

INTRODUCTION (BACKGROUND OF THE INDUSTRY OR USER BASED PROBLEM / TASK)

¹Prof. Mr. Gram N. A, ²Kekan D. B, ³Nagur S. Y, ⁴Sabasagi P. C, ⁵KalyaniM. M, ⁶Divate. M. S, ⁷Bepari K. Y

Department of Civil Engineering, SVSMD'SKKI Polytechnic Akkalkot
Gram.nitin4@gmail.com

ABSTRACT

Worldwide Buildings consume up to 40% of the total global energy and 36% of carbon dioxide emissions. By the year 2030, the consumption is expected to increase up to 50%. In India building sector consume a total of 70% of the electricity generated in the country. Studies indicate more than 50% of energy is used in buildings for occupants' comfort like cooling and lighting. Energy consumption in the building sector will continue to increase until buildings can be designed to produce enough energy to compensate the growing energy demand of these buildings. Toward this end, many governments promote zero energy buildings. A zero-energy building is a building with zero net energy consumption; it means the total amount of energy used by the building on an annual basis is equal to the amount of energy produced on the site or off the site. These buildings do not increase the amount of greenhouse gases and less impact on climate. This paper aimed at reviewing some literature on zero energy buildings in India and suggests ways of improving the energy usage by the occupants.

INTRODUCTION

According to Census 2011 information the location code or village code of Nagansur village is 413227 Mashal village is located in akkalkot Tehsil of solapur district in Maharashtra, India. It is situated 20km away from sub-district headquarter akkalkot and 45km away from district headquarter solapur .As per 2009 stats, Nagansur village is also a gram panchayat.

The total geographical area of village is 7879.95 hectares. The total population of Mashal has an 15,000 There are about 3002 houses in Mashal village. As per 2019 stats, a Mashal village comes under Akkalkot assembly & solapur parliamentary constituency. Akkalkot is nearest town to Nagansur which is approximately 20km away from this city.

Population of Nagansur

Total Population	Male Population	Female Population
15000	7655	6445

1) Connectivity of Mashal

Type	Status
	2)
Public Bus Service 3)	Available within village 4)
Private Bus Service	Available within village 5)

Mashal - Village Overview	
Gram Panchayat :	Nagansur
Block / Tehsil :	Akkalkot
District :	Solapur
State :	Maharashtra
Pincode :	413227
Area :	7879.95 hectares
Population :	15000
Households :	3002

Railway Station 6)	Available within 6-7km distance 7)
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8) Nearby Villages of Nagansur

- Haidra
 - Tolnur
 - Akkalkot station
 - Gurav wadi
 - Marathi wadi
 - Manur
 - Shaval

LITERATURE SURVEY

Visit to the zero energy building area has been focused on people life. During this visit, we have met to the system and the member (main) of village for collection of information about village and their problems. The head of village, president and sarpanch have provided the information about the various problem and various schemes of government to overcome the waste problem. We have also suggested the methods of development OR changing zero energy building area and moving standard live direction.

In this literature survey, we have got a lot of information regarding diseases and problems in form of zero energy building under the guidance of president of the Nagansur village.

METHODOLOGY



Clearly define the thermal boundary on design plans. That means deciding what is inside and what is outside the conditioned space. For example: vented attics and crawl spaces are outside the conditioned space. If a ducted heating and cooling system is selected, it is especially important to allow space within the conditioned envelope to hold all the elements of the system.

9) Ceilings

Use only one type of ceiling throughout the house: either flat or cathedral. Whenever ceiling heights change, there will be a wall separating the room with the high ceiling from an unheated space, usually an attic. This “high wall” can be very tricky to air seal and insulate. The insulation level of that wall should equal other exterior walls, and it will need to be covered with a rigid material to enclose the insulation. If more than one ceiling height is present, develop clear details for air sealing, insulation, and rigid backing.

10) Roof Overhangs

Design a solar shading strategy that allows the sun to heat the building when needed and avoid overheating when not needed. One strategy is to design and build fixed roof overhangs, especially on the south and west sides when they are exposed to direct afternoon sun. Calculate and specify the southern roof overhang to maximize winter sun exposure and minimize heat from the summer sun. These fixed overhangs must be a compromise between similar sun angles in spring and fall when the heating or cooling requirements are much different. An alternative

would be to consider a shorter fixed overhang of 12 to 18 inches along with exterior shading, such as awnings, sun screens or vegetation. This will allow greater heat gain during spring and less heat gain during fall.

