LIGHTHERM DRYMIX 250

APPLICATION @ BIORAD LABORATORIES

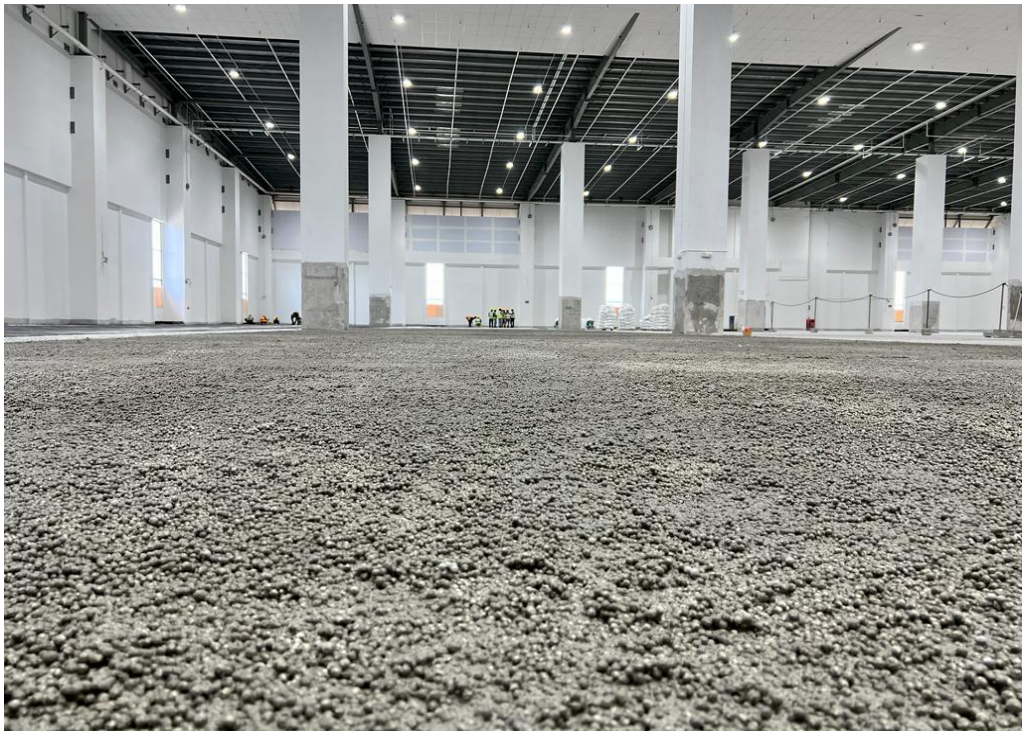
PROJECT: BIORAD LABORATORIES, PIONEER

AREA: 12,000 M2

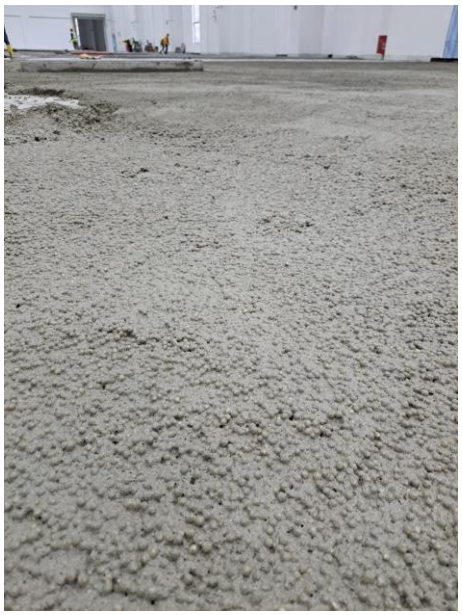
OBJECTIVE: THERMAL INSULATION AND ANTI-CONDENSATION

APPLICATION

50MM THICK OF LIGHTHERM DRYMIX 250 KG/M3 WAS APPLIED ONTO THE SLAB TO ACT AS THERMAL SCREED TO PREVENT CONDENSATION AT SOFFIT LEVEL BELOW.



Beads well encapsulated



Picture above shown the polyfoam beads blend well with cement without segregation

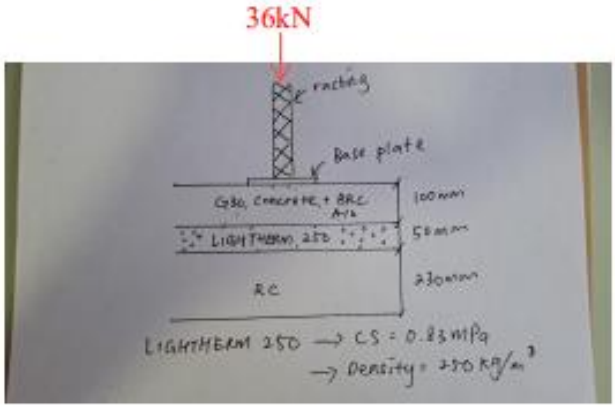
During Application

UPON AWARDING OF CONTRACT, PE CALCULATION WAS CARRIED OUT AS SHOWN BELOW TO ENSURE SAFETY DUE TO ADDITIONAL POINT LOAD OF THE 18 TONNES PALLET RACKING. 100MM CONCRETE TOP UP WITH A10 REINFORCED BRC WAS APPLIED AS PROTECTION LAYER ON TOP OF LIGHTHERM 250 THERMAL SCREED.

PE CALCULATION

16/10/2023

Each racking leg have a point load of 36kN.



