

Minutes of the Shelter Advisory Group Meeting

Venue: Mini Conference Hall, Collectorate, Nagapattinam

Date: 21st August 2007

The discussion was chaired by Thiru. Panneer Selvam, SDC (R&R) Nagapattinam, in the presence of Prof. Santhakumar, Shelter Support Group Members and NGO Members.

The SDC (RR) introduced himself and he invited the SSG to present the report of their field visit from 16th to 18th August 2007. Mr. Jignesh Patil made the presentation.

The following were the observation by the Shelter Support Group:

Thursday, 16th August, 2007

Vanvanmahadevi, DPG

- 157 houses out of 256 are already handed over and finishing work is going on in remaining houses.
- Terrace finishing is done with the weathering tiles. Slope of tiles and pointing work needs proper attention at the sites observed.
- Filling up work in site and road work is not yet started.
- Electrical connections have been made.
- Individual septic tank with two chambers is provided for sanitation, its design should be checked again. Location of inlet opening and the opening between the two chambers is questionable. Site engineers say that they have followed the TWAD design. (Though the soil is sandy, when the waste water from bathroom and kitchen is discharged in the open ground, this will be problematic, especially when ground water table is already just approximately 1.5 mts. even pre-monsoon, and as houses are standing over an individual plot size of 10 x 12 mts.)
- Houses finished earlier having staircases without proper reinforcement detailing and extra cantilever beam support at the lintel and roof level needs attention. In the new houses, after the instructions from SAG they have provided this extra support.

Kameshwaram, DPG

- SAG instructions regarding the quality improvement i.e. brickwork, reinforcement detailing, extra support for the stairs are followed.
- Staircases done earlier without proper detailing of reinforcement and without support at the lintel or roof level will require some attention.
- In the remaining houses where the structural work is going on, stirrups needs to be tied in place properly before concrete casting.
- Comments regarding the sanitation system are the same as Vanvanmahadevi site of DPG.
- Cantilever sunshades reinforcement needs proper placement. Though it is seen that the main reinforcement bars are above the distribution bars, they are at the bottom of the cantilever, not at top. For the remaining lintels the details should be followed as per the drawing and the given instructions

Kameshwaram, PCI

- All the houses were handed over about three months back. People have occupied more than 65 percent of the houses.
- There are many complaints from the people regarding the flooring both inside and outside. These are mainly because of quality of flooring and settlement due to insufficient watering and compaction of plinth filling
- There are complaints about seepage in the ceiling and walls above the lintel. In few houses it is severe, as just after recent one round of rains, heavy damp patches are seen at the ceiling.
- The terrace finishing is done with plain cement plaster which :
 - It is not finished properly; it is quite rough to be terrace finish,
 - Slope is not properly done and it is insufficient.
- There are complaints regarding the quality of door-windows, there are wide visible gaps in doors and windows.
- Door frames have bent mainly at the main door and the bedroom door mainly due to absence of holdfast. These doors are coming adjacent to the RCC columns.

Kameshwaram, Karam

- Houses were handed over more than one year ago.
- Plaster cracks and damp patches are seen in the walls at number of places.
- ECOSAN toilets are given for the sanitation.
- Most of the houses are occupied by the people

Velangani, TMSSS

- Houses were handed over about 2 weeks back.
- There are complaints regarding the flooring quality, it is found broken in many places.
- Seepage is seen in the ceiling and at junction of walls and ceiling in number of houses.
- At number of places, the door frames have become loose mostly due to absence of hold fast; a wide gap is seen between doorframes and wall.
- People have occupied the houses but there is no sanitation system in place. The outlet from toilets as well as the bathrooms is not connected to anything.
- At one place sample of three- chamber septic tank made with standard pre-cast FC rings could be seen. There are few points of concern regarding that:
 1. Its bottom needs to be properly concreted and plastered.
 2. Inlet in all the chambers are at the top level, inlet for the second chamber should be at the bottom.
 3. People will need education and awareness for not using the Latrines as bathroom and washing places. There are many examples of sanitation system failing because of bathroom and washing water discharged in the systems.
 4. Disposal of bathroom and kitchen water still remains a question even after the septic tank is installed for toilets.

Anthnapettai, TMSSS

- Two grade beams cast just two days ago, have many problems as seen in the photographs. Serious points are columns going out of line and plumb. It should be made sure that column reinforcement bars are not cranked to rectify this.

