



View of the 275 foot high State Department of Water Resources Building. Housed within this building are Dept. Of Parks & Recreation, Fish & Game, Water Resources District and the Dept of Forestry & Fire Protection.



A test cut reveals a steel deck, followed by 1 ½" fiberglass insulation, followed by a 4 ply BUR set in hot asphalt with a gravel surfacing, followed by a recover board, followed by a PC membrane which was mechanically fastened to the deck.



After years of high solar radiation, the plasticizers in the membrane began to bleed out. The membrane then became embrittled and began to shatter as it shrank.



A large rain and wind storm caused a 2,000 square foot section of the PVC membrane to blow-off. The cause of this blow-off was due to wind getting under the southern perimeter metal edging.



Examination of the lower side of the deck reveals a fire-proofing containing asbestos containing materials.



Since there are many critical state agencies resident in this facility, an asbestos abatement was considered unfeasible. The state asked for a work-around practice that could be proposed to waterproof this building without disruptions.



View of perimeter metal edging which failed during the winter storm.



Original 2X6 redwood nailer can be seen at the bottom of this hole. 1x4 wood nailer had to be removed as well as the imbedded gravel for the installation of a new sheet metal edging.



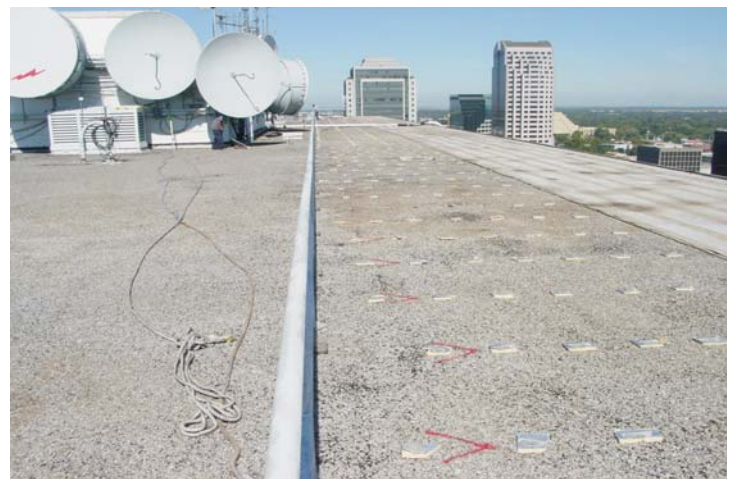
Tear-off involved the removal of the PVC membrane and the recovery board down to the original gravel surfaced roof. There were over 26,000 fasteners attaching the PVC membrane to the metal deck.



Great care was to be taken so as not to disturb the ACM fireproofing materials on the underside of the deck. The crew is seen collecting the debris in large plastic bags.



So as not to disturb the fireproofing, a high speed diamond cutting blade was used to cut the fastener at the level of the gravel roof surface.



View of the progression of removal of the old PVC membrane from the northern perimeter to the area behind the safety rails.



After all the fasteners have been cut, the roof is vacuumed, broomed and vacuumed again.



The vacuum hose was tied off at the mid section of the northern perimeter edge.



275 feet below, a large vacuum truck collects the gravel to be removed off-site.



Next came the installation of a new 22 gage metal edging, attached to the original wooden nailer 3" O.C.



To the cleaned and vacuumed surface, polyester plies are embedded in 15 gallons of emulsion, as a leveling scrim for the WeatherWeld Seamless Composite membrane.



View of the polyester scrim as it cures out in the sun.



In order to ensure that no blistering takes place due to trapped moisture in the fiberglass insulation, a moisture scan was performed. In areas of wet insulation, 1 way pressure release vents were installed.



After 2 weeks of high temperatures and a follow-up scan, it was determined that the application of the seamless composite membrane could go forward.



8 pounds of multi-filament fiberglass roving is intertwined in 15 gallons of high shear emulsion. This process is repeated twice, creating a membrane which contains over 2.2 miles of fiberglass reinforcement per square foot.



The WeatherWeld composite membrane completely seals the bowl of this internal drain.



The safety rail's pitch pocket is also completely sealed around this metal post flashing.



To ensure that all the trapped moisture is either pushed into this building or through the 1 way pressure relief vents, the roof was left black till the following spring. Then a Title 24 compliant white "Cool Roof" coating was applied.