

UNIT 4 CONSTRUCTION PRACTISES

*Concrete: Production
(Form work)
B. Bhattacharjee*

*CIVIL ENGINEERING DEPARTMENT
IIT DELHI*



Bugholes

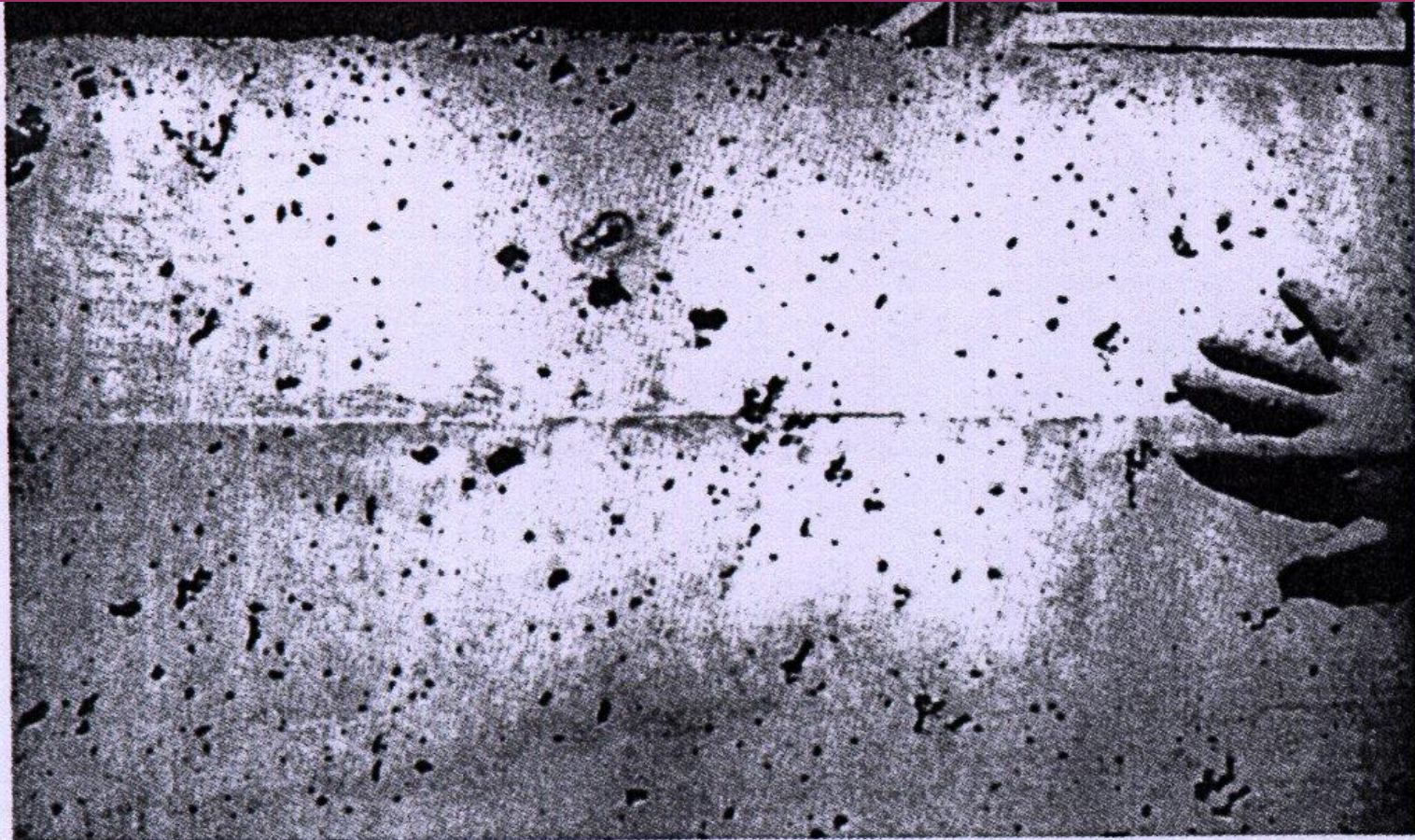
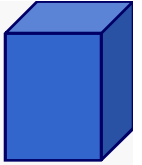


