American Concrete Institute®
Advancing concrete knowledge

The Art of Concrete

ACI Spring 2012 Convention
March 18 – 21, Dallas, TX

ACI
WEB SESSIONS

James Shilstone (Jay) is the 3rd generation of Shilstones to be involved in concrete quality control and follows after his father, Jim, in working with architectural concrete. Jay has been involved in architectural concrete projects worldwide with an accumulated value of over $4,000,000,000. His most recent efforts involve the development of performance specifications for architectural concrete. Jay is a member of ACI 303, Architectural Concrete, as well as multiple ACI, NRMCA, ASTM and TRB committees dealing with concrete and quality control.

ACI
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Command Alkon

ACI Spring 2012 Convention "The Art of Concrete"

Making Architectural Concrete Work

- James M. Shilstone, Jr., FACI

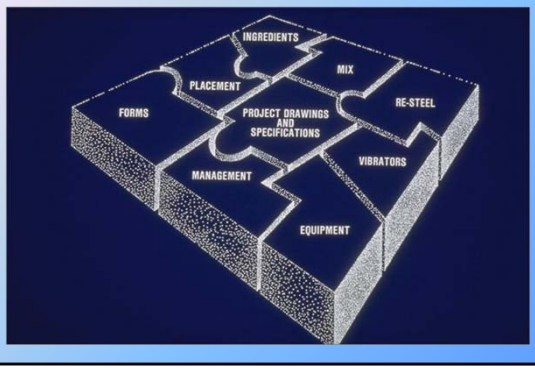
1962 – Jim Shilstone formed Architectural Concrete Consultants

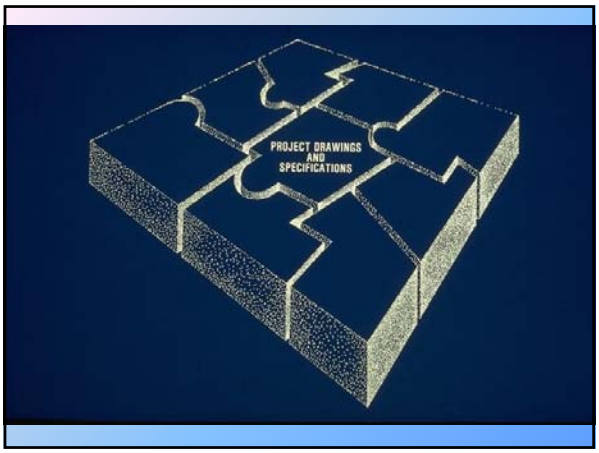
WASON MEDAL AWARD PAPER
FOR MOST MERITORIOUS PRESENTATION TO THE INSTITUTE
AMERICAN CONCRETE INSTITUTE – 1979

Concrete Construction — Making the Process Work

By JAMES M. SHILSTONE*

Concrete construction is the only manufacturing process that occurs on the construction site





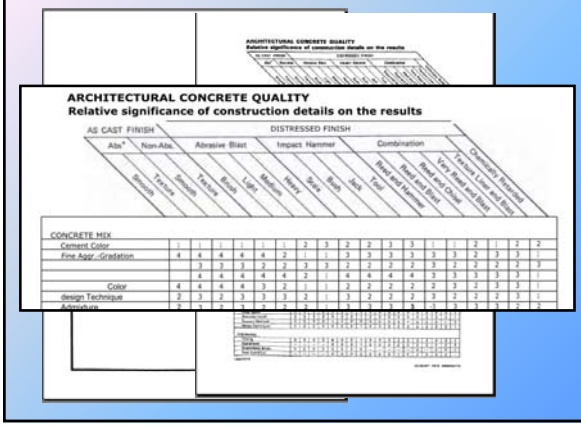
Concrete:
The Ultimate in Functional Artistry

- Understand Concrete
  - Plastic
  - Hardened
- Understand the Concrete Process
- Know the Materials available
- Recognize the limitations of the Material and the Process
- Stone vs. wood vs. concrete

