Minutes of the meeting

Masdar jobsite, on March 7th, 2012

Acoustic:

1. Double insulated Glass will not meet 35 dB with two panes of 6 mm. Around 33 dB is expected.
2. Air spacer of 16mm is the optimum value for thermal insulation and not 20mm as required by the acoustic report. Increase the spacer to 20 mm, will not impact on the acoustic result of the IGU (6-16-6 or 6-20-6 will get the same R_w) but will affect the thermal value. IGU will be 6-16-6
3. BELGIUM will provide the acoustic certificate of the IGU to control the value. Whenever, the R_w-value is around 33 dB the result is accepted by AECOM to meet the expectation of the ESTIMADA.
4. Whenever the R_w-value is less, AECOM's approval is request for the IGU.
5. BELGIUM's responsibility is limited to the R_w-value of the system (R_w- for IGU, System and flanking). No relation with the L_{eq}.)

Wind Load:

1. No wind load is provided by the specification or the consultant.
2. The Wind load will be calculated by BELGIUM according to IBC 2009 (ASCE 7-05) and submitted to the approval of AECOM.
3. BELGIUM highlights the disturbances of the sunshades (especially Façade North-West) on the Wind Load (Speed because of Venturi effect, vortices between Sunshades and Ribbon windows, non-uniform load on ribbon windows.)
4. AECOM cannot provide additional information about this issue.
5. BELGIUM is considering that we should pay attention about this issue (even in case of low impact) to avoid future disturbances on the façade. BELGIUM, as AL FARA'A sub-contractor, will try to achieve a flow simulation (ANSYS) foreseeing the impact on the wind, despite is not a part of AL FARA'A's contract. This calculation will be achieved for the end of March.
6. To avoid any delays, the shop drawings will be submitted in compliance with the schedule already accepted. Provisions will be discussed later in case of large impact shown by the result of the flow simulation.

Ribbon windows:

1. No expansion joint for the concrete on the long façade with ribbon windows (78m00 on North-West façade and South-East facade)
2. No special provisions taking by BELGIUM about this issue, excepted horizontal slots in the brackets to allow pre-casting movements.

Entrance curtain wall:

1. The identified section for the steel members (100mm X 60mm thickness according to structural calculation) is not available on the market.
2. BELGIUM is checking which sections (close from the previous values) are available on the market according to the expectation of the LEED (%of recycling steel) and out the expectation of the LEED (no recycling steel). Result will be submitted to the approval of the consultant.
3. BELGIUM highlights an aesthetic issue about the inside butt-joint between vertical and horizontal members of the steel structure (radius of tubular profiles, gap for installation and movement, installation tolerances). A 3D-Representation will be send to David Ardill and a connection sample will be prepared for his visit on March 18th for approval.
4. The butt joint connection of the steel structure has been suggested by BELGIUM according to the architectural expectations. It will be a concealed connection by an insert on the transom. A 3D-drawing will be submitted to David Ardill for his approval. The sample of this connection will be available on March 18th for his visit for approval. (Sample previously identified).
5. The connection between the two vertical members is requested with a rod. According to structural calculations, BELGIUM suggests to use pipes. AECOM agrees about this issues if the structural calculation note allows the pipes use.
6. The impacts of slab tolerances and movements (building movements after 2 years: deflection). According to the architectural expectations, BELGIUM is suggesting to manage this issues as following:
    - Tolerances: Manage in the brackets areas (head and foot of the sub-structure)
    - Movement: Request provisions to avoid compressive impact on the steel structure.
7. BELGIUM highlights the following issues about the tender documents and specifications:
    - No provisions are taken on the head of the steel sub-structure to manage the compressive impact of the slab movement (level + 17.11)
    - The connections suggested between the brackets and the steel sub-structure is fixing only 2 degrees of movements. These are pinned connections which allow a moment on the parallel plan of the facade. This moment will affect and create disturbances on the upper glazing panel of the façade.
8. According with the previous article, BELGIUM will suggest connections as following:
    - Foot of the façade: Avoid any movement on the three directions (fixed connection)
    - Head of the façade: connection allowing only movement on the vertical axis of the façade (for expansion, deflection, slab movement).
    - Connection designed in compliance with the architectural expectations.
9. According to the both previous article, the final decision will affect the price of steel sub-structure. Information will be submitted for decision of the consultant/client.

Aluminum panels cladding:

1. The cladding is defined as a “Rain Screen” cladding.
2. According to AAMA CW-RS-1-04, the term “Rain Screen design” is closely related to “Pressure Equalized design”. (water drives outside by gravity and elimination of other forces acting to move water through openings)
3. AECOM and BELGIUM agrees about the quality of a Rain Screen cladding which is certainly the most sustainable system for cladding.
4. By definition, air flow is not accepted in pressure equalization system (air currents is connected to a difference of pressure between two points.
5. According to AAMA/CWCT standards the followings provisions shall be taken for a “Pressure equalized design”:
    - In the cavity between cladding and concrete wall/masonry block, air must be introduced on the foot of panels.
    - Vertical opening have to be closed to avoid air flow.
    - Confined air space shall be managed by the use of air dividers (horizontal and vertical).
    - The quality of air tightness significantly affects the pressure equalized system.
6. Such provisions are not described on the tender drawings or specifications and will affect the price of the system. Information will be submitted for final decision of the consultant/client.

Other works:

1. Not discussed during this meeting.
2. Will be subject to another meeting, currently not scheduled.

End of the meeting