A LAND SURVEYING REPORT ON SETTINGOUT

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Introduction

Setting out is the process of surveying where the positions and levels of buildings, roads, drainages, sewers, and all other engineering projects already marked on a plan are transferred to the ground by a variety of methods and by specifically manufactured instruments or is the process by which information is taken from construction design drawings and then pegs, profiles or other marks are set to control the construction work and to ensure that each element is constructed in the right position and to the correct level.

Setting out is simply the physical transfer of plan into the ground. Setting out can be complex yet simple. For more accurate transfer some engineers use the service of land surveyors to get their setting out right especially in large projects. Setting out is the process of transferring the plan on paper to the actual ground or site of construction. A building is set out in order to clearly define the outline of the excavation and the line of the walls, so that construction can be carried exactly according to the plan. The centre line method of setting out is generally preferred and adopted.

Methodology

The aim of the practical survey is to set out a building in a virgin land, taking an existing structure as a reference.

Apparatus

1. **Pegs:** It was used to mark point on the ground.
2. **Profile Boards:** It represented the setback and also take some markings on it as a guide.
3. **Hammer:** It was used to drive nails in the wood and pegs in the ground.
4. **Marking Tools:** It was used when marking and writing.
5. **Rope/Lines:** It was used as guide through the practical.
6. **Nails:** It was used to create bonding between peg and profile board.
7. **Measuring Tape:** It was used to measure distances.
8. **Ranging Poles:** It was used to extend and maintain a straight line by ranging.

Procedure

The following procedure is the actual procedure followed on site and discussed in details in the report.

Figure 1

Figure 2

Figure 1: shows an already set out System and Figure 2: shows a 3:4:5 method of setting out.

1. Site clearance.
2. We obtain a Building plan.

3. We get all the necessary materials ready: pegs, nails, ropes or line, hammer, tape, marking tools etc.
4. We take note of all the four corners where we have proposed columns or as the case may be.
5. We plan the location of the building.
6. Using the **3:4:5 Method**;
7. Firstly, we determine the building line and established one corner of the building by driving a peg at that point with a nail on top.
8. Secondly, we used a tape to measure a distance of 3 meter from the first peg along the building line and established a second peg at the point where the 3-meter mark ends.
9. Thirdly, we held over the ring of the tape on the second peg with the 12 meter mark over it being held by one person and the 3 meter mark being held by another person over the corner peg (first peg), then we stretch the tape out and wide to get the position of the third peg at the 7 meter mark.
10. After that was accomplished, we then extend a line through the third peg using the ranging poles to obtain a line that is straight and perpendicular to the building line.
11. The above procedure is repeated at all the four corners.
12. The diagonals are measured to check the correctness and accuracy of the setting out work.
13. We then established each room measurement by nails and also marked out the block width as well as the excavation or working space from each side, of which the width of the block is multiplied times to give the total excavation width.

Conclusion

In conclusion, I drew a building plan and set out all that is drawn on the plan onto the actual ground, I marked out the building lines and I pour ashes to make the trench lines visible. I make sure that I checked the corners, by redoing the 3:4:5 rule on each corner and I also checked the diagonals of which it has a very slight difference within a millimetre of a metre. However, any triangle with sides of 3, 4 and 5 units will have a 90-degree angle opposite to the 5-unit side. The beauty and simplicity of this technique is that if the Engineer or Builder needs to increase the accuracy on larger walls or structures, any multiple of the 3-4-5 rule can be deployed, that is 6-8-10, 9-12-15, 12-16-20, 15-20-25 etc. All setting out pegs should be outside the excavation area, and should relate to the first lines of brickwork or reinforced concrete framed buildings.

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