



Government of Nepal

Ministry of Physical Infrastructure & Transport

Division Road Office, Hetauda

Material Testing Laboratory

Pathalaya, (Bara)

पथलया, (बारा)

COMPRESSIVE STRENGTH TEST OF CONCRETE CUBE

Project:- Bhimphedi Awasuka

Material :- Hollow Block

| | | |
|---|--|-----------------------------|
| 1 | Date of Testing | 074-12-09 (23th March 2018) |
| 2 | Dimension of Mould,cm | 30*15*15 |
| 3 | Weight,kg | 18740 |
| 4 | Surface area, cm ² | 450 |
| 5 | Hollow Area(8cm dia*2)+(8*1cm) | 108.48 |
| 6 | Load Applied Area After Deduction of Hollow Area cm ² | 341.52 |
| 7 | Crushing load,KN | 220 |
| 8 | True Load KN | 210.03 |
| 9 | Crushing strength,N/mm ² | 6.15 |

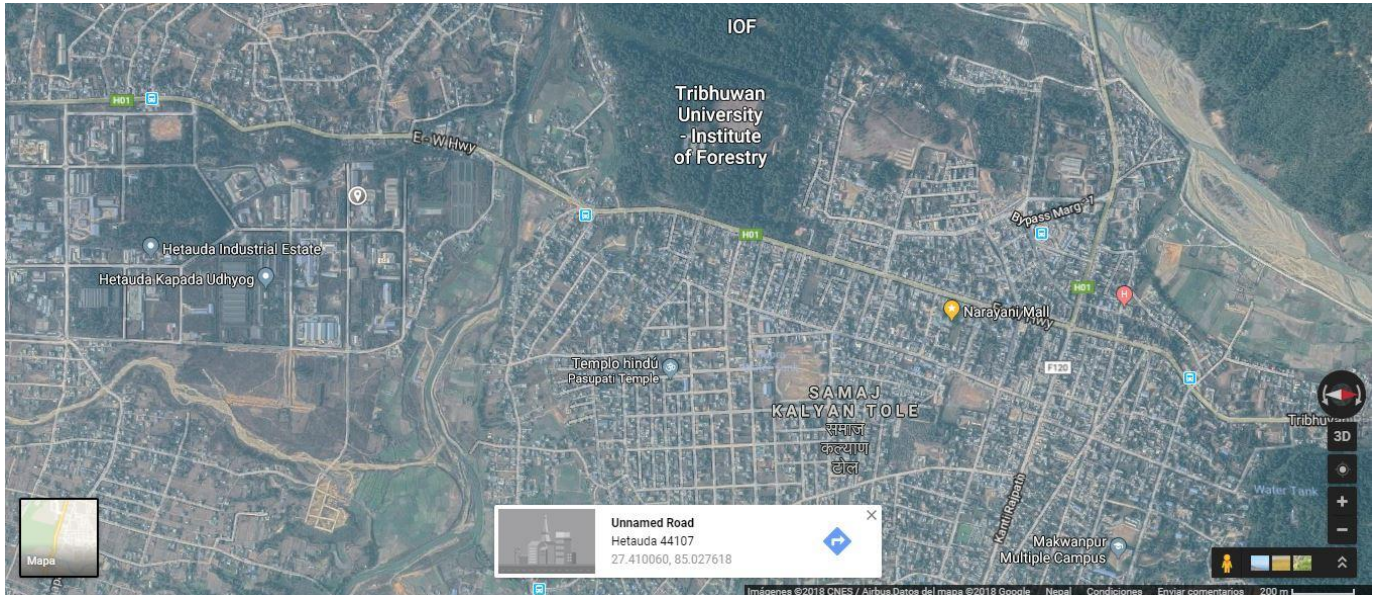
Note:- The Sample of block obtained was a hollow block with dimension (30cm*15cm*15cm).The load applying plate has the dimension of only 23cm,thatway the load was not applied uniformly through out whole surface area there fore ,the Crushing strength as mentioned is not Completely reliable.Further more,The Client was Suggested to take the sample to the Central Road laboratory,Chakupat,Lalaitpur but the test was carried out here only upon their request.

Tested by

checked by
Baburam Ghimire
Lab. Officer

REPORT FÀBRICA DE BLOCS

El nom de l'empresa de fabricació de blocs és "Gora Khakali Cement Samagri Udhyog" i la seva fàbrica es troba situada a "Hetauda Industrial Estate" (HIE).



El bloc normal de proporció és de 1 / 6 / 8 i pesaven 15kg (sense comprovació exacte). La proporció de ciment, sorra i grava que demana el govern (NRA) és de 1 / 1,5 / 3 (per 1 part de Ciment calen 1,5 parts de Sorra i 3 parts de Grava) i pesa 18kg. La diferència entre un i altre la trobem també en el test de resistència (explicat a l'annexa 1 "Compressed Block Test") el qual vam comprovar que el bloc de proporció 1 / 6 / 8 resistia només 1,77 N/mm² i el de proporcions del govern de 1 / 1,5 / 3 aguantava fins a 7 N/mm².

A la fàbrica vam calcular que per un sac de Ciment podíem fer 20 blocs seguint la proporció que es necessita:

- 1 sac de Ciment (50k kg)
- 1,5 sac de Sorra
- 3 sacs de Grava

Degut a que la seva forma de mesurar i abocar els materials es duia a terme a partir d'uns dipòsits amb un sistema de comportes que permeten tirar al compartiment de barreja la sorra i la grava directament i això dificultava la logística i el càlcul exacte de volum de sorra i grava que necessitàvem per la nostre proporció. Vam decidir fer la conversió de sacs al volum que ocupen a un carretó per facilitar el control exacte de sacs de cada material i la correcte proporció. Justament el volum que ocupava un carretó sencer era el de un sac i mig, tant de grava com de sorra. Per la qual cosa per fer 20 blocs la conversió de sacs a volum d'un carretó era el següent:

- 1,5 sacs de Sorra = 1 carretó de Sorra
- 3 sacs de Grava = 2 carretons de Grava.
- Els sacs de ciment s'abocaven directament al compartiment de barreja.