11) R-Values

Specify R-values on the plans for wall, ceiling, and floors and U-values for windows and doors. In cold climates, typical R-values are R-30 to R-40 for walls, R-60 for ceilings and R-38 for floors. In warm climates typical R-values are R-19 for walls, R-38 for ceilings, and R-19 for floors. Optimal R-values and U-values for your specific climate zone should be determined using energy modeling.

12) Thermal Bridging

Clearly specify measures for avoiding thermal bridging on the plans. These may include using advanced framing techniques for the wall, floor, and ceiling systems as well as exterior foam sheathing, staggered-stud, and double-stud framing.

13) Enclosing Insulation

Specify that wall insulation be fully enclosed with rigid sheets of OSB, Thermoply, or similar materials and never design walls where it is difficult to properly cover insulation. Pay particular attention to soffits, attics, bathtub surrounds, HVAC chases, and fireplace enclosures. If you're drawing double-stud walls, be sure to include details for enclosing the framing cavity, including a plywood cap, across the parallel top plates and plywood bucks inside window and door openings. A good guide to basic insulation and air sealing is the ENERGY STAR Raters Field Checklist.

14) Air Sealing Goal

Specify the air tightness standard to be achieved on plans. This is generally expressed in air changes per hour at 50 Pascals (ACH50). The threshold needed to reach net zero energy should be 2.0 ACH50 or less.

15) Air Barrier Systems

Identify the type of air barrier system to be used. Will it be an air-tight drywall approach, ZIP System SIGA membrane and tape, Aerobarrier or something else? List air sealing materials and techniques on design plans.

16) Blower Door Directed Air Sealing

Specify that blower door directed air sealing be conducted, after ceiling drywall has been installed and before insulation is installed, in order to locate unexpected air leaks and to effectively seal them. This process is especially useful if you are pushing your air leakage goal lower. Once you've mastered the techniques and can reliably reach your target, an end-of-construction blower door test should be sufficient.

17) Heating and Cooling Equipment

Locate all heating and cooling equipment, along with their pipes, ducts and refrigerant lines. Locate the hot water system and specify its efficiency rating. Draw these on the plans and specify the need for sealing any penetrations.

For ducted systems, strive to bring the air handler and all ducts inside the thermal boundary. Consider ductless mini-split heat pumps as they are highly energy efficient.

18) Ventilation

Draw mechanical ventilation equipment and ductwork on the design plans and locate equipment and ducts within the conditioned envelope of the building where feasible. Remember that heat recovery ventilators need a condensate drain. Specify all equipment efficiency ratings on the plans. Follow these six steps to proper heat recovery ventilation design and equipment selection.

CONCLUSION

The future of building construction is green. It must be if we are to reach global climate goals and restrict global warming temperatures to under 1.5°C from pre-industrial levels. Green buildings can substantially reduce the carbon emissions that come from heating and cooling spaces and powering multiple appliances and devices. Reducing emissions through green buildings comes with a \$24.7 trillion investment opportunity over the next decade across emerging market cities, which are growing and building at a rapid pace. There is a strong business case for investing in green buildings. They are more efficient than traditional buildings, driving up revenues and lowering operating costs. Equally important, they can reduce the risk of buildings becoming stranded assets as a result of their exposure to the physical and transition risks stemming from climate change. Realizing the full investment potential in green buildings is within reach. Technologies to build green are well known and easy to implement; and the cost of applying these technologies continues to decrease with their greater adoption. Furthermore, financing and investment mechanisms for constructing and operating buildings are well known. This report has identified and reviewed best practice approaches that can be replicated and scaled to move emerging markets towards green construction. A summary of recommended actions that key market players can take to translate the multitrillion-dollar investment opportunity in green buildings into investment projects is set out below.

REFERENCES

- [1] The village president and Sarpanch. These people gave to our group kinds of information mainly teachers are very helpful in starting of project to help selection of a particular village for project can be completion with successful according to planning of our group, we has visit to the Nagansur village.
- [2] We stand to collect the information about village and the condition village. There number problems as per peoples.
- [3] Then we interacted with villagers about light and lot of problem also we informed them about no of India government scheme.
- [4] The very much thankful Mr. & Mrs for supporting us, and one more thing we would like to say is Mr. Gram N. A. has suggested wonderful subject to our group.
discuss with villagers selecting subject like hotels, grocery store, temples houses, bus