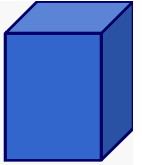
Fig. 7.6.2—Excessive air voids on formed surface



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Sand Run



*Fig. 7.6.3—Sand streaking caused by heavy
bleeding along form*



Honeycomb

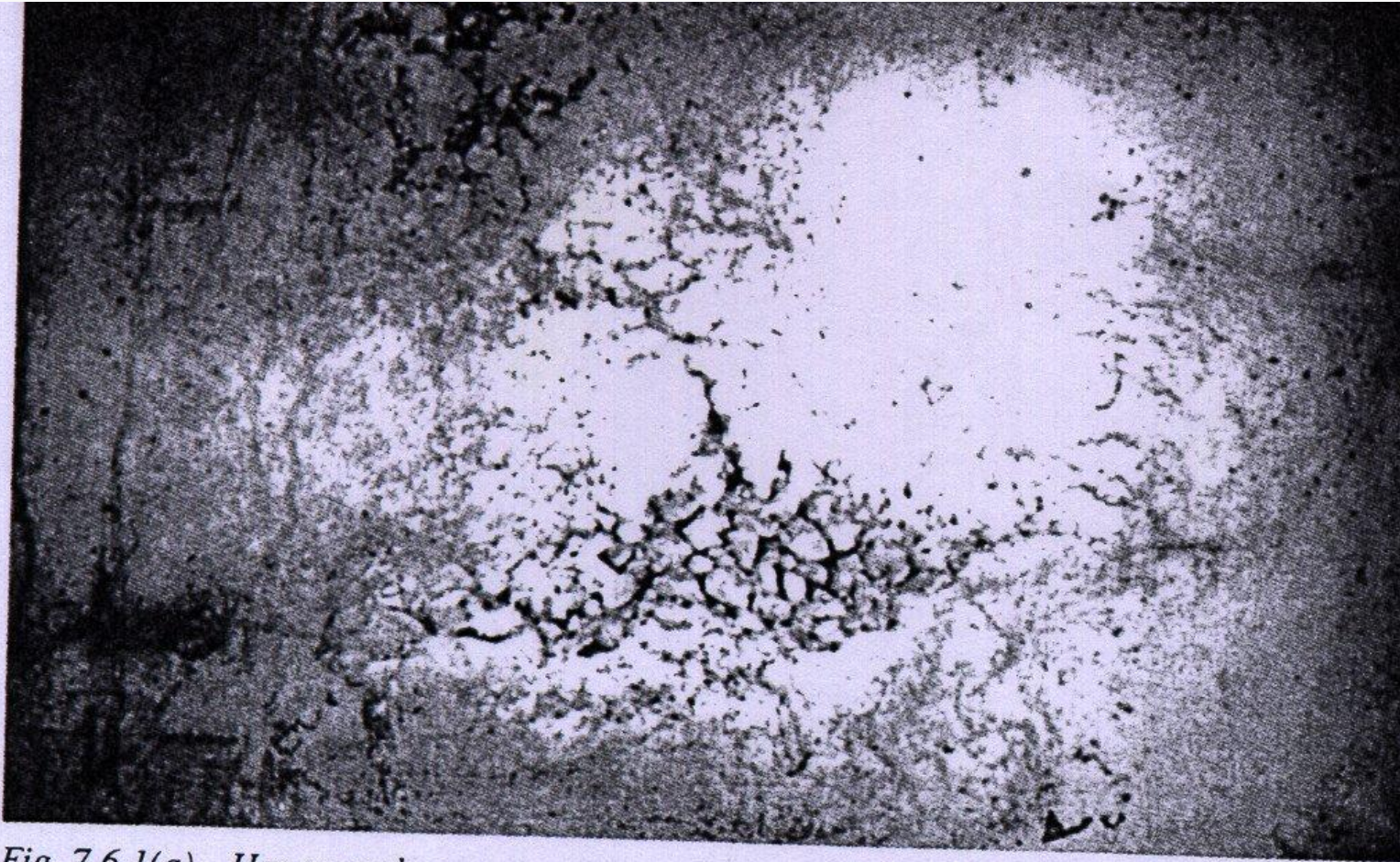
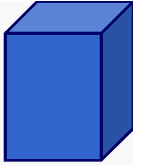


