INSPECTION OF EXISTING ROOF

Observations:

1. The present roof is built-up asphalt and felt with gravel cover. The last reroofing was more than six years ago. The membrane appears to be about mid-way in its service life. Martina reported that the roof has had some leaks in the past, and that some patching was done last summer.

2. The roof is dead flat with a gravel stop all around the edges that is about ¾” high.

3. There are only two means for conveying water from this roof to the ground. One is direct discharge over the edge at the entire perimeter. There are also two very small roof drains near the center of the building. One is 3” in diameter; the other is 1-1/2” in diameter. They look like retrofit items.

4. During a summer cloudburst, sheets of water cascade over the edges of the roof until the last ¾” of water is retained by the gravel stop. A ponded condition then exists until the two roof drains relieve the ponding. Given the irregularity of the roof plane, these two drains cannot possibly connect to all the ponded areas on this roof. Evaporation must do the rest.
Architect's Field Report

5. During the winter, on days of snow melt, this roof configuration probably generates some killer icicles.
6. There are numerous skylights that have been repeatedly plastered with plastic asphalt cement, and have been painted black.
7. Some of the mechanical equipment is installed on curbs that are too low, and are deteriorating.

Evaluation:
1. When a roof is ponded, a relatively small tear or puncture in the membrane can unleash a serious flood inside the building.
2. It would be prudent to invest in a secure roof before investing in costly equipment within the building.

Recommendation:
1. Reconfigure the roof.
2. Add tapered insulation at a pitch of ¼” per foot, dividing the roof into drainage areas, draining inward from the perimeter. Build up the perimeters with blocking and a metal fascia.
3. Convey the water from the roof, through the interior in roof drain piping to discharge on the exterior. Provide redundant overflow piping as required by the plumbing code.
4. Remove the defunct skylights. Each one is a potential leak. Install decking and rigid insulation to produce continuous roof planes at the former skylight locations.
5. Rebuild mechanical curbs 9” high to qualify for a 20 year warranty from the roofing manufacturer.
6. Install five-ply asphalt and cap sheet system or fully-adhered EPDM roof system.