- Stirrups distance for columns is average more than 9 inches compared to 8 inches designed.
- Reinforcement detailing of roof beams and staircases still remains question.
- There are two types of roof beams, one with the 9" depth (sides) and the other with 12" depth (center). On site all the beams are of same depth, center beam is of the same depth as side beams.
- Quality of RCC roof should be checked before doing the terrace finishing. While the SSG was at the site, the rain started and the roof started leaking after just five minutes of rain.
- Staircase support beams are not at same places and not equal. Recently they have started following new detailing for stair reinforcement at roof level but no drawings are available.
- All the staircases done till now are without any proper support at roof level and no cantilever details at roof level.
- All the sunshades done till date do not have negative reinforcement.
- A partition wall is done over the plinth beam but they don't have a lintel, and they are not connected to the walls on both sides with toothing but just touching them.

Friday, 17th August 2007

Thooduvai, CASA

- First phase of houses are completed and handed over in March '07.
- It's a load bearing structure with RCC roof.
- Overall construction quality is quite good.
- Guidelines are followed viz a viz corner vertical reinforcement, overlapping of reinforcement bars at 'L' and 'T' junctions.
- Window frames are precasted.
- Terrace finishing is done with weathering tiles laid over the slab, which is cast with the required slope.
- Junctions and corners of vertical and horizontal plasters are done quite well, and they are pointed with rich cement mortar very methodically.
- Ponding and sloping is done very well for the curing of flooring, steps, RCC etc.
- Individual three- chamber septic tank is provided for sanitation. Location of openings between chambers should be checked by sanitation expert.

Thirumulaivasal, VDS

- Houses are at different stages of construction. On the day of the visit, grade beam reinforcement, lintel reinforcement, bar bending and brickwork was going on.
- Beam's main bars should be bent 'L' p to full depth. Stair case support beam at grade beam level is cantilever, so main bars should be at top and not bottom.
- All sunshades should have the main reinforcement at the top – negative. It should be done as per the given detail.
- Brickwork quality requires attention:
 1. Bricks should be wet before construction
 2. Necessary water should be added to the mortar before placing, water should not be poured over the wall after placing mortar in the place
 3. Mortar joint thickness should be maintained about ½", it is ranging from ½ to 1-1/2".

Madathukuppam, GGF

- Half of the houses are finished and work is going on in a very slow process for the remaining houses since long.
- Seepage patches are seen in all the houses visited.
- Terrace plaster is quite rough in the visited houses.
- There is no 'vata'/fillet joint done at the junctions of wall plaster and floor finish on terrace and staircases.
- It's a load bearing structure but no corner reinforcement is provided.
- Drawings were not available on site to review on visit day.

Vanagiri, Word and Deed

- Houses were handed over about four months back and most of the people have relocated.
- Most of the houses visited had complaints of leaking roof.
- There are many seepage patches seen on the ceiling and walls.
- There are plaster cracks seen on many walls, which are on internal walls as well as external walls. These might be one of the reasons leading to seepage and one of the areas of concern for the long term performance of the structures.
- Most of the houses have separation cracks at wall and floor junction. In number of cases people have redone a part of flooring because of settlement.
- There were many complaints from the people regarding the doors. There was a case of shutter becoming loose and falling down. The doorframes are pre cast rcc frames with wooden pegs for fixing the shutters. The main problem seems to be the assembly of frames the wooden piece is not fixed properly to the frames. At many places loose shutters are seen where one or two of the hinges have become loose.
- Septic tanks are provided for sanitation but wet puddles can be seen at many places.

Ambedkar Nagar and Thethi, IID

- Houses are in different stages, with one phase already handed over.
- Bathroom walls are resting on the floor PCC, there are no plinth beams for 10' high partition walls, and they are not connected to the side walls with any kind of tothing or any other means.
- Wall between bedroom and kitchen is also a free- standing wall.
- Terrace finishing is cement plaster, which is uneven and quite rough. Visually it seems quite lean cement mortar is used for terrace flooring, leading to seepage of ceiling and walls.
- Some kind of upward deformation is seen in terrace flooring at the mid support. This is also seen in unfinished slabs. Detailed observations are needed.
- There is no 'vata' at the junction of wall plaster and terrace flooring / steps.
- Filling up and road work is still to be done.

Thideerkuppam, World Vision

- Terrace finishing in all the visited houses is a concern. It has developed many cracks in all the visited houses.
- It seems that 'vata' is done afterwards as its separated from wall plaster and terrace flooring on terrace and steps which is broken in many places and uneven.
- These two are the major reason for the seepage in walls and terraces.

- At one place, where the plastering work was going on, columns were reduced to 7”-8” size above lintel level.
- Seepage is seen in the walls at the roof level

Pudukuppam, SOS

- One major observation is corner reinforcement at the junction of load bearing walls is not covered in concrete; this was the case in 4-5 houses visited.
- Rough pointing on exterior walls with poor quality of bricks may lead to seepage.