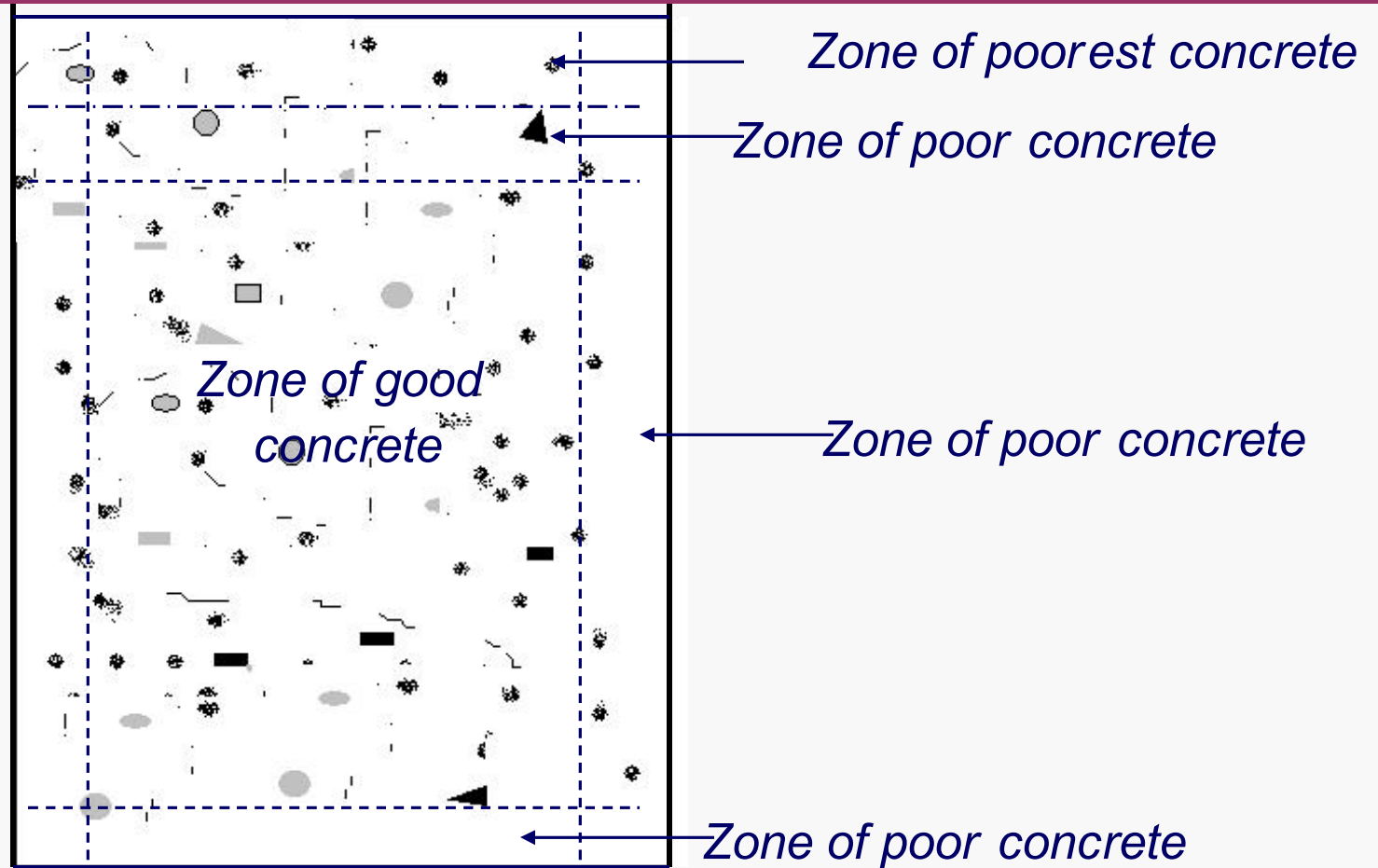
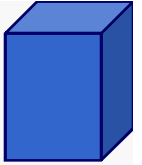
Fig. 7.6.1(a)—Honeycomb