Drawings & Specs

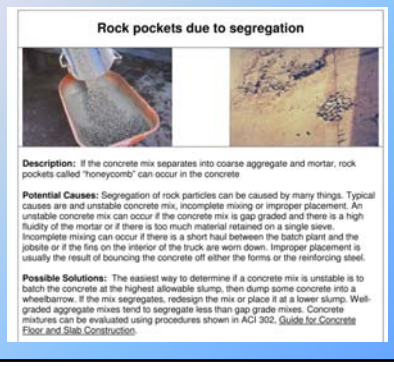
- PPPPPP
  - BRE (1975) – 500 bldgs
  - 60% of problems originate from design
  - 35% from workmanship
  - 10% from materials
- Constructability
- Prebid conference
- Preconstruction conference
- Mockups

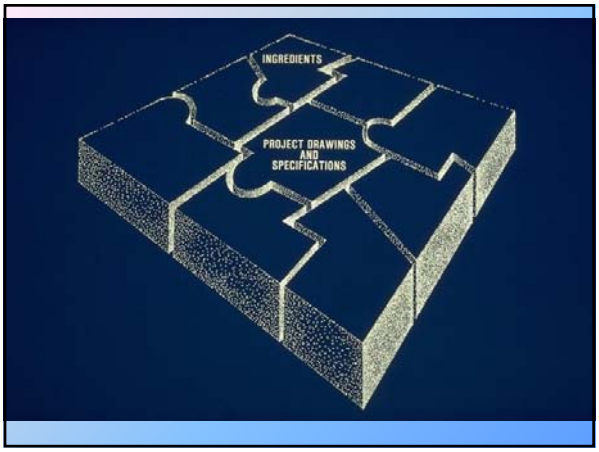
Construct-ability



“Exposed” concrete is the most difficult finish to achieve.

