Comparative Study to Justify Use of Autoclaved Aerated Blocks over Other Masonry Blocks

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Abstract— The aim of this dissertation work is to study the utility of Autoclaved Aerated Concrete Blocks (AAC), which is a well known light weighted concrete blocks with many other advantages over traditional concrete blocks, like sound insulation, thermal insulation and many more. Brief of all the materials used in making of AAC blocks were discussed in the dissertation. Along with the material, processes involved in the making of AAC blocks were explained. For the study, AAC blocks were designed and then some preliminary estimation of physical and elastic properties was taken into account. The various parameters for AAC blocks, table moulded bricks (TMB), wire cut bricks (WCB), solid concrete blocks of size 100 mm, 150 mm and 200 (SCB -100, SCB-150 and SCB-200, respectively), hollow concrete block of size 150 mm (HCB-100) and stabilized mud block with 8% cement and size 143 mm (SMB-143) were compared to establish the feasibility of AAC blocks over all other variants available in market. Later, the studies were extended to obtain the strength and elastic properties of AAC masonry. Here, the focus was compressive strength of prisms and wallettes, flexural strength and shear bond strength.

Key words: Aerated Concrete Block (ACB), Initial Rate of Absorption (IRA), Dry Density, Compressive Strength, Modulus of Elasticity, Shear Strength, Flexural Strength

I. Introduction

A. *Autoclaved Aerated Blocks*

Autoclaved aerated concrete (AAC) blocks are lightweight load-bearing type of partition blocks which are highly insulating, durable, and are produced in a wide variety of sizes and strengths. AAC Blocks are three times lighter than conventional red burnt bricks.

AAC material was introduced in 1924 at Sweden. Afterwards, it has gained popularity among building materials in Europe and is most preferred material in other developing countries as well.

Production of AAC involves common materials like lime, sand, cement and water, and a little amount of rising agent. After casting, autoclaving under heat and pressure is the key to generate its novel properties. Thermal insulation and acoustic absorption are the important properties of ACC besides its light weight and fire and pest repulsion characteristics. All the above advantages of AAC make it an economical and environmental friendly choice for the construction industries.

At the point when AAC is blended and cast in structures, a few compound responses occur that give AAC its light weight (20% of the heaviness of cement) and warm properties. Aluminium powder responds with calcium hydroxide and water to frame hydrogen. The hydrogen gas froths and copies the volume of the crude blend making gas rises to 3mm (⅛ inch) in distance across. During the frothing procedure, the hydrogen gas escapes to atmosphere and is displaced via air voids.

AAC blocks are a unique and revolutionary building material due to its super temperature, fire and sound resistance properties. AAC being light in weight offers ultimate workability, flexibility and durability to the structure. Rising agent used in AAC is usually aluminium oxide. The chemical reaction in the concrete mix at provided autoclaving provides AAC its discrete spongy structure, lightweight, and insulation properties which are completely different as compared to other lightweight concrete materials.

After drying, the forms are removed. The concrete is in solid state but is still soft to easily cut. The concrete is then sliced into blocks and positioned into an autoclave chamber for 12 hours. During autoclaving, steam pressure hardening process occurs, when the temperature gets above 180° Celsius and the pressure reaches 8-12 bars, hydrated calcium silicate is formed by reaction of quartz sand with calcium hydroxide that offers AAC its higher strength and other exclusive properties.

Since the temperature used in AAC is relatively low, they are not included as fired bricks but as a lightweight concrete masonry block. Once the autoclaving of blocks is done, they are ready for direct application on construction site. Around 80% of AAC blocks is air, and its low density also restraints its higher structural compressive strength. The load carrying capacity is up to 8 MPa, which is half the compressive strength of regular concrete blocks.

Building cost can be considerably reduced through incredible opportunities offered by AAC at construction site. Also the construction quality is increased.

AAC is produced by steam curing the hardened mix of quartz sand and pulverized fly ash (PFA) with binder of lime, cement, gypsum, water and a rising agent, aluminium in a autoclaving machine. As a outcome of autoclaving, excellent properties of AAC is procured.

