

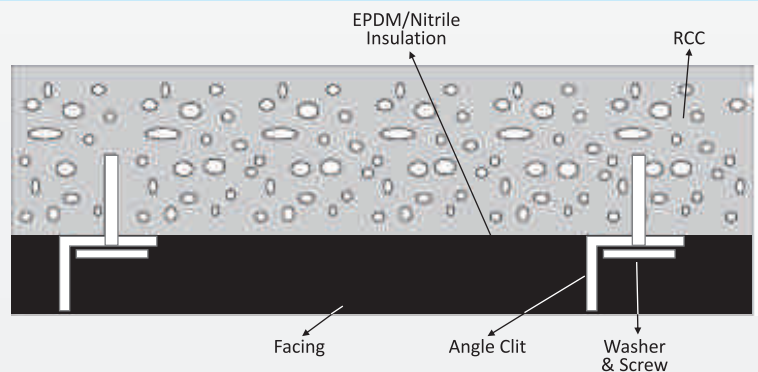
# UNDER DECK INSULATION



During summers we have often experienced that despite low outside ambient temperature, inside the house or any other closed premise it feels really hot.

The reason behind the hot temperature is absorbed heat through the roof or the walls during the day which remained unreleased.

For such effects, Insulations offer a great solution in the form of Underdeck insulation material. This material is outstanding and very effective for sudden temperature changes, specially in the hot climate.



## Benefits of under Deck Insulation:

In harsh thermal conditions it prevents almost 97% of radiant heat and make inner atmosphere more pleasant. The main advantages of under deck insulation are described below.

Protect heat from entering inside the house. | Increase the cooling efficiency of house. | Decreases the cooling time. | Decreases energy consumption for cooling devices. | Provides resistance against vapour and moisture.

## Installation"

- The ceiling surface needs to be thoroughly cleaned.
- Fix soffit / clamp to ceiling by means of rawl plug/dash fasteners
- Fix Z or C shaped GI channel runners or aluminium ones along the length of the room 600mm spacing in one direction to the ceiling by rawl plugs/dash fasteners.
- Apply any suitable adhesive to the ceiling and place slabs of Nitrile Rubber/EPDM insulation in between by spot sticking method.
- Hold the insulation slab in position by 22 SWG GI lacing wire placed diagonally.
- Apply 12mm Gypboard or equivalent plaster board to cover up the insulation.

# COMPARISON OF FIBRE GLASS / PUF WITH NBR

PARAMETERS	FIBRE GLASS	PUF / PIR	NBR
Thermal Conductivity	Even though the thermal conductivity of Fibre Glass is 0.039W/mDegC, the thickness required is higher on account of the method of application. The thickness of fibre glass reduces to half on account of the compression taking place while installation.	Blown with CFC / HCFC high molecular gases. Increase in conductivity even before installation.  At low temperatures PUF conductivity is poor.	No compression takes place while application.  Hence thickness required while application is lower vis a vis Fibre Glass.
Fire Resistance	The resin in the fibre glass supports burning. Installed/stuck using bituminous compound which are highly inflammable.	Poor fire resistance	Meets CLASS "0" as per BS-476 Part 6 & CLASS "1" as per BS-476 Part 7.  The Class 1 rating indicates a "Nil" surface spread of flame.  The CLASS "0" certification is among the most difficult fire test certifications in the world and NBR passes this.
Ageing	Heavy deterioration in thermal properties with time on account of humid conditions	Heavy deterioration in thermal properties with time on account of humid conditions	Temperature variations and humidity have no effect on the cellular structure.
Service Temperature	Service Temperature (0DegC to +250 DegC) is not well for refrigeration applications.	Service Temperature (-40DegC to +105DegC) is wide enough for the intended service.	Service Temperature (-40DegC to +105DegC) is wide enough for the intended service.
Water Vapour Transmission	Foil faced resin bonded fibre glass has numerous pinholes and cracks at actual site conditions and extremely high Water Vapour Transmission. The actual Water Vapour Permeability is above 0.4 Perm.Inch under actual site conditions. This results in rapid thermal deterioration of the Insulation. Very poor long term efficiency.  Hence need for higher thickness as compared to NBR.	Low 'μ' Value (34-100). Very poor resistance to water vapour ingress. Needs external vapour barrier (difficult & takes longer time for installation Increase in Thermal Conductivity 'λ' over a period of time is very high	Nitrile Rubber has a homogenous Vapour Barrier on account of its completely closed cell structure. The Water Vapour Permeability of NBR is 0.017 Perm.Inch regardless of the site condition. This means excellent Long Term efficiency and performance.
Water Absorption	Extremely high. One needs to just immerse Fibre glass in water to see the effect.	Extremely high. One needs to just immerse PUF in water to see the effect.	Less than 3% even after 28 days immersion in water.
Health & Safety	Contains fibres which are carcinogenic and known to cause lung cancer once they enter the air stream.  Fibre glass also supports the growth of mildew, fungus and bacteria. Banned from use in Pharma, Food, cosmetic plants.	Release toxic fumes when burn. Mould and mildew growth prevalent	Totally safe. Does not have any fibers or harmful material. Contains antimicrobial steritouch which is FDA and EPA approved.  Does not support the growth of any fungus, mildew or bacteria.
Corrosion	Metallic Coating • Risk of UIC (Under insulation corrosion) • Risk of galvanic corrosion	Metallic Coating • Risk of UIC (Under insulation corrosion) • Risk of galvanic corrosion	Arma chek systems are non-metallic, resilient & have very high 'μ' value like NBR  • No risk of UIC (Under Insulation Corrosion) • No risk of galvanic corrosion
Savings	The long run they work out to be costly.	The long run they work out to be costly.	The installed cost of NBR is comparable with PUF/PIR insulation. In long run it gives huge savings on account energy savings and almost no maintenance cost.
Space	Required Insulation Thickness is more. So, the gap required between the pipes is more.	Required Insulation Thickness is more. So, the gap required between the pipes is more.	Space Saving required Insulation thickness is less. So, the gap required between the pipes is less.
Installation	Even with best installation practices the joints are always prone for water vapour ingress.	Needs special tools and use coal tar Being rigid, even with best installation practices the joints are always prone for water vapour ingress.	No special tools & machinery is required
Safety	Very high itching problem	high fire hazard	High Resistance to Fire • Class 0 as per UK building code
Alterations	Possible	Very difficult	Allows changes in line very easily
Cost with installation (Duct)	32 Kg/cum 25 mm FG with vapour barrier and aluminum sheet : Rs 250/-	24 Kg/cum 25 mm PUF with vapour barrier and aluminum sheet : Rs 350/-	50 Kg/cum 13 mm NBR : Rs 350/-



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**Disclaimer:** Although these values represent actual results achieved in tests, they should only be used as a guide. ALP Aeroflex cannot guarantee the performance of the product as all situations are different & should be treated separately. All statements & technical informations are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the informations are appropriate for specific use intended by the recipient.