Design compressive strength of the concrete: $f_{cd} = \alpha_{cc} \frac{f_{ck}}{\gamma_{M0}}$

Design Compressive Strength of the concrete, fcd = 0.85 x 30 / 1.5 = 17N/mm2

$f_{jd} = \alpha\beta_j f_{cd}$

Assuming $\alpha = 1.5$, $\beta_j = 2/3$

fjd = 1.5 x 2/3 x 17 = 17N/mm2

Assume Plate thickness = 5mm, $t_{p,min} = c\sqrt{\frac{3 f_{jd} \gamma_{M0}}{f_{yp}}}$

c = 11.6 mm

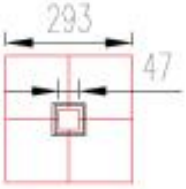
CONSIDER FOS = 1.5

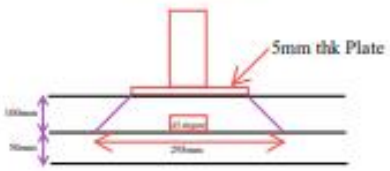
Compressive Stress

= 36kN x 1.5 / (0.293m x 0.293m - 0.047m x 0.047m)

= 646 kN/m2 < 830 kN/m2, OK!!!

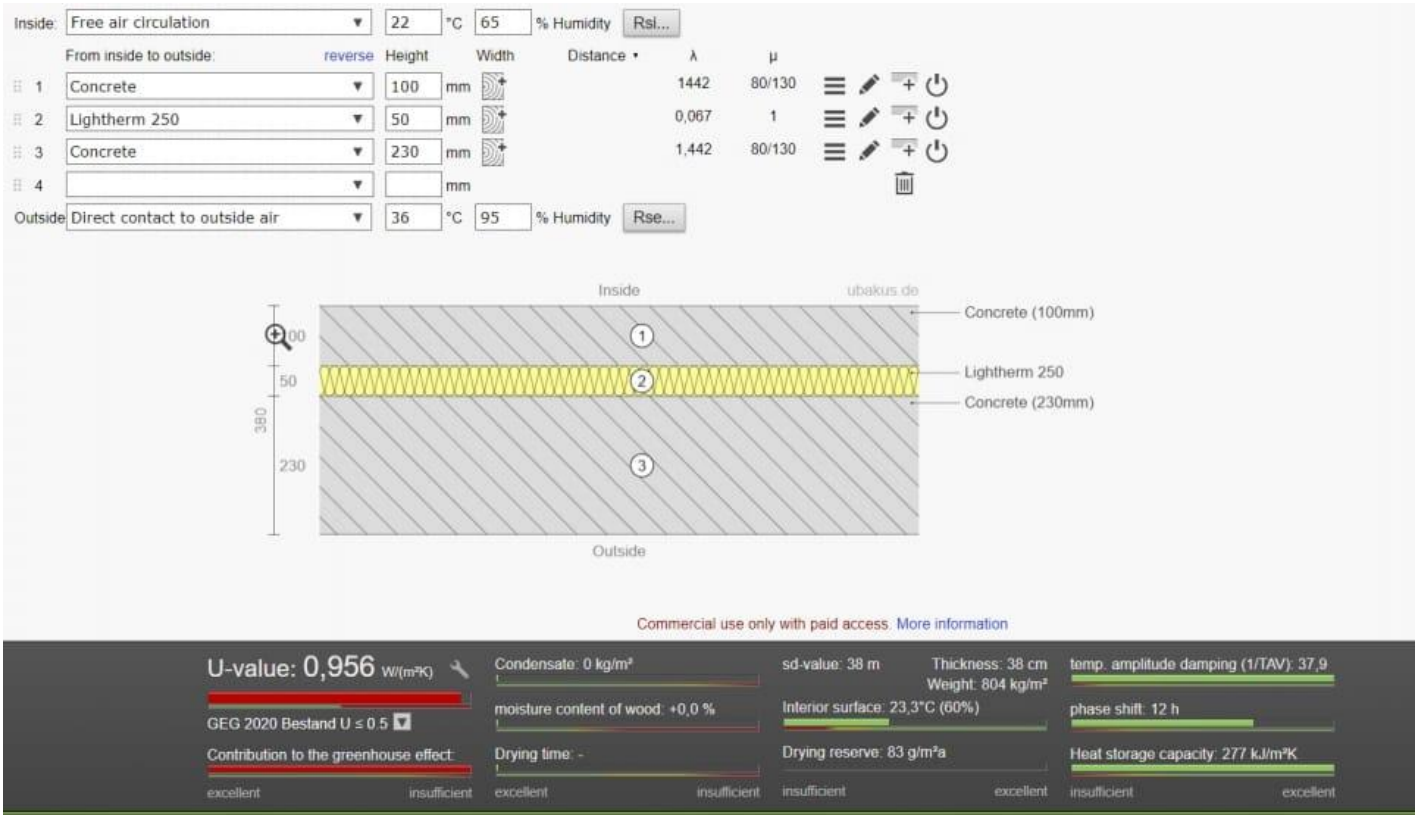
Assume the racking leg is SHS 75x75x5mm





THERMAL CALCULATION

SIMULATION WAS DONE TO ENSURE NO CONDENSATION ISSUE AND IT ACHIEVED A U-VALUE OF 0.96. LIGHTHERM 250 HAS A LOW THERMAL CONDUCTIVITY OF 0.067 W/MK WHICH CONTRIBUTES IN INSULATING THE CURRENT LEVEL.



PICTURE BELOW SHOWS THE SECTION VIEW OF THE FLOOR BUILT UP OF 50MM THK LIGHTHERM 250 WITH 100MM REINFORCED CONCRETE AS PROTECTION LAYER.

Alternatively, please feel free to contact me directly at if you have any inquiry:

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Thank you so much.

Best regards,

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ECO BUILDING SOLUTIONS