Within wall sections, the use of breathing, porous and lightweight materials improves thermal performance and thereby contributes to energy efficient building design. These lightweight materials also provide sound and fire insulation apart from being environmentally friendly and need less embodied energy in their production. Autoclaved Aerated Concrete (AAC) is one of the most commonly- used light-weight construction materials for contemporary buildings, especially due to its low density, unique thermal and breathing properties and high fire resistance (Taşdemir & Ertokat, 2002; Andolsun, Tavukçuoğlu and Caner-Saltık, 2005; Narayanan & Ramamurthy, 2000a). Moreover, such advantageous properties make it preferable for earthquake-resistant housing (Taşdemir & Ertokat, 2002). It is also used as an infill material in restrations of timber framed historical buildings.

Although AACB units possess lot many advantages over conventional large weight masonry, there are certain issues which may perhaps need to be studied in great detail, particularly in the Indian context.

B. Advantages of Autoclaved Aerated Concrete

1) Eco - friendly: AAC helps to reduce at least 30% of environmental waste as compared to traditional concrete. There is a decrease of 50% of greenhouse gas emissions.
2) Lightweight: It is 3-4 times lighter than traditional bricks and therefore, easier and cheaper to transport.
3) Energy Saver: It has an excellent property that makes it an excellent insulator.
4) Great Acoustics: AAC has excellent acoustic performance. It has capabilities to restrict sounds effectively.
5) Fire Resistant: Alike usual concrete blocks, ACC is fire resistant, totally inorganic and non-combustible.
6) Low Maintenance: Operating cost can be reduced by 30% to 40% with AAC block usage. Also total construction cost can be reduced by 2.5% as jointing is less leading to saving in cement.
7) Faster Construction: Time of construction is reduced by 20% because of lightness of AAC that promotes easier and faster construction.

II. LITERATURE REVIEW

Lawrence Ropelwski et al. (1999), studied thermal inertia properties of Autoclaved Aerated Concrete. Autoclaved aerated concrete (AAC) is a lightweight, porous concrete with advanced thermal properties. AAC is unique among construction materials in combining excellent thermal resistance and thermal inertia. Generally, low-density construction materials do not provide good thermal inertia, while heavier ones commonly have poor thermal resistance. Five different 10.2 cm (4 in.) AAC samples made from U.S. electric utility fly ash as the silica source, along with three 10.2 cm (4 in.) conventional building material specimens, were tested for thermal inertia properties. Three primary issues addressed by these experiments were: (1) to develop and compare AAC thermal inertia to conventional building materials; (2) to document differences in thermal inertia characteristics of the AAC blocks produced by the various utilities; and (3) to determine if a periodic heat flow model using the thermal inertia approach adequately predicts the observed thermal inertia parameters of a material. A theoretical periodic heat flow model in the literature for thermal inertia did an adequate job of predicting the observed thermal inertia parameters for the AAC and conventional construction samples.

P.O. Guglielmi et al. (2010), researched on porosity and mechanical strength of an autoclaved clayey cellular concrete. Paper investigates the porosity and the mechanical strength of an Autoclaved Clayey Cellular Concrete (ACCC) with the binder produced with 75wt% kaolinite clay and 25wt% Portland cement. Aluminum powder was used as foaming agent, from 0.2wt% to 0.8wt%, producing specimens with different porosities. The results show that the specimens with higher content of aluminum presented pore coalescence, which can explain the lower porosity of these samples. The porosities obtained with the aluminum contents used in the study were high (approximately 80%), what accounts for the low mechanical strength of the investigated cellular concretes (maximum of 0.62MPa). Nevertheless, comparing the results obtained in this study to the ones for low temperature clayey aerated concrete with similar compositions, it can be observed that autoclaving is effective for increasing the material mechanical strength.

Prakash T.M et all (2013) conducted preliminary studies focused estimating physical and elastic properties of ACB units. These included initial rate of absorption, density and water absorption test etc. The compressive strength, flexural strength and modulus of elasticity of the units were obtained. Later, the studies were extended to obtain the strength and elastic properties of ACB masonry. Here, the focus was compressive strength of prisms and wallettes, flexural strength and shear bond strength.