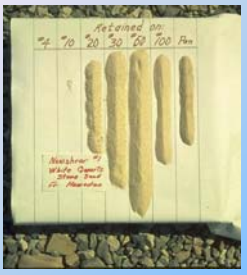
Performance Architectural Specs



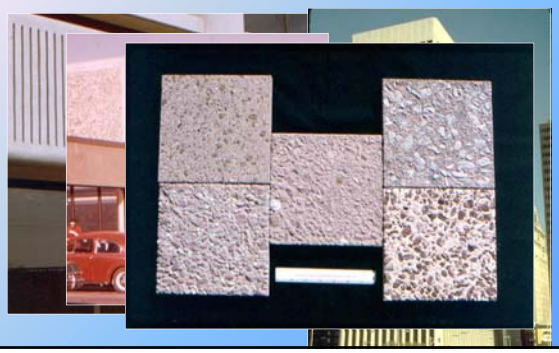


Mixture Ingredients

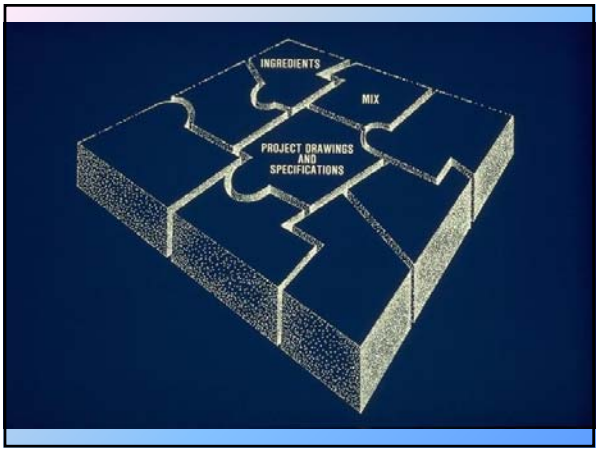
Aggregate Grading



Material Color



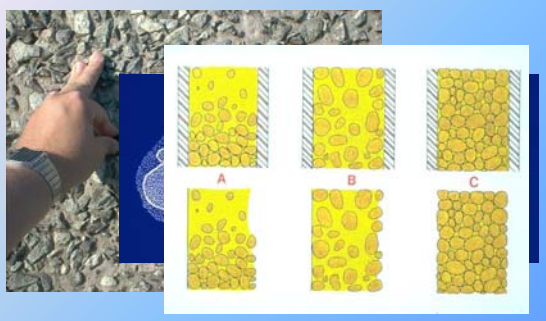
Beware of Contamination

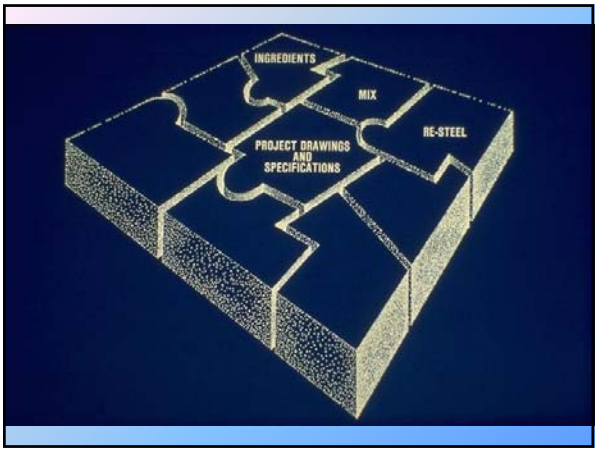


Limitless possibilities

Finish impacts appearance

Gap Graded Mixes





Reinforcing steel congestion

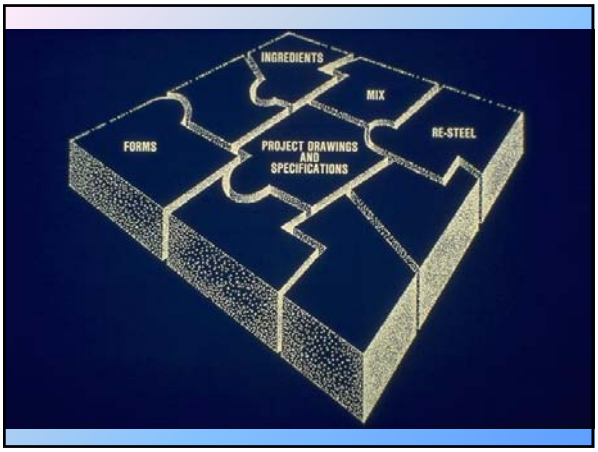
BIM can help but it isn't the entire answer