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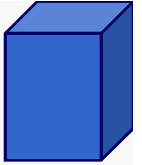
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Concrete & Cover Concrete



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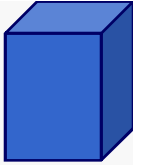
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Surface Properties

- But ingress takes place through surface concrete.*
- Stresses & strains are maximum near the surface .*
- Cracking takes place near the surface due to load and cracks due to durability distress also appears at the surface*



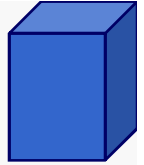


Surface Properties

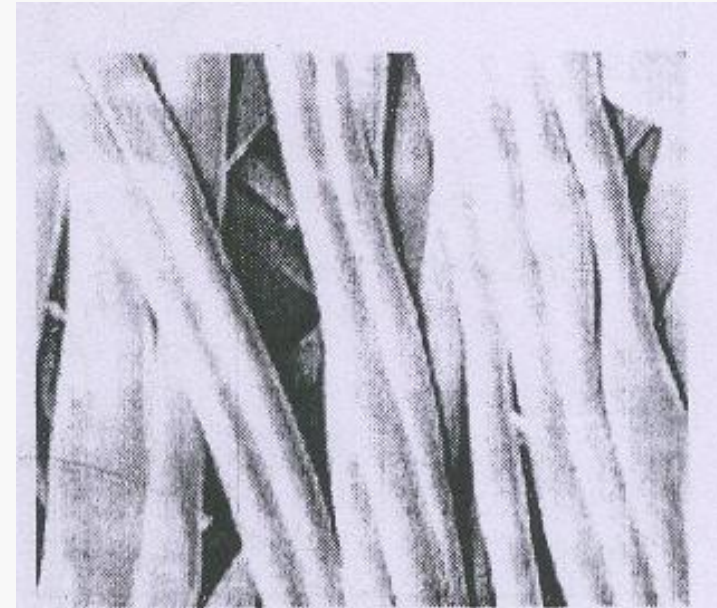
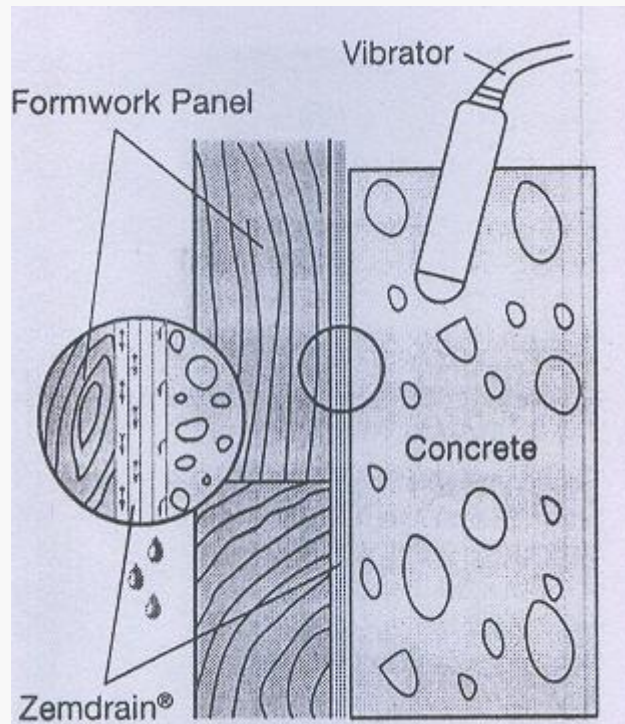
- **Hence Near surface concrete/ cover-crete governs the durability.**
- **Tensile strength and Elastic modulus .**
- **Permeation quality at the surface**
 - **Both are controlled by porosity of cover-crete thus through w/c at the cover crete.**
 - **Can be improved by overlays, coating, pore blocking treatment or pore liners, but costly.**



Permeability Form liner



Principle: Two functions A) Filtering; (Fine fibers B) Drainage (Coarser fibers)