Sohani N. Jani et al.(2104) analyzed microstructure and properties of AAC block with its manufacturing process. At present, construction works, such as high-rise buildings or offices and residential houses, in many countries are growing very fast every year. Concrete has mainly been used as fundamental construction material for most of residential building because of its outstanding mechanical properties, low cost and availability. However, structure and foundation of buildings tend to become larger due to an increase in their scale, leading to much more time consumption and cost. In monsoon region, the ambient condition is hot and humid so that accumulation of heat and moisture in building wall plays an important role in its maintenance and energy conservation. As a result, ventilating fans and air-conditioners have been employed to remove heat for providing comfortable environment for residents. Meanwhile, both the economic and energy crisis has stimulated awareness of energy conservation, resulting in a drastic increase in studies on construction material which incorporates energy conservation.

Ali J. Hamed (2014) presented a review paper on materials, production, properties and application of Aerated Lightweight Concrete. Aerated lightweight concrete have many advantages when compared with conventional concrete such as advanced strength to weight ratio, lower coefficient of thermal expansion, and good sound insulation as a result of air voids within aerated concrete. This paper is attention to classified of aerated lightweight concrete into foamed concrete and autoclaved concrete. Also, it is exhibits the raw materials used in aerated concrete, types of agent, properties and applications. The production method is classified for each foamed and autoclaved concrete. The literature review of aerated lightweight properties is focuses on the porosity, permeability, compressive strength and splitting strength.

Rostislav Drochytka et al. (2015), developed microstructure of flyash aerated concrete. Calcium hydro-silicate components formed during the autoclaving process are highly complex formations which often blend together mutually and form a variety of intermediate products, from completely amorphous, to the good crystalline phases. For fly ash autoclaved aerated concrete, the situation is even more complicated by the fact that high temperature and fluidized fly ash, as basic silica ingredients, have high variability of the chemical and mineralogical composition.

Farhana M. Saiyed et al. (2015), introduced Aerated autoclaved concrete blocks as a novel material for construction industry. Autoclaved Aerated Concrete (AAC) is an ultra-light concrete masonry product. It can weigh as little as 1/5 as much as ordinary concrete due to its distinct cellular structure featuring millions of tiny pockets of trapped air. This cellular structure gives AAC a number of exceptional physical characteristics. AAC consists of basic materials that are widely available. These include sand, cement, lime, fly ash, gypsum, aluminium powder paste, water and an expansion agent. Silica sand, the raw material used in the greatest volume in AAC, is one of the world's most abundant natural resources.

Ankit Pahade et al.(2016), analyzed comparison of water between AAC blocks – Gypsum plaster and burnt red clay bricks – sand cement plaster. Due to growing interest in sustainable development engineers and architects are motivated more than ever before to choose materials that are more sustainable. Brick masonry and sand-cement plaster consume tremendous volume of water both in production and curing. Carbon dioxide emissions in brick manufacturing process had been significant factor to global warming. As Maharashtra facing a severe drought there is shortage of water for construction activities. So there is need to replace this material with AAC blocks and gypsum plaster.

Mr. M. Gunasekaran et al, (2016) developed light weight concrete using autoclaved aerated concrete, they belived that Autoclaved Aerated Concrete is versatile lightweight concrete and they are generally used as blocks. The study of Autoclaved Aerated Concrete replacing natural sand by fly ash is investigated. Design AAC mix having mix proportion 1:3 with water cement ratio of 0.6. In these specimens using with lime and without lime, the sand is partially replaced by fly ash and cement is partially replaced by lime. The gypsum is constantly used in the specimens. The Aluminum powder is used at the range of 0.25gm, 0.5gm, 0.75gm and 1 of total weight of concrete.

Alim Shaikh et all (2017) conducted a comparative study of AAC Blocks and clay bricks under gravity loading for buildings. AAC blocks are new construction material which is very light in weight. Compare to same size of (200mm x 100mm x 100mm,its 3 times lighter than traditional brick (clay brick);it means it covers more area in same weight as clay brick gives in one bricks.

III. Objective of Study

This research was conducted to better understand certain material properties of AAC manufactured in Raj Homes, Bhopal and the recommended complementary wall elements such as its cement based plasters and jointing adhesive.