Un cop decidit el sistema logístic de càrrega dels materials, veient la disposició de la maquinària per fer la barreja i per agilitzar el procés vam decidir fer la barreja contant que fèiem el doble de blocs (40 blocs) amb la doble proporció de tots els materials:

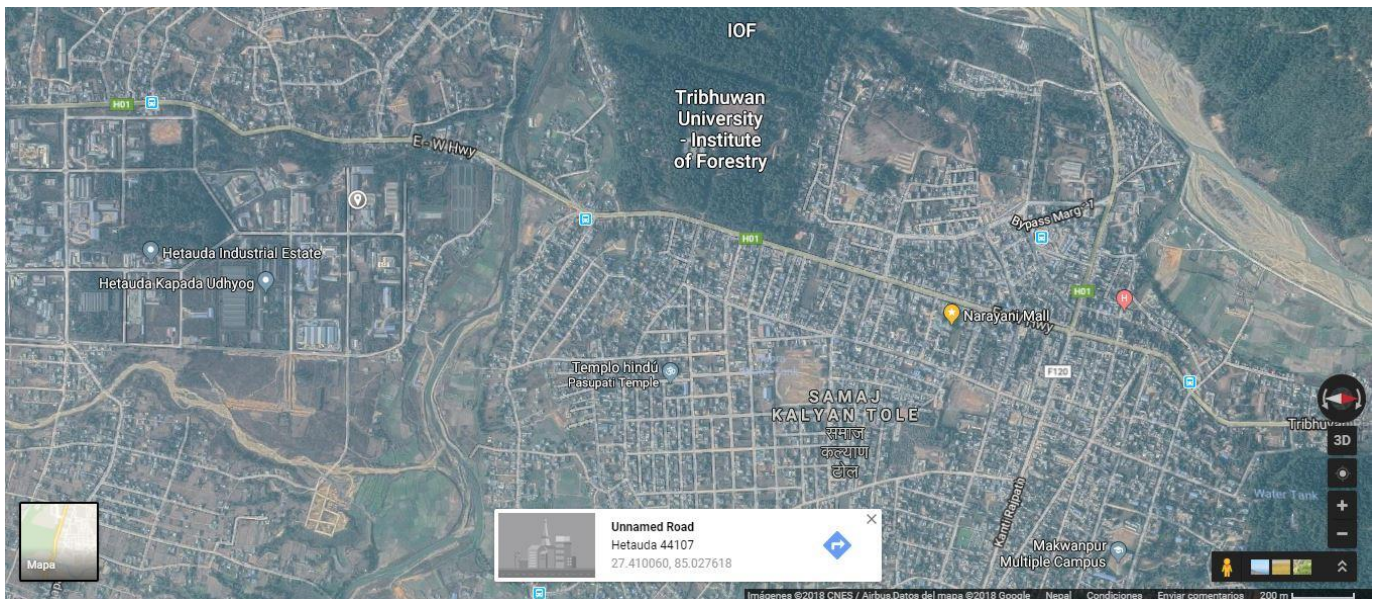
Per cada 40 blocs ens necessita:

- 2 sacs de Ciment
- 3 sacs de Sorra = 2 carretons
- 6 sacs de Grava = 4 carretons



REPORT FÀBRICA DE BLOCS

The name of the company is “Gora Khakali Cement Samari Udhyog” and the location of his fabric is in the “Hetauda Industrial Estate (HIE)”



The normal proportion of the block is 1 / 6 / 8 and weight 15kg (without exact checking). The proportion of cement, sand and gravel of the government (NRA) is 1 / 1,5 / 3 (for 1 part of cement you need 1,5 parts of sand and 3 parts of gravel) and weight 18kg. The difference between both we can see it in the resistances test (you can find it on annex 1 “Compressed Block Test”) which says the block with 1 / 6 / 3 of proportions can resist $1,77 \text{ N/mm}^2$ and the block with the government proportion 1 / 1,5 / 3 can resist 7 N/mm^2 .

At the factory we calculated that for a Cement sack we could make 20 blocks according to the proportion that is needed:

- 1 Cement bag (50k kg)
- 1, 5 Sandbag
- 3 Gravel bags

Due to the fact that his way of measuring and pouring the materials was carried out from tanks with a system of gates that allowed the mix of the sand and gravel directly, making it difficult for logistics and the exact calculation of volume of sand and gravel that we needed for our proportion, we decided to make the conversion of bags into the volume that occupy a wheelbarrow to facilitate accurate control of bags of each material and the correct proportion. Indeed the volume occupied by a whole cart was that of a sack and a half, both gravel and sand. In order to make 20 blocks, the conversion of sacks by volume of a cart was as follows:

- 1,5 Sand bags = 1 Sand wheelbarrow
- 3 Gravel bags = 2 Gravel wheelbarrow
- The cement bags were poured directly into the mixing compartment.

Once the logistics system for the loading of the materials was decided, seeing the arrangement of the machinery to make the mixture and to speed up the process, we decided to make the mixture saying that we did double blocks (40 blocks) with the double proportion of all the materials :

For every 40 blocs you need us:

- 2 Cement bags
- 3 Sand bags = 2 wheelbarrow
- 6 Gravel bags = 4 wheelbarrow