Understand tolerances

Cover on Reinforcing Steel

The Devil in the Details

Steel directs the vibrator



The Mirror of the Form

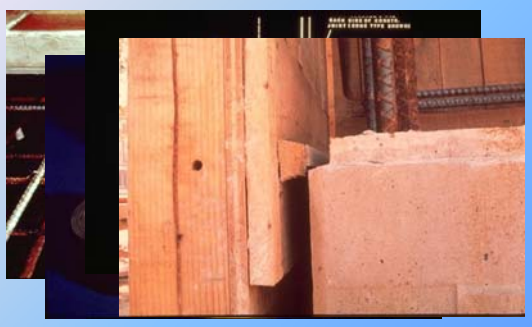
Formwork

Formwork Materials

Formwork Problems

Release Agent

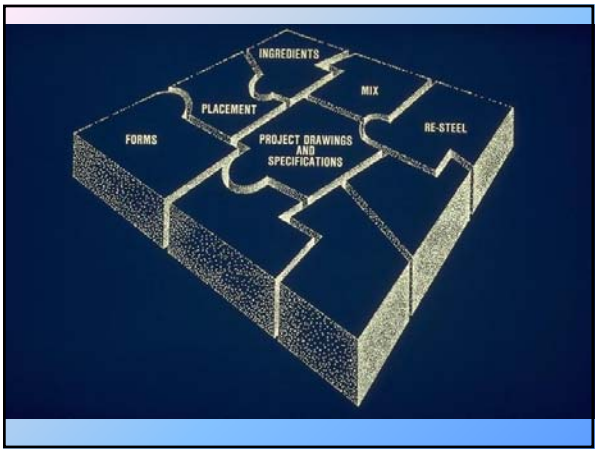
Formwork – Sealing Joints



Form Butt Joint Location

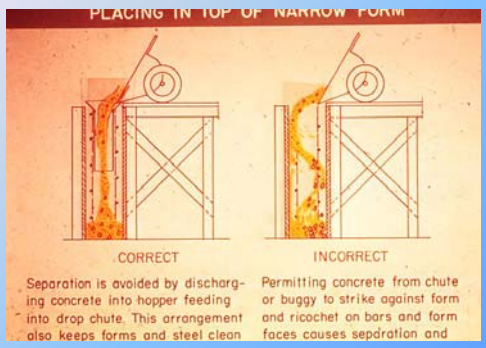
Form Stripping Control

Form Ties - Installation

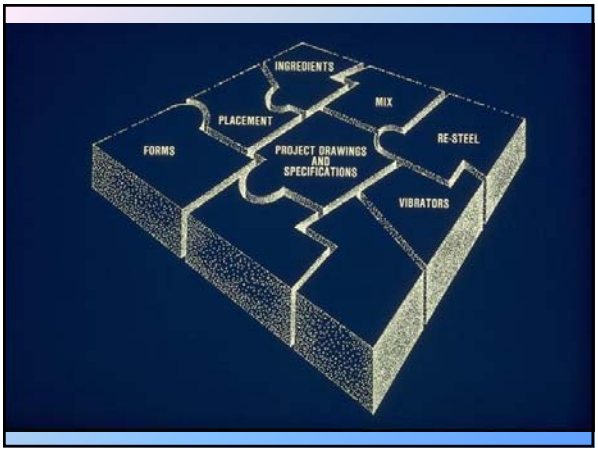


Placement Equipment

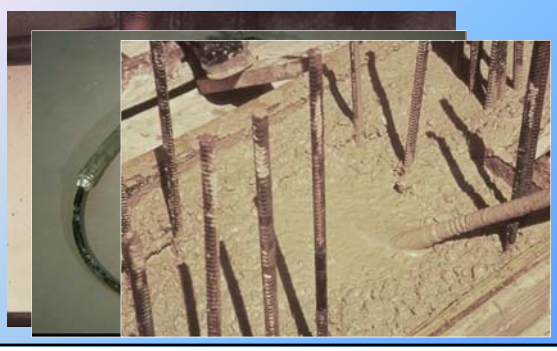
Placement



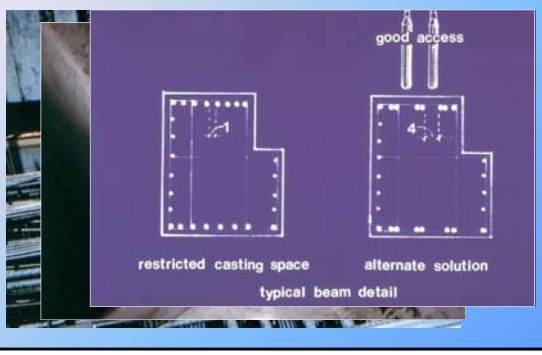
Placement Technique



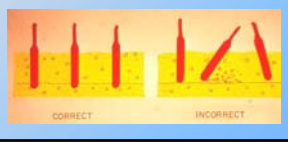
Consolidation Equipment