The objective of the dissertation can be summed up in following points:

- To determine the physical properties of AAC blocks Such as Initial Rate of Absorption (IRA), water absorption and dry density.
- Compressive Strength and stress-strain characteristic of AAC units and AAC masonry.
- Flexural strength of AAC masonry.
- Shear strength of AAC masonry triplets.

IV. Material

- Cement
- Water
- Fly-ash
- Quick Lime
- Gypsum
- Aluminium Powder

V. Manufacturing Process of AAC Blocks

A. Mixing of raw materials:

Mixing of raw materials in this part of manufacturing aggregates like silica sand or quartz sand and process, fine lime are mixed with cement. Then water will be added to this mix and hydration starts with cement forming bond between fine aggregates and cement paste. All these processes take place in a huge container as shown in figure 1.

B. Addition of expansion agent:

After mixing process, expansion agent is added to the mixture as shown in figure 1 for increasing its volume and this increase can be from 2 to 5 times more than original volume of the paste. Expansion agent which is used for this process is aluminium powder; this material reacts with calcium hydroxide which is the product of reaction between cement and water. This reaction between aluminum powder and calcium hydroxide causes forming of microscopic air bubbles which results in increasing of pastes volume. These microscopic air bubbles will increase the insulation capacity of AAC.

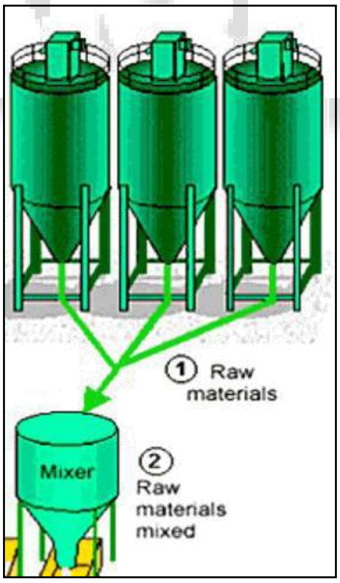

Fig. 1: Mixing of Raw Materials and addition of expansion agent

This reaction is shown in following equation-

$2Al + 3Ca(OH)_2 + 6H_2O$ $3 CaO . Al_2O_3 + 3H_2$

Aluminium powder + Hydrated lime Tricalcium hydrate + Hydrogen

C. Pre-curing and cutting:

Pre curing process starts after concrete mix is poured into metal moulds with dimensions of 6000 mm × 1200 mm × 600 mm as shown in figure 2 . In these moulds, concrete will be pre cured after it is poured into mould to reach its shape and after this pre curing process cutting will take place as shown in figure 3.22 below. Cutting will be done with wire cutter to avoid deformation of concrete during process. Aerated concrete blocks are available in different dimensions and various thicknesses. Dimensions for these blocks which are commonly used are: 600×250×100 mm, 600×250×150mm, and 600×250×200.

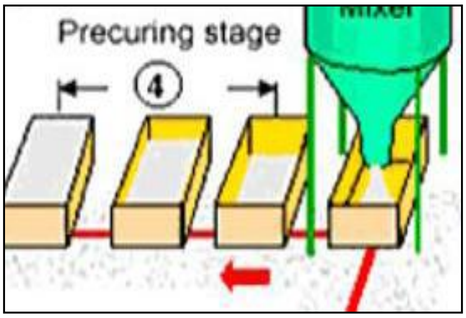

Fig. 2: Pre curing

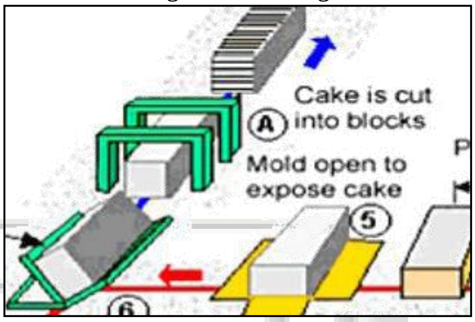

Fig. 3: Cutting

D. Curing process by autoclave:

Autoclave is defined as a strong, pressurized and steam-heated vessel. Concrete mix that is categorized as autoclaved has its ultimate mechanical properties conditions. In order to reach the ultimate mechanical characteristics for AAC, Domingo states, Curing with autoclaving method requires three main factors which are moisture, temperature and pressure. These three factors should be applied on material all at the same time. Temperature inside autoclave should be 1900 C and essential pressure should be about 10 to 12 atmospheres. Moisture will be controlled by autoclave and this process should be continued up to 12 hours to provide proper condition for hydration.

