TESTING AND MOCKUPS

MOCK-UP SAMPLE DETAILS

Aggregate sizes:
1. (Size - 1) : 1.25cm
2. (Size - 2) : 1.50cm
3. (Size - 3) : 2.00cm
4. (Size - 4) : 2.25cm
5. (Size - 5) : 2.75cm
6. (Size - 6) : 3.00cm

S.No. Date	**Aggregate** (size, shape, colour, quantity and source)	**Cement A** (Sri Ram Cement: light grey)	**Cement B** (White Cement)	Marble dust or other additives	Sand (quantity , particle size and source)	Ratio Base Layer :- cement, sand, aggregate	Ratio top layer Grey cement, White cement, Marble dust & White aggregate
11/11/2016 Sample 1	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1 Part cement 1/2 part white cement 1/4 part marble dust 2 aggregate
11/11/2016 Sample 2	Sizes: 1, 2, 3	J.K grey cemen	J.K white cemen	Marble dust	Coarse brown Ghagga	1 Part cement 3 Part	1 Part cement 1 Part

		t	t		r sand	Sand 4 Part aggrega te	white cement 1/2 part marble dust 3 Part 14aggrega te
30/11/16 Sample 2	Sizes: 4, 5, 6	J.K grey cemen t	J.K white cemen t	Marble dust	Coarse brown Ghagga r sand	1 Part cement 3 Part Sand 4 Part aggrega te	1.5 Part cement 1/2 Part white cement 1 Part marble dust 3 Part aggregate
14/12/16 Sample 1	Sizes: 4, 5, 6	J.K grey cemen t	J.K white cemen t	Marble dust	Coarse brown Ghagga r sand	1 Part cement 3 Part Sand 4 Part aggrega te	2 Part cement 1 Part white cement 1 Part marble dust 4 Part aggregate
14/12/16 Sample 2	Sizes: 4, 5, 6	J.K grey cemen t	J.K white cemen t	Marble dust	Coarse brown Ghagga r sand	1 Part cement 3 Part Sand 4 Part aggrega te	1.5 Part cement 0 Part white cement 1.5 Part marble dust 3 Part aggregate
14/12/16 Sample 3	Sizes: 4, 5, 6	J.K grey cemen t	J.K white cemen t	Marble dust	Coarse brown Ghagga r sand	1 Part cement 3 Part Sand 4 Part aggrega te	1 Part cement 1 Part white cement 1 Part marble dust 3 Part aggregate

Process

1. Base layer of Cement, sand & aggregate with ratio 1:3:4 filled in the mould leaving 10mm space from top for the top layer.
2. Allow to set for 15 to 20 minutes and sprinkle dry cement over the base layer.
3. Top layer of cement, white cement, Marble dust & just enough white aggregate to fill the mould as per ratio & flushed till top.
4. Allow the top layer to set for 30 minutes and wash off the top layer with a brush and water to reveal the white aggregate.
5. Place outdoor for weathering and allow the surface to get lighter in shade

Images:

Dry mix for top layer

Colour matching with panel

Fill up the mix till top

Flush from top with a tool

Washing off with water and brush

Sample 1

Sample 2

11/11/2016, Sample 1 & Sample 2

11/11/2016, Sample 1: after drying of 2 days
11/11/2016, Sample 2: after drying of 2 days

30/11/2016, Sample 2 after drying
Sample 2 after drying

14/12/2016,

14/12/2016, Sample 1 after drying

14/12/2016, Sample 3 after drying

14/12/2016, Sample 1

14/12/2016, Sample 2

14/12/2016, Sample 3

30/11/2016, Sample 2

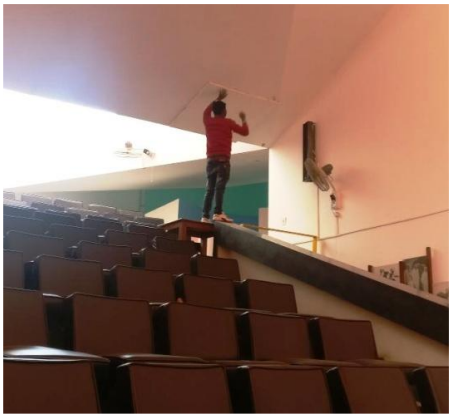
SOUNDPROOFING MOCKUP

Project : Acoustic treatment mockup at Gandhi Bhawan
Acoustics Expert : Mr. Deepak Goyal, AV Acoustics, Chandigarh.
Area : 4' X 4' = 16 Sq Ft
Location : Auditorium ceiling
Materials used :

1. Base material 8/10 mm of acoustical fleece.
2. Wood composite magnesium oxide board (1ft X 1ft)
3. Epoxy resins for filling the joints
4. Stainless steel screws of suitable size.
5. PVC cleats.
6. Top paint coat as required in emulsion /distemper or lime white.

