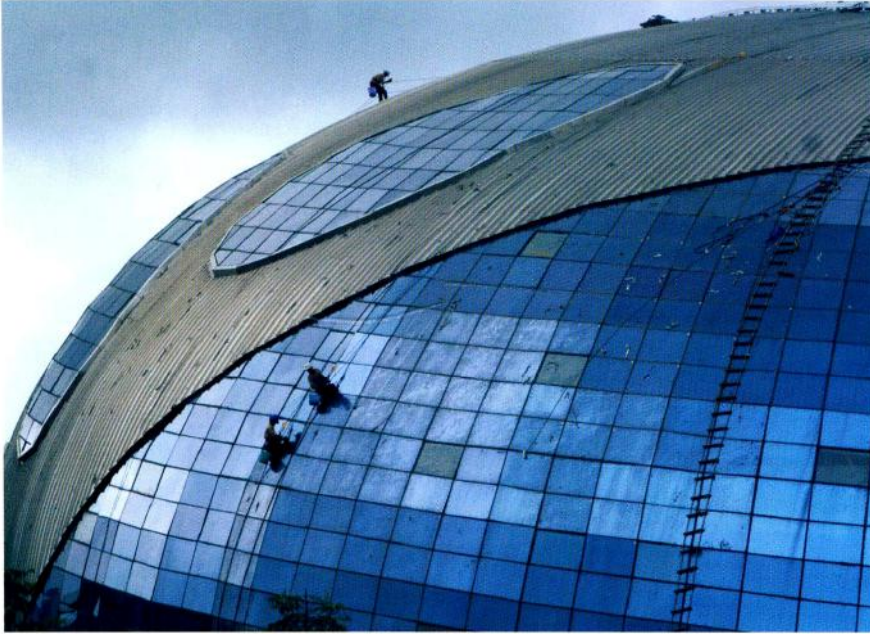
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It looks so simple but even today we don't find it in 10% of the facilities and we manage more than about 200 facilities in this country. So something as simple as this is also not part of the design. This is where the inputs of a facility manager can add value. The design and development stage when the building is coming up is maximum two to three years, but the next 40 years of maintenance is the facility manager's job, so we need to plan it right. Simple things become very difficult to manage if not planned well. That has been my experience.

Another aspect on which we can provide feedback is safety & security.

Very recently in a building in Pune, where we were involved, had their diesel generator sets in the basement and there was no direct or easy access to these plant rooms. There was a major fire and we found that the fire brigade personnel had a difficult time reaching the basement. They sought our advice later on but this could have been avoided if facility managers were consulted at the initial stages.

**Sheetal:** These seem to be violations in basic building codes which really have to be followed when designing any building.

**Ashok:** And this is very basic. Let's take the example of underground tanks. There are so many cases in the facility management industry. When you go to clean those tanks, people have injuries or faint because there is no proper ventilation. For any underground tank, the simplest thing is to put a level indicator, so we don't have to go and measure it. We don't even find it in 5% of the facilities we are working with.

"The number of Green buildings being built is increasing at a fast pace. Until the FM matches with the green features of the building, it will be difficult to achieve the optimum level for maintenance."

– Kajal Bhattacharya

**Sheetal:** This may be true with some buildings where owners do not follow codes and rules. In that respect, we follow all the best practices and we have a building management system which helps to monitor different areas and does not need to rely on man power. But, again there are very few who follow the best practices.

**Ashok:** Yes, not even 10% of buildings have building management systems or automated building systems. That kind of awareness has not yet seeped through to all levels. For e.g. if there is fuel stored in underground tanks, there has to be some area kept to have the tanker reach the building. Also there has to be an outlet available somewhere at the outskirts of the building.

**Sheetal:** I am surprised at this. These are basic norms that should be followed. In our designs there is always an area for the diesel tanker to park with fencing all around and a road going up to that. Architects then really need to be more conscious and careful about these things.

**Ashok:** If you go to the interiors of the cities, in so many buildings that have come up are operational and have none of these. I'll give you another example: A building was designed with a fancy look where one side had complete glass façade. Inside the air-conditioned room, the people on the side of the glass used to feel very hot and sweat. If the air-condition temperature was brought down, the people on the other end used to feel very cold. What is the facility manager to do?

The facility manager cannot do anything. The design does not permit it, so as much as he adjusts the temperature, he really cannot satisfy anybody. And in effect, he is also wasting a lot of time.