VI. OBSERVATION

As mentioned earlier, there has been rather scanty information on the physical and elastic properties of ACB and ACB masonry. The present investigation has endeavoured to study all such properties. Having obtained the results, it would now be interesting and useful to compare the results with that of conventional masonry. The results obtained by her have been used to compare with the investigations carried out in the present study.

A. Legend:

ACB: Aerated Concrete Block
TMB: Table moulded brick
WCB: Wire cut brick
SCB: Solid concrete block (150 mm and 200 mm thick)
HCB: Hollow concrete block (150 mm thick)
SMB: Stabilized mud blocks, 8% cement (143 mm thick)

B. Initial Rate of Absorption (IRA)

Figure 4 gives a similar comparison of IRA values of a variety of blocks. Here the IRA values of ACB units are within the range of conventional blocks. It is interesting to note that solid concrete blocks possess more IRA since they are generally manufactured using bigger sized fine aggregates and thus tend to have more pores. These pores may enhance the capillary action and thus leading to higher IRA.

On the other hand ACB possesses fine discontinuous pores and blocks the movement of water through the body and hence the low IRA values.

S.No.	Type of Block	Initial Rate of Absorption (kg/m2/min)
1	Aerated Concrete Block	1.8
2	Table moulded brick	3.5
3	Wire cut brick	1.4
4	Solid concrete block (100 mm)	3.6
5	Solid concrete block (150 mm)	2.5
6	Solid concrete block (200 mm thick)	4.1
7	Hollow concrete block (150 mm thick)	1.7
8	Stabilized mud blocks, 8% cement (143 mm thick)	2.3

Table 1: IRA Values of Different Types of Units

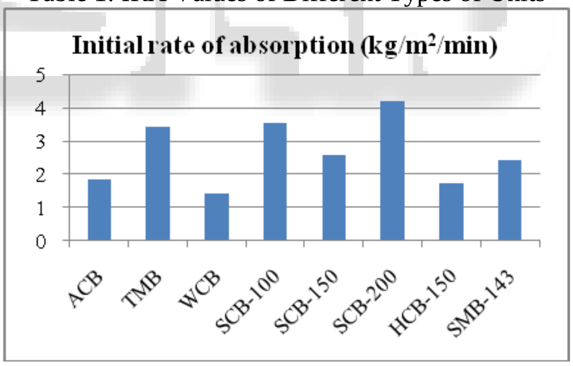

Fig. 4: Comparison of IRA Values of Different Types of Units

Block Density

Figure 5 gives a comparison of the block density of a variety of masonry units. It is quite apparent that ACB has the least density when compared to any other type of unit. Indeed the extremely low density is extremely favourable to structures due to the great reduction in self weight and thus may result in lower structural costs.

S.No.	Type of Block	Dry Density (gm/cc)
1	Aerated Concrete Block	0.6
2	Table moulded brick	1.7
3	Wire cut brick	1.7
4	Solid concrete block (100 mm)	2.0
5	Solid concrete block (150 mm)	2.1

6	Solid concrete block (200 mm thick)	1.8
7	Hollow concrete block (150 mm thick)	1.2
8	Stabilized mud blocks, 8% cement (143 mm thick)	1.9

Table 2: Dry Density Values of Different Types of Units

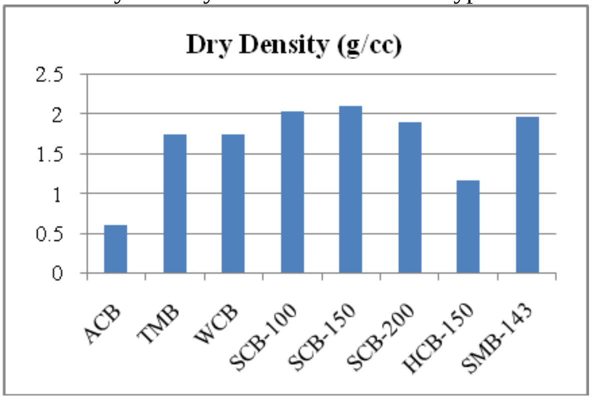

Fig. 5: Comparison of Dry Density of Different Types of Units

C. Water Absorption

Figure 6 presents a comparison of water absorption of a variety of units. The water absorption is extremely high, indeed more than what the IS code specify. This aspect is detrimental to the performance in terms of durability. Perhaps there is a need to look into this aspect in great detail, otherwise the low density benefit will be offset by the unwanted need to protect it by water ingression.

