

Performance criteria for cavity wall and pitched roof

[Business](#), [Management](#)



Performance standards for pit wall and pitched roof

Report Contentss

Introduction

Cavity Wall

Block

Insulation

Brick

Wall Neckties

Plasterboard

Mortar

Elementss for a pit wall

U-Values

Decision

Pitched Roof

Types of Roof Coverings:

There are two basic traditional types of pitched roof:

The benefits of Trussed Rafters:

Decision

Mentions

Introduction

This assignment aims to explicate the troubles of public presentation standards for an external pit wall and a pitched roof of a domestic home. This assignment focal point on the information provided from the sanctioned document “ Conservation of fuel and power in new dwellings” L1A

The chief types of walls:

- Cavity Wall / Cavity walls lose less heat than solid walls, and are much easier to insulate.
- Solid Wall / constructed from one tegument of masonry built from brick/blockwork in this type of walls hard to accomplish high criterions of thermic insularity.

Cavity Wall

The pit wall is the external wall of a house constructed of two parallel walls (two teguments) , with a infinite of at least 50mm between them and filled with insularity by many different methods. The outer tegument, built from brick or blockwork. The interior tegument is normally of blockwork and joins the two walls together by metal tie resistant's. The weathering is put in at suited topographic points to forestall the consequence of a prostration.

The chief map of this external pit wall is to cut down heat loss by make fulling the pit with stuff that would halt heat transportation ; and as such well

cut down warming costs and condensation. Inside the house pit wall insularity regulates the heat indoors, so it will give warming in winter and chilling in summer, protecting against moistness and mould growing and minimising sound transportation.

A good pit wall entirely does not forestall the job of moistness ; to to the full proof a house a good thermal dielectric is besides recommended. This does nil for the outside of the belongings so there are some suggestions below to assist with the enterprise:

Block

The blockwork is made from organic minerals obtained from clay and natural stuffs, which gives the support and stableness for the edifice. Blocks are built foremost when get downing to construct a pit wall. The benefit of utilizing blocks is that it provides a higher degree of thermic mass. When it is good insulated it gives as efficient energy as lumber. There are many different types of blocks ; barricade type Thermalite Hi-Strength 7 Blocks with a measuring of 100mm has the U-Value of precisely 0. 28 W/m² K for the external wall and has been chosen for those grounds.

Insulation

The determination was made to utilize mineral wool insularity to carry through a 75mm pit wall dimension. This adds first-class public presentation in relation to heat loss. Mineral wool has high quality glass and comparatively light weight. This will intend easiness of handling, cutting and installing. Mineral wool insularity is cost efficient which is 50 % lower than

standard froth insularity. The efficient insularity will be measured for zero heat loss and it can be done by curtailing the air motion through the spread between the intern and outer walls. For a zero heat loss accomplishment the pit will necessitate to be to the full filled. An added benefit to this is the sound decrease belongingss of the merchandise. The limitation of air through the pit will besides impact on the sound ways seeking to pervade the walls.

Brick

The infinite between the bricks should be filled with howitzer to forestall any escape or structural troubles. The surplus should so be removed via cleansing to forestall added wet.

As I have mentioned above, the brickwork is made from organic minerals gettable from clay and natural stuffs. This has the versatility of shadiness, coloring material and texture. Brick is an astonishing stuff to construct with ; it provides a delighting aesthetic to the house with a customizable coloring material. The natural stuffs in brick are chemically inserted so it does non lend to anyair pollutionin your place. Brick is besides fire opposition while being a stuff that is reclaimable and insulating. This allows formoneyto be saved by take downing heat addition and heat loss. For the usage of the bricks a measuring of 103mm brick will be considered for a pit wall of 75mm dimension. A to the full filled pit wall will cut down the heat loss in the edifice. The type of brick work selected will be stretcher bond because of the easiness of cutting that this stuff provides.

Wall Neckties

Neckties when right fitted should incline downward from inner to outer wall. This helps to forestall rain and other conditions related affair to traverse the pit. This will add another facet of wet protection for the interior of the house.

For the 75mm pit wall ; 200mm wall ties were selected to be topographic points between the blocks and the bricks. The horizontal articulations will besides be attached to palisade ties, to give the wall more stableness. This will forestall the likeliness of impetus between the walls. The stuff will besides be made from unstained steel so as to forestall corrosion of the metal.

Plasterboard

Lightweight Plaster (Inner Finish)

Mortar

The determination was made to include a thin bed of howitzer to the brick/block work. This will:

- The build clip will be reduced because of the easiness they are constructed. Construction clip can be less than 60 proceedingss until the stuff is considered dry and ready for component installing.
- The stuff increases the thermic public presentation of the edifice and in so making will cut down the U-Values.
- The thin Mortar will better building quality

Elementss for a pit wall

The undermentioned stuffs were chosen for the creative activity of a suited pit wall:

103mm brick Stretcher bond

75mm pit wall fully-filled with insularity

100mm block Thermalite Hi-Strength 7

200mm wall ties

Thin Mortar bed

Lightweight Plaster for inner coating

U-Values

The jutting heat loss will be calculated depending on the U-Values. The lower the value the better the stuff as is shown in L1A certification. This papers provides that if the U-Value is less than $0.2 \text{ W/m}^2 \text{ K}$ so grounds is needed to corroborate that the edifice design is feasible.

Decision

External walls are considered to be thermic component. That being considered the chief intent of insularity is to conserve fuel and power in new home. It prevents the incursion of conditions to the internal surface of the wall. The added benefit of cut down the proprietors carbon footmark by bettering the energy-efficiency of the place means that this is of great

importance. This creates the advantage of dramatically cut down the sum of heat needed for the life infinite.