In another bad example relating to glass, the building has a complete glass façade and because of the temperature difference between the outside and the inside, the glass cracks and falls down. This is very dangerous and can fall on passers-by or cars. Also there is a cost implication because so many glasses have to be changed. These cases have happened in Delhi.

**Vidur:** This is typical of the new glass big buildings coming up these days. Yes, these are practical difficulties. I recently had a chance to see an interesting design in a hotel in Las Vegas. The façade is completely glass. But when you go into the room, you notice that the glass is not hot even though it is very hot





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outside. Then I noticed that at the edge of the room, there were standalone air-conditioners blowing air only on the glass. This is definitely where facility management has played a role in the design stage.

**CIJ:** Then it seems that both awareness and education are much needed.

**Ashok:** Yes, both are needed. Companies like Design and Development are the lucky ones; they have people on board who are doing this. But there are so many instances, even in some of the latest malls where this is not happening. There is also very little training in this space, and there is a lack of awareness about the facility management sector. If you were to meet a man on the street and ask if he knew what facilities management is, there is 80% chance that he would not know. Facility management is a term that means different things to different people.

In the unorganised sector, the companies that claim to be facility management companies basically break it down to doing cleaning and janitorial work. Therefore, the first thing is creating awareness. Second, awareness has to be brought in at each functional level – the cleaner, the technicians, firefighters, etc. With the advancements in designs, there has to be a parallel response here as well.

If the designers have created something, we as facility managers have to know how best to extend its life and get the maximum out of this, such as the one-tonne air-conditioner cooling 800sqft system. This is fantastic news. If we can share this information, then we can really understand the amount of carbon footprint that we have saved.

**CIJ:** Do you have any thoughts on how there can be an exchange of ideas between these two fraternities?

**Vidur:** Ideally facility managers should be on board in the pre-tender stage for this exchange of ideas.

**Ashok:** I think if we can raise the awareness in both the architect and facility management fraternity, it is going to benefit both of them in the long run. I think gradually some change will come about. Articles in magazines dealing in design or facility management can help build awareness.

**Vidur:** In the end, it is up to the individual client to decide if he wants to get a facility manager on the board or not. So, yes, creating awareness through media is a great suggestion.

**CIJ:** Moving to Green Buildings, are there any special issues you as designers and facility managers face?

**Ashok:** In a Green building, you will not use any product which is not green certified. Even pest control has to be green certified.

**Kajal:** Firstly as facility managers, we need to educate ourselves as to what kind of chemicals and environment-friendly things we have to use. The number of Green buildings being built is increasing at a fast pace. So the FM companies also need to cope up with this speed. Until the FM matches with the green features of the building, it



will be difficult to achieve the optimum level for maintenance.

**Sheetal:** That's right. In one of our projects, we had given perimeter daylight sensors. During the day when there is sunlight, you do not need those perimeter lights, and they remain off. As it grows darker, the sensors will detect the lower lux levels and these lights will come on. This helps in saving a lot of electricity. Despite our initial training, the facility managers missed this past. When we visited the facility and saw these lights unnecessarily on we had to explain the issue to them.

So it is also important for the facility managers to know the design intent, so that they can take care of those things. In another example, we had used a drip irrigation system for watering the plants. That was not 3C's project and the facility managers and the staff which came in post occupancy were not trained on this issue. In drip irrigation, there are underground pipes that release water slowly, so there is no need to water the plants. Not realising this and not seeing any water, the gardener kept watering the plants, thus wasting a lot of water and defeating the purpose. There is no point in

having a Green building if the facility manager is not trained.

**Ashok:** So now you have a situation that is compounded, where there is no training even in regular buildings and now you have Green buildings, which need specialised training. So there is a huge gap between design and awareness.

**Vidur:** Finally, the only thing I would say is when we as architects are designing a Green building, the ultimate aim of the building is the life of the building, which is say 40-50 years. In a Green building the role of the facility manager is as important as the architect, because they are the ones who, for the life of the building, have to save the carbon footprint.

**Ashok:** We are moving very fast as far as designs are concerned. However, unless and until the industry that has to maintain these buildings catch up, there will always be very efficient buildings being designed and built, but which will not be functioning very efficiently. I do see some amount of work happening here. Facility Management training is catching up. But more people need to come forward and more professionals need to contribute. This is the only way forward. ■

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