SCHOOL OF FERROCRETE TECHNOLOGY

Ferrocrete Technology :

Ferrocrete is an improved form of age-old method of constructing houses in villages- called Kood method. In Kood we use bamboo framework on which reeds are tied closely and impregnated with mud-clay mixed with fibrous material.

In Ferrocrete, steel bars take place of bamboo to form the skeleton of the structure, Reeds are replaced by mesh reinforcement and in place of mud, rich cement mortar is used to impregnate the meshes. At our village level, skills for Kood construction are available. They need training in improving these skills to suit Ferrocrete construction.

Raw materials for Ferrocrete construction are only of THREE types; steel bars, wire meshes and cement mortar. All these materials are available in local market, even at Taluka places.

Only THREE types of skills are required in Ferrocrete construction. Welding the skeleton, binding the meshes and mortaring and finishing them. Fitters and masons are who are available can be trained in Ferrocrete techniques.

There are only THREE types of tools required . Welding machinery to form the skeleton, fitter's tools to tie the meshes and mason's tools for mortaring.

Ferrocrete has applications in EVERY field of Civil Construction at village level; house building, water storage, gutters, grain silos, latrines, dust bins, well linings, rain-water harvesting, cold storage, K.T.weirs etc.

It is therefore, Training in Skills and Entrepreneurship in Ferrocrete Technology is what is required, to create large self-employment potential, even at Village or Taluka levels.

Training Programme in Ferrocrete Technology :

It consists of (A) Technician Training and
(B) Entrepreneurship programme.

(A) Technician Training- Duration ONE month :

For the three types of trades of welder, mesh tier and mason, the job requirements, basic qualifications and training offered are given below:

1)Welder:

a) Job requirements: The steel skeleton of 6, 8 or 10mm dia bars is welded to form the exact shape and size of the structure. Cutting, straightening and bending the bars to the required shape and welding them in the desired form needs training.

b) Basic qualification: The trainee should be 8^{th} standard pass. He should understand the geometry of various shapes and should be able to read Architect's drawings. An ITI trained welder needs no training.

c) The welder will be trained in reading drawings, working out quantities and understanding various geometrical shapes.

d) Introduction to electrical connections for single and three phase welding transformer and practice in spot and line welding.

e)Precautions in use of welding equipment and in making electrical connections.

2) Mesh Tiers.

a)Job requirements: Cutting, straightening, bending and tying firmly the mesh reinforcement over the steel bar skeleton.

b) Basic qualifications: One who can read and measure with tape and has got energy and zeal to work meticulously for 8 to 10 hours continuously.

c)Training: The tier will be trained in working out quantities of different mesh reinforcements, cutting them properly and tying them over steel skeleton firmly.

3)Mason:

a)Job requirements: The mesh-cage is press-filled with cement mortar and finished with plaster. A local mason may pick up the technique quickly but a newcomer needs vigorous training.

b)Qualifications: One who is ready to spoil his hands in cement mortar. He should be able to read dimensions. A local mason or ITI trained mason should be preferred.

c)Mason will be trained in selecting, proportioning and mixing of cement mortar of high strength. Methods of pressfillig and impregnating the mesh-cage with cement mortar will be taught. Finishing the surfaces with various types of plasters will be got practiced intensively from him.

B) Entreprenuership Programme. (Duration 4 months.)

a) Job requirements: To select and purchase the raw materials in market, proficiency in all the three skills, to understand the requirements of the customer, visualize them and preparing drawings. Co-ordinate the skilled workers in bringing the Ferrocrete products in real shape and size—from the drawing board to the shop floor and thence to the worksite. Precautions in handling men, machines and materials for the job. Transporting and installing the product in position and anchoring it. Estimating and costing the products, marketing them, after-sales service, keeping accounts, etc.

b) Qualifications: A person with leadership qualities, broad vision and an urge to do something of his own. A person with engineering background, or a retired military person from civil engineering cadre should be preferred. Entrepreneurship is a multifarious activity and a person who can manage a number of activities at a time is desired.

A young man who has taken part in sports, drama, gathering, or student's organizations has an indirect training of dealing with people and hence should be preferred.

c) Training: Training in the following fields is planned.

1)Communication skills,

2)Understanding basic principles of Ferrocrete and structural forms,

3)Market survey of raw materials and also the potential for Ferrocrete products,

4)Preparing drawings of Ferrocrete structures and estimates of material and labour,

5)Training in all skills of the technology,

6) Costing of the product and deciding its market value.

7)Tendering and departmental procedures of Government and private organizations,

8)After sales service and in case of defects how to rectify them,

9)Keeping accounts, tax structure and office procedures.

10)Searching newer avenues for Ferrocrete applications.

The trainee will be asked to execute a project on Ferrocrete construction from obtaining order to its final installation at site.

Broad Outline of the Training Cum Production Centre.

It is proposed to conduct training for the skills and entrepreneurs simultaneously.
One Entrepreneur will be leader of Five skill-trainees, 1 in welding, 2 in tying and 2 in mortaring.
Training period 4 months for entrepreneur and 1 month for skills. Hence within a term of 4 months 5 entrepreneurs and 25 skilled worked will be trained and self employed.

Infra-structure of the Training Centre.

Teaching faculty should consist one co-coordinator, one lecturer and 3 instructors one in each trade.
Location of the centre: preferably at a taluka place.
Land required; an office 300sft, a shed 600 sft, store room 200 sft open space 5000 sft and curing tank 25,000 litres capacity.
Tools and plants: for welder, fitter and mason in per trainee in that trade.
Products manufactured in the centre can be sold in market to generate its own funds.

Thus a self sufficient Training Centre can be established to generate employment on large scale even at village level.