S.No.	Type of Block	Water Absorption (%)
1	Aerated Concrete Block	36
2	Table moulded brick	14
3	Wire cut brick	19
4	Solid concrete block (100 mm)	4
5	Solid concrete block (150 mm)	6
6	Solid concrete block (200 mm thick)	11
7	Hollow concrete block (150 mm thick)	5
8	Stabilized mud blocks, 8% cement (143 mm thick)	5

Table 3: Water Absorption Values of Different Types of Units

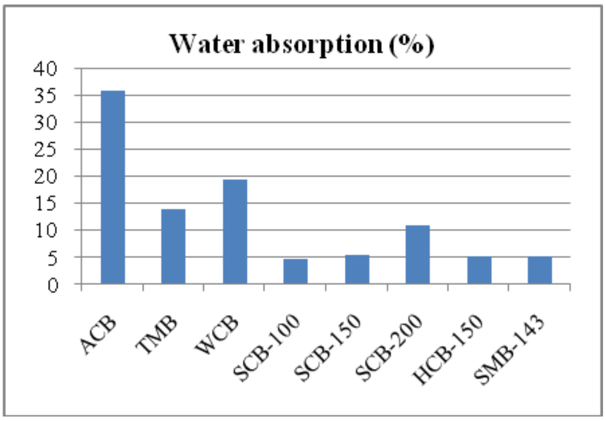

Fig. 6: Comparison of Water Absorption of Different Types of Units

D. Wet Compressive Strength

A similar comparison for compressive strength is presented in Figure 7. Aerated concrete block units has the least compressive strength when compared to any other type of masonry unit. However, it meets the minimum requirement.

S.No.	Type of Block	Compressive Strength (MPa)
1	Aerated Concrete Block	3
2	Table moulded brick	5.7
3	Wire cut brick	10.5
4	Solid concrete block (100 mm)	5.5
5	Solid concrete block (150 mm)	5.4
6	Solid concrete block (200 mm thick)	5.5
7	Hollow concrete block (150 mm thick)	6
8	Stabilized mud blocks, 8% cement (143 mm thick)	10.2

Table 4: Wet Compressive Strength Values of Different Types of Units

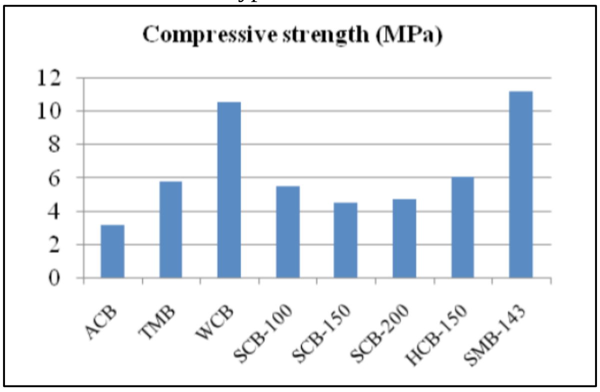

Fig. 7: Comparison of Wet Compressive Strength of Different Types of Units

E. Modulus of Elasticity

It is extremely interesting to note that, although the compressive strength is low, the modulus of elasticity is very high compared to the common table moulded bricks has been presented in Figure 8. Indeed, the value is higher than that of wire cut bricks and Solid concrete blocks as well. This would lead to benefit in the limiting deflection due to lateral loads.