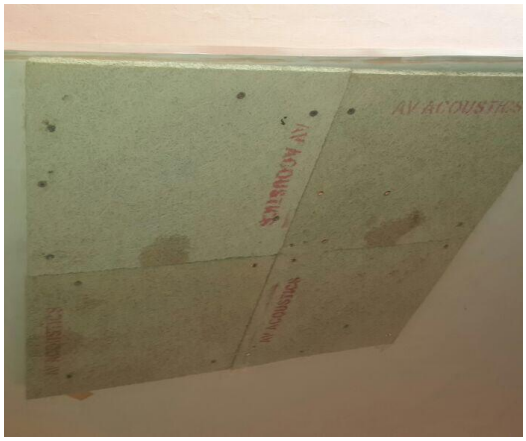
Procedure :

- 4ft X 4ft area selected & marked in the auditorium as per convinience.
- 16 sq ft acoustic Fleece of 8mm thickness fixed onto the selected area with screws.
- 4 panels of size 1ft X 1ft (Wood composite magnesium oxide board) with 15mm thickness fixed above the acoustic fleece with the help of screws & PVC cleats drilled into the RCC slab.
- The joints flushed and smoothened with epoxy resin.
- White cement putty used to achieve a smooth surface for final layer of paint.
- Lime wash matching with the existing shade of the ceiling done to get the original look of the ceiling.
- Total thickness of acoustic layer achieved is 23 to 25 mm.



Demarcation of the selected area for the Mockup

Acoustic Fleece as a base layer fixed on top of base layer



Wood composite Board

Joints flushed with Epoxy resin finished

Rough edges and joints

White cement putty base for top layer of paint with ceiling

White lime wash matched

WATERPROOFING MOCKUP FOR POOL

Area Enclosed for Mockup : 500 sq mtr(approx)

Area Detail :

1. Area of mock pool base – 503 Sq m
2. 635 x 635 mm Tile area – 0.4 Sq m
3. no. of tiles in mock area = 503/ 0.4 = 1258 nos.
4. For each tile, no. of joints = 2
5. Joint length to be considered / tile = 635 x 2 = 1270 mm = 1.27 m
6. Total joint length = 1.27 x 1258 = 1597.66 m say 1600 m
7. Add wall and floor jt. on two sides only = (33.57 +15.03) = 48.6 m
8. Total jt. length = say 1650 m
9. Wall area – 48.6 X 0.5 = 24.3 SQM

Location : Longer end of the water body.

Materials used :

1. WALCRETE
2. HIGH BOND-40
3. QS-530
4. BNS - GROUT
5. Aluminum Nipples
6. BOND-FRS
7. Masking tape

Equipments used:

1. Machine cutter
2. Machine drill
3. Manual Pressure pump for Grouting

Procedure :

Seepage monitoring:

- Construction of a brick wall to enclose the 500sq mtr area in the longer end of the pool and setting up a graduated staff gauge for water level measurement.
- Filling water in the confined area and monitoring for seepage of water(taking readings of level twice a day at gap of 9 hours).

Waterproofing Treatment

- Phase 1 - treatment of walls & floor-wall joint
- Phase 2 - Treatment of floor panel joints

Seepage Monitoring:

Construction of new wall to enclose 500sq mtr area gauge to measure water level

Setting up graduated staff

Filling water up-to 20 inches level

Monitoring for drop in water

Waterproofing process: Phase 1

- Plaster removing from walls with manual & mechanical means.
- Cutting the construction joints with electric cutter.
- Drilling the holes with hammer drill machines of 12 mm dia in all joints.
- Fixing the non- ferrous nipples at every 5 sqft(3ft spacing up & down) with cement mix with QS-530.
- Injecting non –shrink polymer compound (Mixing ratio 10 % High Bond 40, 10% BNS Grout and 4% QS 530 by weight of cement)
- The grout finds its way out from various cracks or sieves in the wall or the adjacent floor joints. So these outlets sealed with QS-530 & cement mix to carry on with the pressure grouting.

- Cutting the nipples and leveling properly with cement mixed with High Bond 40.
- Cleaning the surface thoroughly.
- Applying bonding coat of High Bond-40 mixed with cement, mixing ratio:1 part of High Bond-40, 1 part of water & 3 parts of cement in the joints.
- Filling of joints, final plastering and making gola with Bond FRS mixed with water.
- Curing the plaster for one day and filling the water for further monitoring of seepage.