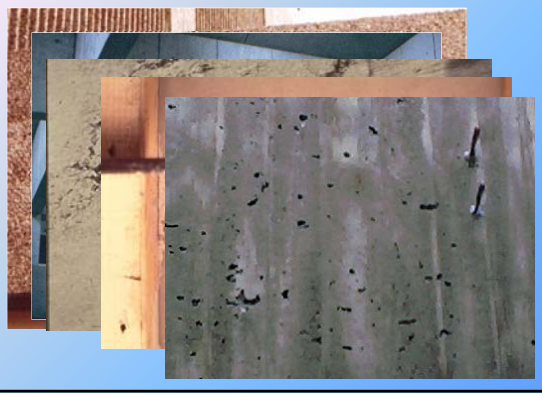
Reinforcing Steel Clear Space

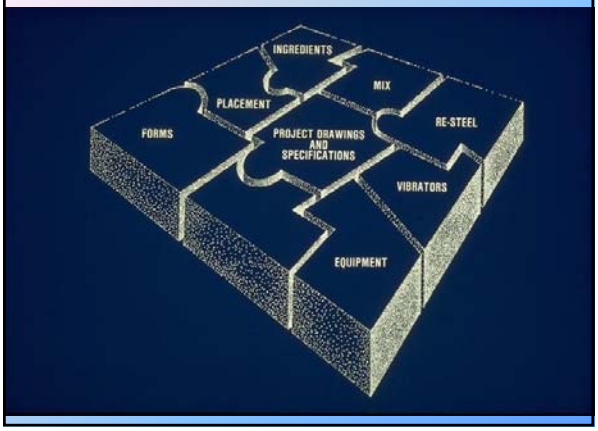


Consolidation - Training



Consolidation Problems





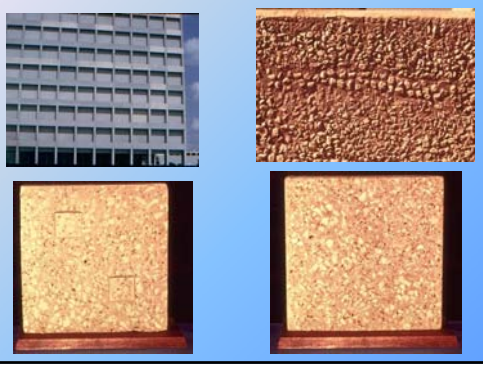
Finishing Equipment & Technique

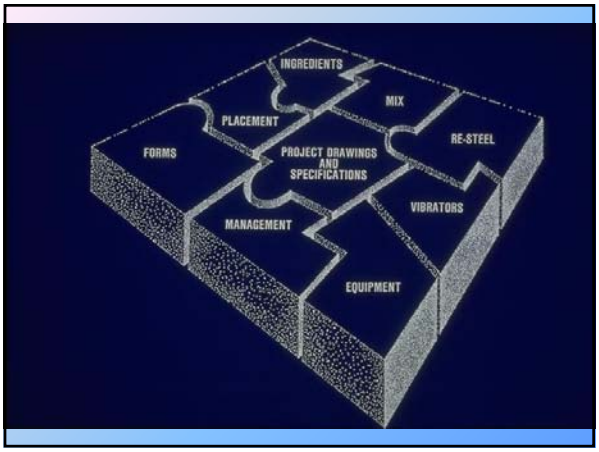
Uniform equipment & technique

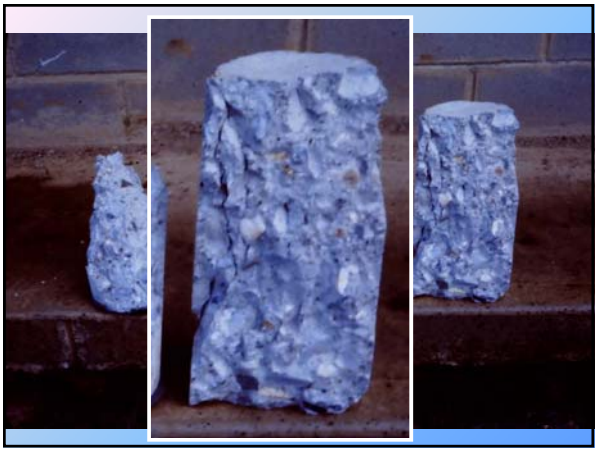
Impact Hammer

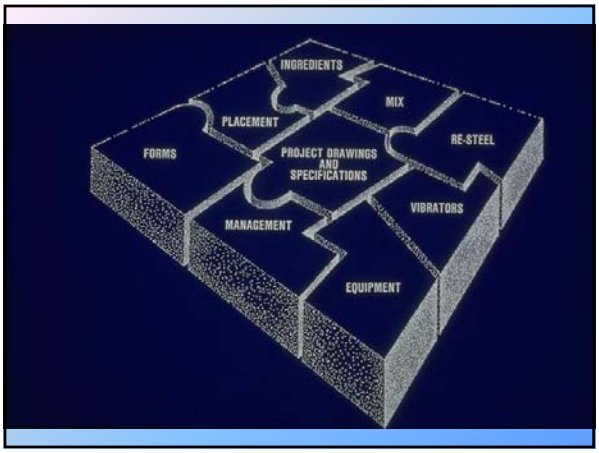
- Scale (light)
- Bush (medium)
- Jack (heavy)
- Tool (heavy)

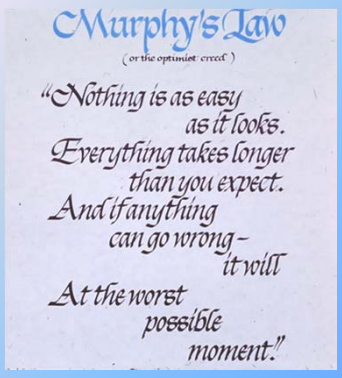
Patching





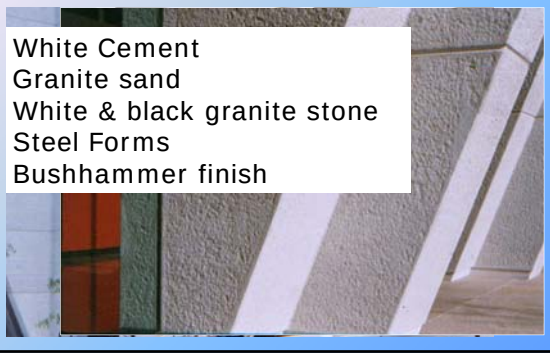






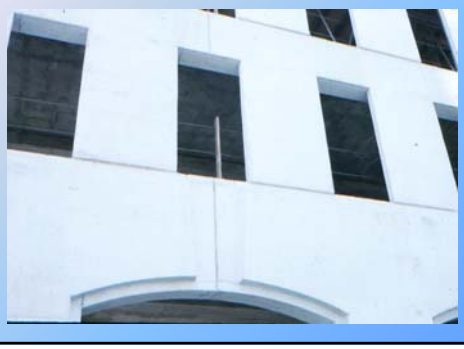
Case Histories

Southern Bell, Atlanta



White Cement
Granite sand
White & black granite stone