S.No.	Type of Block	Modulus of Elasticity (MPa)
1	Aerated Concrete Block	3000
2	Table moulded brick	500
3	Wire cut brick	1900
4	Solid concrete block (100 mm)	2300
5	Solid concrete block (150 mm)	5000
6	Solid concrete block (200 mm thick)	3950
7	Hollow concrete block (150 mm thick)	5900
8	Stabilized mud blocks, 8% cement (143 mm thick)	8200

Table 5: Modulus of Elasticity Values of Different Types of Units

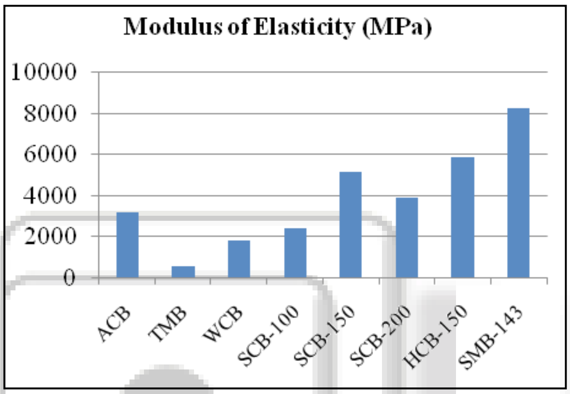

Fig. 8: Comparison of Modulus of Elasticity of Different Types of Units

F. Flexural Strength

The flexural strength of ACB units are favourable for structural purposes. Figure 9, shows the comparison of flexural strength and suggestive of the benefit of ACB as compared to table moulded bricks. However, it is here that hollow and solid concrete blocks perform much better.

S.No.	Type of Block	Flexural Strength (MPa)
1	Aerated Concrete Block	0.42
2	Table moulded brick – d	0.40
3	Table moulded brick – b	0.38
4	Solid concrete block (150 mm)	1
5	Hollow concrete block (150 mm thick)	1.8

Table 6: Flexural Strength Values of Different Types of Units

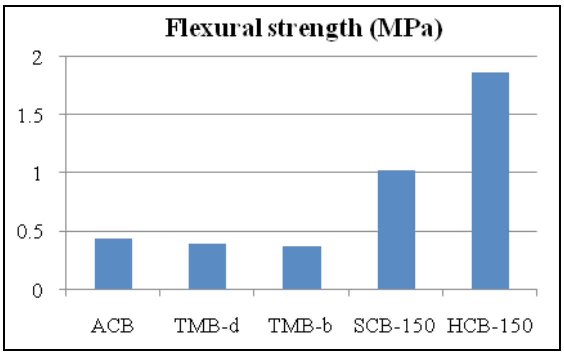

Fig. 9: Comparison of Flexural Strength of Different Types of Units

G. Compressive Strength of Masonry Prism

A comparison of the compressive strength of a variety of masonry prisms, using identical mortar (CM 1:6), has been presented in Figure 10. It can be noted that the relative performance of ACB is not so good.

S.No.	Type of Block	Compressive Strength (MPa)
1	Aerated Concrete Block – Normal	1.80
2	Aerated Concrete Block – Prism	2.20
3	Table moulded brick prism (105 mm)	1.82
4	Table moulded brick prism (230 mm)	1.00
5	Wire cut brick Prism (105 mm)	6.40
6	Wire cut brick Prism (230 mm)	4.80
7	Solid concrete block Prism (100 mm)	5.50
8	Solid concrete block Prism (150 mm)	4.50
9	Solid concrete block Prism (200 mm thick)	4.85
10	Hollow concrete block Prism (150 mm thick)	6.00

Table 7: Compressive Strength Values of Masonry Prism for Different Types of Units

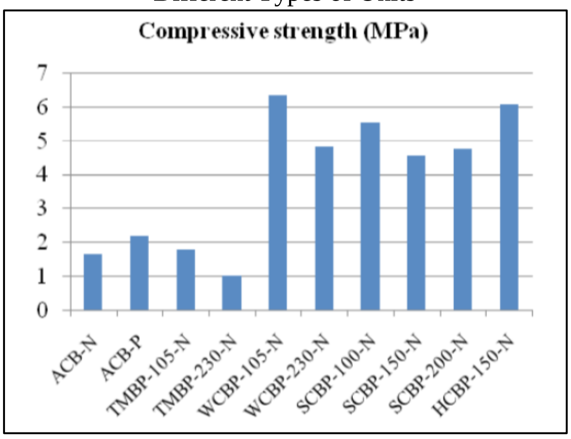

Fig. 10: Comparison of Compressive Strength of Different Types of Masonry Prisms

H. Modulus of Elasticity of Masonry Prisms

Figure 29 presents the comparison of modulus of elasticity of a variety of masonry prisms. These were based on the compression tests conducted on the prisms. Interesting point to be noted is that, although the modulus of ACB unit is relatively high when compared to TMB, there is a larger percentage reduction in modulus when used for masonry. It clearly indicates the influence of mortar. Perhaps there is a need for a special type of mortar for ACB and which is on the verge of being available in the market soon.