Removing plaster with mechanical means

Cutting construction joints with cutter

Drilling 12" deep holes into the wall up-to 2"

Inserting nipples into the holes

3ft spacing of the nipples covering 5sqft area each

Sealing the joints with High Bond 40 & cement

Mixing of compounds with cement

Pipe fixed onto the nipple for pressure grouting

Pressure grouting being done with a manual pump

Grout coming out of sieves and spaces in the wall

Grout coming out of joints in the floor while pressure grouting

Coat of High Bond 40 mix with cement & water

Final plastering with Bond FRS

Filling water after waterproofing treatment up-to 20 inches and monitoring for seepage

Table 1: RECORD of WATER-RETENTION CAPACITY OF POOL
Phase 1 - With treatment of wall & floor-wall Joint only

Date	Time	Gauge reading (Units - cm)	Change in Water level Recorded (Units - cm)	Remarks/ notes/ comments on elevation changes	Additional notes
23/2/17					Water was still being filled
	5.00pm	55 cm	0 cm		Monitoring started at 55cm
24/2/17	9.00am	47.5 cm	7.5 cm		

	5.00pm	45 cm	2.5 cm		
25/2/17	9.00am	40 cm	5 cm		
	5.00pm	36.88 cm	3.12 cm		
26/2/17	9.00pm	31.25 cm	5.63 cm		
	5.00pm	28.75 cm	2.5 cm		
27/2/17	9.00am	25 cm	3.75 cm		
	5.00pm	22.5 cm	2.5 cm		
28/2/17	9.00am	18.75 cm	3.75 cm		
	5.00pm	16.25 cm	2.5 cm		
1/3/17	9.00am	13.13 cm	3.12 cm		
	5.00pm	11.88 cm	1.33 cm		
2/3/17	9.00am	9.38 cm	2.5 cm		
	5.00pm	7.50 cm	1.88 cm		
3/3/17	9.00am	5.00 cm	2.5 cm		Water left only in the lowest portion where the scale was setup.
	5.00pm	4.38 cm	0.62 cm		Almost empty

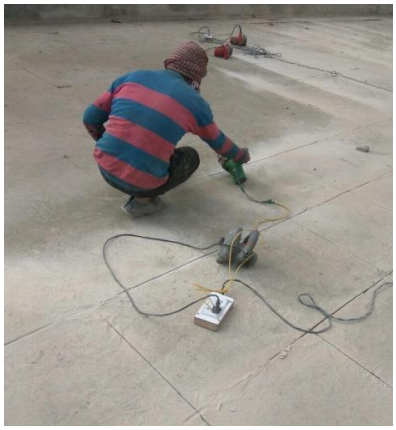
Waterproofing process: Phase 1

- Cutting of floor panel joints with electric cutter.
- Drilling holes of 12mm dia & 3" deep at diagonal corners of each floor panel.
- Masking of joint edges with masking tape to get straight lines of floor joints.
- QS- 530 poured into the cut joints in small amounts and allowed to set for 1 hour.
- Mix of 1 part High bond-40, 2 parts water & cement is used to seal the 1' deep cut joints and allowed to set for a day.
- The masking tape is removed & we get clean and straight joint lines.
- Fixing the non- ferrous nipples 2" deep into the drilled holes with cement mix

with QS-530.

- Injecting non –shrink polymer compound (Mixing ratio 10 % High Bond 40, 10% BNS Grout and 4% QS 530 by weight of cement)
- The grout finds its way out from various cracks or sieves in the floor & joints, So these outlets sealed with QS-530 & cement mix to carry on with the pressure grouting.
- Cutting the nipples and leveling properly with cement mixed with High Bond 40.
- Cleaning the surface thoroughly.
- Allowing the grout to set for two days and filling the pool with water to monitor for any further seepage.

Cutting of floor joints



Drilling of holes at corners

Masking of joint edges with tape

QS- 530 poured into the cut joints

Sealing of joints with High Bond 40 mix into the holes.

Inserting & fixing nipples 2" deep

Pressure grouting with manual pressure pump joints.

Grout coming out from the floor

Cleaning of surface

Filling of water upto 20" after 2 days of treatment

Monitoring of water level after treatment

loss of water recorded for 2 weeks

Table 2: RECORD of WATER-RETENTION CAPACITY OF POOL
Phase 2 - With treatment of wall, floor-wall Joint & floor.

Date	Time	Gauge reading (Units - cm)	Change in Water level Recorded (Units - cm)	Remarks/ notes/ comments on elevation changes	Additional notes
30/3/17	9.00am	50.8 cm			Monitoring started
	5.00pm	50.5 cm			
31/3/17	9.00am	50.16 cm			
	5.00pm	49.53 cm			
1/4/17	9.00am	49.15 cm			
	5.00pm	48.75 cm			
2/4/17	9.00pm	48.55 cm			
	5.00pm	48.26 cm			
3/4/17	9.00am	48.00 cm			
	5.00pm	47.75 cm			
4/4/17	9.00am	46.99 cm			

	5.00pm	46.50 cm			
5/4/17	9.00am	46.35 cm			
	5.00pm	46.15 cm			
6/4/17	9.00am	45.90 cm			
	5.00pm	45.72 cm			
7/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU
8/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU
9/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU
10/4/17	9.00am	43.81 cm			
	5.00pm	43.18 cm			