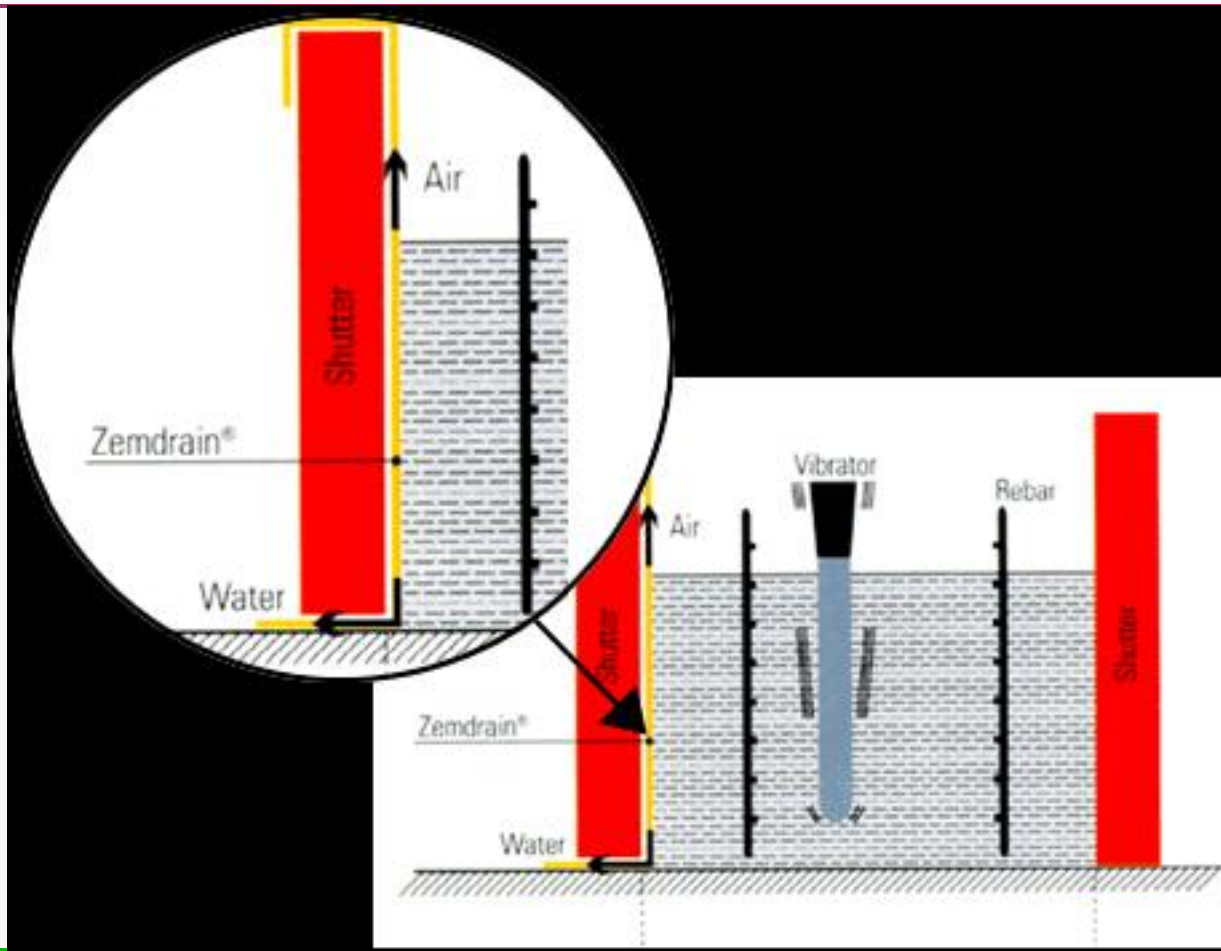
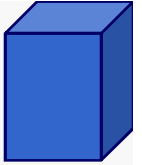
▲ Enlargement of the filter layer which retains the cement particles.



