

EGYPTIAN SOCIETY OF ENGINEERS

INSTITUTION OF CIVIL ENGINEERS - ICE

SYMPOSIUM

1977/0/15

مركز البحوث والدراسات
الهندسية
15/0/77

ON

PREFABRICATED CONCRETE STRUCTURES

CAIRO 9 - 25/3/1974

SUMMARY OF LECTURE

ON

TECHNOLOGY AND PLANT DESIGN

Since 1954

BY

Dr. ABDEL - HADY HOSNY

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CHARACTERISTICS OF PREFABRICATED CONCRETE STRUCTURES

- PRODUCTION OF ELEMENTS
- TRANSPORTATION
- ERECTION & FINISHING

EACH OF THE ABOVE CHARACTERS IS DIRECTLY INFLUENCED BY THE OTHERS. FOR EXAMPLE WHEN CHOOSING THE SIZE AND SHAPE OF ELEMENTS, THE TRANSPORTATION AND ERECTION FACILITIES SHOULD BE CONSIDERED.

CLASSIFICATION OF PRODUCTS

• SMALL UNITS

BRICKS, TILES, ETC.

SMALL BEAMS OR SLABS TO BE ASSEMBLED MANUALLY ON THE SITE

• MEDIUM UNITS

WEIGHT UP TO 12t. NEEDS CRANES FOR ERECTION. SIZE & WEIGHT LIMITED ACCORDING TO TRANSPORTATION DISTANCES & FACILITIES

• HEAVY UNITS

PREFABRICATED ON SITE OR NEARBY, SOMETIMES NEED SPECIAL CRANES OR JACKS

ADVANTAGES OF PREFABRICATION

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- ECONOMY IN FORMWORK & SHUTTERING
- ECONOMY THROUGH MASS PRODUCTION AND STANDARDISATION, LESS LABOUR, INCREASED PRODUCTIVITY.
- EMPLOYMENT OF SKILLED LABOUR AT THE FACTORY UNDER BETTER CONDITIONS AND FACILITIES.
LESS NO OF SKILLED & SPECIALIZED LABOUR ON SITE.
- FACTORY PRODUCTS NOT AFFECTED BY WEATHER CONDITIONS
- SPEED OF CONSTRUCTION ON SITE.
- ELEMENTS ASSEMBLED BY BOLTED JOINTS CAN BE DISMANTLED AND MOVED IF REQUIRED
- BETTER TECHNICAL CONTROL IN THE FACTORY :—
 - CONTROL OF CONCRETE MIX.
 - ACCURATE & CORRECT PLACEMENT OF REINFORCEMENT
 - APPROPRIATE METHODS FOR CURING
 - ACCELERATE MATURING BY USE OF STEAM CURING
 - POSSIBLE TESTING OF ELEMENTS.
- SHRINKAGE & CREEP EFFECTS ARE REDUCED.
- DUE TO BETTER CONTROL, MANY BUILDING REGULATIONS ALLOW :—
 - HIGHER STRESSES, OR LESS SAFETY FACTORS THAN FOR INSITU CONSTRUCTION
 - LESS DIMENSIONS ARE ACHIEVED