Steel Forms
Bushhammer finish

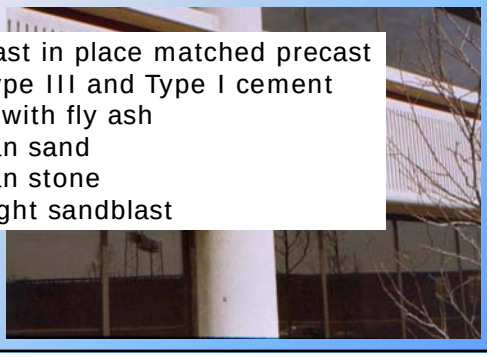
1515 Poydras, New Orleans



Kennedy Memorial, Dallas

Cast in place
White cement
Needle scaled finish
Post Tensioned

Park West, Dallas



Cast in place matched precast
Type III and Type I cement
with fly ash
Tan sand
Tan stone
Light sandblast

One Main Place, Dallas

White Cement
White and Black Granite
Arbeton method
Heavy Sandblast

Summer Palace, Iran

Preplaced aggregate
Injected grout

Mississippi Power & Light, Gulfport

Water Gardens, Ft. Worth, TX

Tan Cement
River Gravel
Heavy Sandblast

Park Central, Dallas

Blue-gray cement
As Cast Finish
Later painted

Thank you for your attention.