This means that unless heat is already generated by a heat pump the likeliness is that the place will necessitate gas, oil, coal or gas to bring forth heat. These all have their impact on the environment so decrease of usage is needed.

The external wall is non merely for the inter benefit as a good external wall can add great beauty to the visual aspect of the edifice.

Pitched Roof

Pitched roof is a type of the ceilings which consists of two surfaces slotted together from the terminal top of the walls to meet together in the top such as a corner (jointly called roof) required by the nature of the design and the type of building. The usage of such roofs is popular in countries of high rates of rain or snow and the chief intent of a pitched roof is to protect the house from the air current (upwind opposition) , rain and redirect H₂O and snow every bit much as possible to conserve heat inside the house.

Types of Roof Coverings:

- Asphalt Shingles, the asphalt herpes zoster is still standard because they are economical, used on most roofs in many colors, and may last for long clip.
- Metal, such as Steel, aluminum and Cu characterized solidness and low care.

- Wood Herpes zoster and Shakes, as friend of environment and is a popular pick for places
- Concrete or Plain Tiles, tile is easier to utilize than concrete and roofing tiles are fire-retardant and easy to repair it
- Slate, it is really expensive but beautiful and resists fire and mold.

There are two basic traditional types of pitched roof:

- Purlin pitched roof (cut roof) / Cut roof lumbers are made on site and edifice up the roof utilizing barks, ridge boards, joists and purlins where they are fixed in the location
- Rafter pitched roof (truss roof) / they are designed in the mill so delivered to put ready and complete and merely erected. Furthermore each type could be warm deck or cold deck.

Trussed Rafters this type of roof is largely used for lodging and is presently designed by specialists in the industrial companies by utilizing computing machine design. After the completion of the design, the roof is moved to the site and easily installed in the specified topographic point.

Trussed Rafters are fast and easy to sit and moreover can be designed so adding more suites in the roof is possible, called Attic trusses. So the recommendation would be to utilize Attic Truss (room in the roof) type of tied barks because it is speedy and easy to sit on site, roll up in the mill as a fit quality for Attic trusses, specially designed to transport all extra weight.

Roof truss exposures

The benefits of Trussed Rafters:

- Suitable for many types of the roof constructions
- Fast building and on clip bringing which is cheaper than other due to the ready constituents
- Easier repairing so non as much work
- Simple industry process' cut down the emanations and pollution
- Thermal dielectric is better than others and more flexible than many other methods of roof building

Decision

The Pitched Roof is a really of import subdivision of the house so it must be built good, strong, stable and lasting. This means that the house will be protected from the outer clime factors such as the Sun, the air, the rain and snow. This besides will intend that the the spread of fire from house to house is reduced as the insularity will maintain the heat inside the house. This will back up warmth every bit much as possible because it is the chief country from the house where heat loss may go on. Pitched Roofs are able to back up tonss (weights) , the incline of the roof has a chief consequence on the aesthetics and the right coloring material is selected it will give the place a beautiful form.

Mentions

L1A Conservation of fuel and power in new homes

hypertext transfer protocol: //australbricks. com/sustainability/the-benefits-of-bricks/

<https://assignbuster.com/performance-criteria-for-cavity-wall-and-pitched-roof/>

hypertext transfer protocol: //source4me. co. uk/calculate_cavity_wall. php

hypertext transfer protocol: //www. glengery. com/brick-products?

utm_source= glengerybrick. com & amp ; utm_medium= domain-referral &
amp ; utm_campaign= 301-redirect

hypertext transfer protocol: //australbricks. com/getmedia/256750aa-5b5d-
4e15-94e2-9cf896a23b73/Bricks-For-Living-Brochure. aspx/

hypertext transfer protocol: //www. markgroup. co.

uk/homeowners/insulation/cavity-wall-insulation? gclid= CPKMrd7A-
cECFRMatAod0DsAjA

hypertext transfer protocol: //www. planningportal. gov.

uk/permission/commonprojects/externalwalls/

hypertext transfer protocol: //www. unitedinsulations. co. uk/cavity-wall-
insulation-faq

hypertext transfer protocol: //www. homeworksenergy. co. uk/external-wall-
insulation/

hypertext transfer protocol: //www. greenhus. co. uk/about-external-wall-
insulation/benefits-of-external-wall-insulation/

hypertext transfer protocol: //www. ask-hanson. com/u-value-calculator. html

hypertext transfer protocol: //www. diydata.

com/general_building/roof_construction/roof_construction. php

https://assignbuster.com/performance-criteria-for-cavity-wall-and-pitched-
roof/

hypertext transfer protocol: //www. planningportal. gov.
uk/permission/commonprojects/roof/

hypertext transfer protocol: //www. builditgreen. co.
uk/products-services/roof-finishes. html

hypertext transfer protocol: //www. tra. org. uk/trussed-rafters. php? id= 30

hypertext transfer protocol: //www. fforest. co.
uk/PDFs/wolf_systems_trussed_rafter_technical_manual. pdf

hypertext transfer protocol: //www. trada. co.
uk/images/onlinebooks/7E93B0B4-0131-475E-8C39-563AD4FBF9E9/

hypertext transfer protocol: //great-home. co. uk/a-guide-to-roof-
construction/

hypertext transfer protocol: //www. kingpinsulation. co.
uk/Services/Technical-Services-Department/U-value-Calculations. aspx

Mike, R ; Alison, C (2014) . *ConstructionTechnology1: House Construction* .
3rd erectile dysfunction. Hampshire: PALGRAVE MACMILLAN. 276-294.

Numan Samha 1420688