S.No.	Type of Block	Modulus of Elasticity (MPa)
1	Aerated Concrete Block – Normal	1700
2	Aerated Concrete Block – Prism	1800
3	Table moulded brick prism (105 mm)	500
4	Table moulded brick prism (230 mm)	400
5	Wire cut brick Prism (105 mm)	2400
6	Wire cut brick Prism (230 mm)	3000
7	Solid concrete block Prism (100 mm)	800
8	Solid concrete block Prism (150 mm)	6000
9	Solid concrete block Prism (200 mm thick)	6800
10	Hollow concrete block Prism (150 mm thick)	6500

Table 11: Modulus of Elasticity Values of Masonry Prism for Different Types of Units

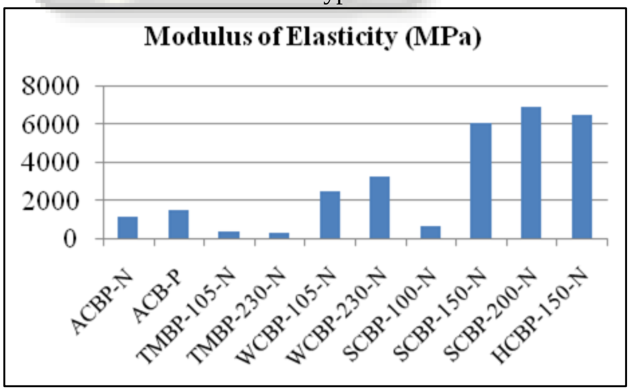

Fig. 11: Comparison of Modulus of Elasticity of Different Types of Masonry Prisms

VII. CONCLUSION

Autoclaved Aerated concrete (AAC) is lightweight and is completely different from the conventional concrete. The difference in concretes is due to some component mix material and their characteristic properties. AAC does not include coarse aggregate, therefore possess many beneficial properties like higher strength with lower density, superior thermal and sound insulation, reduced dead load on the structure, thus on foundation to promote stability. AAC is basically foamed concrete, which is foamed by an air entrainment agent or rising agent that provides air voids on autoclaving. Air-voids are artificially introduced in the concrete by addition aluminium powder to the conventional materials (except coarse aggregates). The homogeneity of air-voids is ensured manually by proper mixing of rising agent.

A. Based on the experiments that have been performed over the AAC Blocks, following conclusions has been dawn:

- SCB have more initial rate of absorption as they are usually produced using greater sized fine aggregates and thus be liable to have extra pores. The pores may develop improved capillary action and thus heading to higher initial rate of absorption. On the other hand AAC blocks have fine discontinuous pores that obstruct the movement of water through the body and therefore have low initial rate of absorption values.
- AAC blocks have the least density among all the masonry units under consideration for study. Certainly the exceptionally low density is very favourable for structures as it offers great reduction in dead weight on structure and results in lower structural costs.
- AAC has extremely high water absorption; even much more than the specifications given in IS code. This aspect may harm the overall performance of AAC in long run. There is a great need to look into this detrimental aspect in a detailed manner; else the low density benefit will be equalized by the unwanted need to protect it by water ingression.
- AAC blocks units have the least compressive strength among all the masonry units under consideration for study which is not favourable for its unobstructed application.
- Also, it is very interesting but strange fact that despite lower compressive strength, the modulus of elasticity is very high compared to the common table moulded bricks (TMB) and solid concrete blocks (SCB). This may be proved as a special benefit in the limiting deflection due to lateral loading conditions.
- The flexural strength of AAC blocks is constructive for structural applications. It is suggested over TMB. However, hollow concrete blocks (HCB) and solid concrete blocks (SCB) performs much better.
- Relative performance of compressive strength of AAC masonry prism is noticeably not satisfactory.

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