Chandrapadi, Real Plan

- Plinth beam reinforcement was not of full length and not following the guidelines for overlapping.
- Stirrups are not bent for hooks at ends and their spacing could not be verified with drawings.
- Cover blocks are not used in column casting, the reinforcement cage is not in plumb at the plinth level and at the sill levels.

Nethial Nagar, Ramkrishan Mission

- Houses were handed over in Jan 2006. People have occupied the houses.
- Many cracks are seen in the load bearing as well as partition walls, which are on both sides of the walls.
- There are many complaints for seepage in walls and ceiling, which is quite visible.
- Terrace finishing is cement plaster, which is quite rough, uneven and broken at many places. It seems to be done over sand bad.
- Houses are row house type with about 5’9” space between the opposite houses in the front and about 4’ at the back.
- There is continuous line of hand pump and gutter between the back of the houses.
- Some kind of septic tank system was provided for the sanitation, which is not functioning and the rings are filled up with sand and mud, the drainage water flows out in the open ground. people are defecating in the open.
- House area is roughly 270 sq.ft. With 9” thick load bearing walls on the periphery and partition walls internally. Rough dimension of house is 13’x16’ internally with partition walls between rooms.
- Detailed inspection is suggested.

SDC (RR) expressed his concerns about the mistakes in the shelter site. He enquired from Prof. Santhakumar what the corrective measures for these gaps are. Prof. Santhakumar stated that all the mistakes should be rectified, by proper retrofitting,

- For the partition walls without lintel should be rectified with including lintel and for corners it should be stitched with proper reinforcement.
- Water- proofing is needed for the leaking roof slabs. If there are leakage or seepages in roof slab, it leads to corrosion of the steel and this will lead to adverse structural implications. The corrective method for this is to place one layer of concrete with baby jelly having proper slope and above this, flat tiles should be fixed and the joints should be filled with rich cement mortar.
- For cracked floors, if the flooring is not good remove the entire floor, fill the floor with sand and settle it properly and redo the flooring. If the flooring is good and under

the flooring there is settling of sand, make some opening within intervals of one meter and fill the sand through this openings and settle it well and patch up the openings.

Prof. Santhakumar stated that these problems are in four categories:

I. Issues dealing with serviceability, leakages or seepages in roof, walls etc, non-operative doors and windows, broken floors etc.

- Provide proper weathering course to avoid leakage and seepage in roofs and also fix flat tiles above the weathering course.
- For issues related to doors coming with door frames which are not able to be opened and closed properly, fix with proper hold fast to fix the door frames inside the walls. If there is a concrete member side to the door frame, it should not be broken, instead, special screws which are specially for concrete can be used for fixing the door frames. For the door shutters, proper sized hinges can be used for fixing the shutters
- If there are gaps in the door and window shutters one should rectify that as otherwise it will affect the privacy of the family.

II. Issues dealing with the stability and safety of the of the structure, like improper detailing of the staircase slabs, misaligned columns, partition walls without continuous lintel and/ or proper tothing

- Include necessary additional support to the staircase slabs.
- Retrofit the misaligned columns
- For the partition walls without lintel and proper tothing, insert continuous lintel and corners and joints stitched with steel.

III. Issues dealing with the maintenance, water stagnation, solid waste etc

- Proper care should be provided to avoid water stagnation. Proper garbage disposal systems should be set in place

IV. Durability Issues: Leakage and seepage reduce the durability of the structure.

- Rectify the leakage and seepage problems.

Mr. Biju Jacob expressed the thanks to all SAG members and to SDC (RR).and the meeting closed at 12.30 pm

The Second session of the meeting with NGOs started at 2.30 pm and was chaired by the SDC (RR) Mr.Dipen Shah presented the field level findings to the participants and Prof. Santhakumar, spoke about the corrective measures for the gaps identified.

A question was raised by the NGOs regarding rectification of the wall cracks. Professor suggested finding out the reasons for the crack first and removing that reasons and then injecting polymers to the cracks and plastering them. Another question was raised regarding the seepage through parapet walls and professor suggested the use of flashing to avoid seepage through parapet walls and he also stated that it will start from the roof and go upto the top of the parapet walls and come down to the other side .

Regarding the rectification of the septic tanks in DPG sites SAG provided necessary advice on rectification of the sanitation system.

Meeting came to an end at 4pm with the vote of thanks by Mr. Biju Jacob George of NCRC.

Participants for the SAG internal discussion at Collectorate, on 14.06.2007				
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