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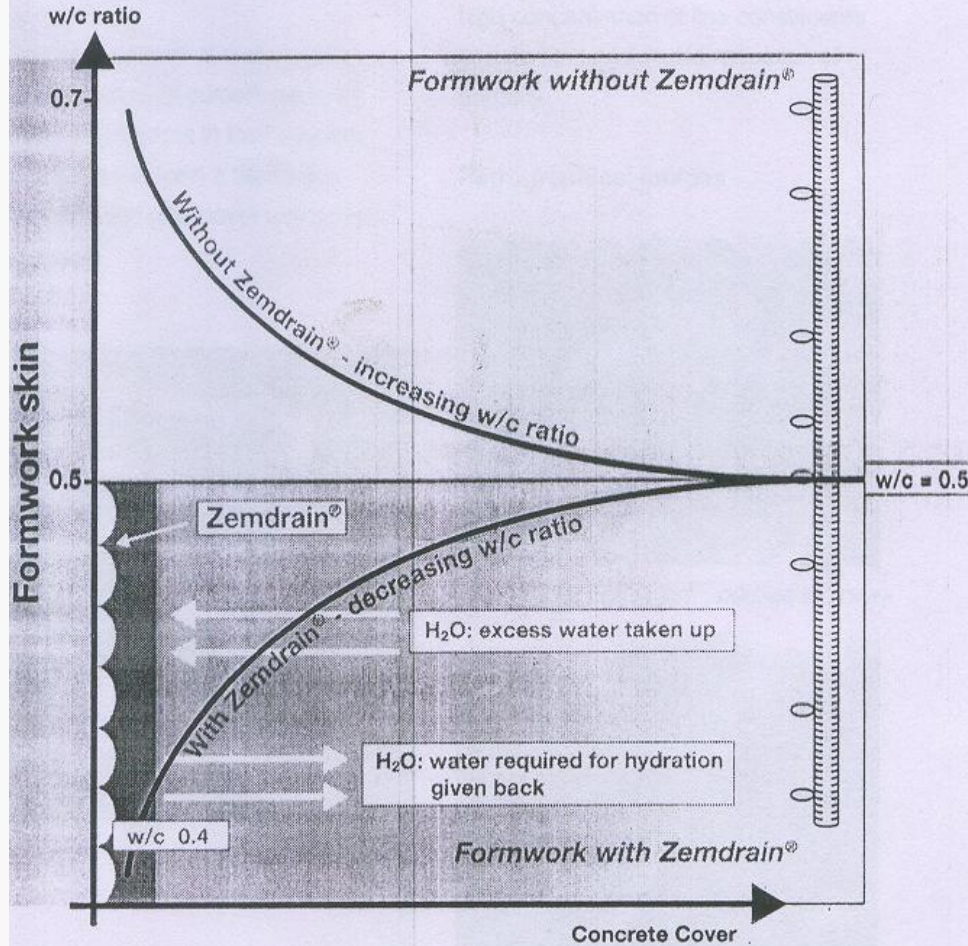
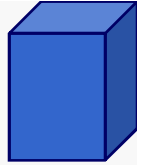
Permeability Form liner



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Effect of Form liner



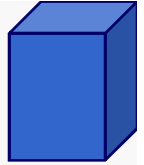
- Lower w/c at cover-crete
- Denser cover-crete
- No Bug-holes



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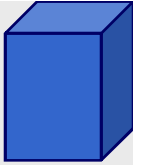
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Effect of Form liner



Lined Surface	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	Mean Value - R
B1	26.00	28.00	24.00	21.00	27.00	28.00	22.00	25.00	22.00	24.00	24.70
B2	29.00	29.00	30.00	21.00	31.00	30.00	27.00	28.00	29.00	25.00	27.90
B3	29.00	31.00	31.00	31.00	26.00	29.00	27.00	23.00	24.00	27.00	27.80
B4	28.00	31.00	31.00	31.00	31.00	30.00	30.00	28.00	24.00	26.00	29.00
B5	28.00	27.00	31.00	29.00	25.00	23.00	21.00	24.00	21.00	22.00	25.10
B6	26.00	32.00	25.00	31.00	26.00	27.00	26.00	21.00	23.00	21.00	25.80





***THANK YOU FOR
HEARING***

