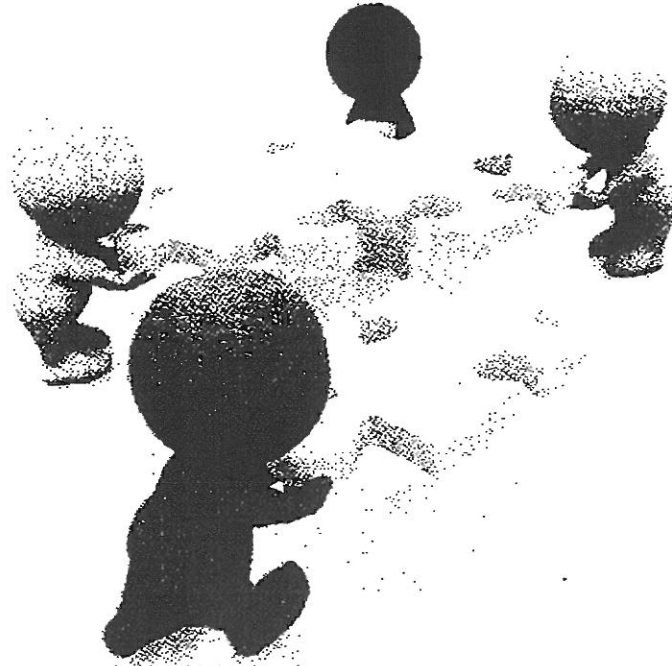


PLEASE ~~READ~~ AND Digest.
This is the new regs for Indoor Pools only.

FOR THE L OF IT

Scanned
Will forward to us
all to read +
Digest



By Patrick Thorpe



PART L BUILDING REGULATIONS

➤ 3.33 Where a swimming pool is constructed as part of a new dwelling, reasonable provision should be made to limit heat loss from the basin by achieving a U-value no worse than $0.25\text{W}/\text{m}^2\text{K}$ as calculated according to BS EN ISO 13370.

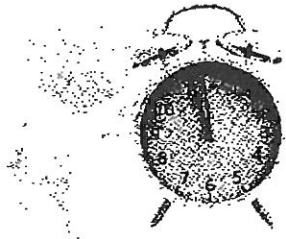
Comment

BS EN ISO 13370 sets out the criteria that you use to calculate the heat losses which is the same as for basements.

➤ 3.34 The dwelling should be assessed as if the pool basin were not there, although the pool hall should be included. The area covered by the pool should be replaced with the equivalent area of floor with the same U – values as the pool surround.

Comment

This effectively makes the pool shell as a separate “Thermal entity”. Architects can ignore the pool; pool builders to provide their own calculations.



PART L BUILDING REGULATIONS

➤ Came into operation on 1st October 2010

➤ Part L covers:

- L1 A Domestic new builds
- L1 B Domestic refurbishments
- L2 A Non - domestic new builds
- L2 B Non – domestic refurbishments

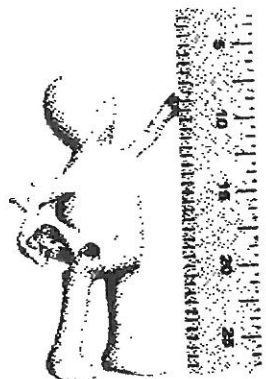
➤ It requires pools to be constructed with a level of insulation to the pool walls (to cut down the “perceived heat loss to ground “).

➤ No requirements for outdoor pools (will come – 5 years)

➤ U Value required is $0.25 \text{ w / m}^2 \text{ K}$

Comment

The reciprocal of U value is “Thermal resistance” i.e. $1 / 0.25 = 4.0$ (the thermal resistance required). Equally when you have calculated “Thermal resistance” $1 / \text{Thermal resistance} = \text{U value}$



Building Control

- The U value will be between the pool water and soil immediately outside the pool shell.
- Building materials have R values
- Blocks, tiles, renders have R values

Comment

Blocks approximately 1.1 Thermal resistance.

Concrete pool with 2% reinforcing = 2.4 Thermal resistance.

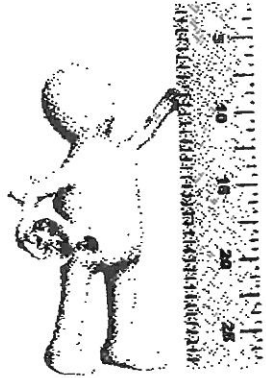
Many R values can be found on the internet.

- Soil conditions – granite, sand, clay have different R values

Comment

Can not take into consideration.

- You can calculate what is required in each and every case
- IS YOUR BUILDING INSPECTOR GOING TO UNDERSTAND



Building Control

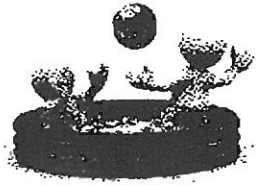
➤ It has been said “Trade Offs” will still be allowed

➤ They are not – BS EN ISO 13370 makes no such allowance

Comment

You can not trade off within the complex. However, you can within the “Thermal Unit”, for example you can have thicker insulation on the walls and less on the floor

➤ Simple answer to the meaning of life – Provide Insulation



INSULATION MATERIALS

➤ XPS – Extruded Polystyrene. (1)

<u>Manufacturer</u>	<u>Product</u>	<u>R value</u>	<u>Compressive Strength (kpa)</u>	<u>Thickness (mm)</u>	<u>Thermal Resistance (m² K/w.)</u>
KINGSPAN	Styrozone	0.029 w/mk	300 (2)	100	3.40 (3)
XNAUF	Polyfoam XPS	0.029 w/mk	100	75	2.55
DOW	Styrofoam, Perimate, Floormate	0.035 w/mk	300	80	2.30

- Inside pool shell – provides maximum insulation
- Outside pool shell – does not interfere in the pool fittings (4).

Comments

- 1.XPS is a closed cell material less than 0.05% moisture absorption.
- 2.For static loads should not compress if load is less than 20% of compressive strength. E.g. 20% of 300 kpa = 60 kpa. A concrete pool is approximately 22 kpa.
- 3.To calculate “Thermal resistance” you divide the thickness by the “R Value” quoted, i.e: .1m / 0.029 = 3.44.
- 4.If installed outside of the pool, it is possible to use thicker levels of insulation without interfering with the fitting of the pool equipment. Some energy will be used whilst the wall equalizes with the temperature of the water but from then on the savings will be higher.



INSULATION MATERIALS

- One size suits all
- Fit 100mm to outside of the pool shell

Comments

The cost between 50mm and 100mm is relatively small. If you fit 100mm you will exceed requirements every time. Sheet sizes are 2400mm x 600mm = 1.44m² (sold in packs of 4 for £75.00). The cost for an 8m x 4m x 1.5m pool is approximately; 68m² / 1.44 = 47.2 sheets (/ 4 = 12 packs x £75.00 = £900.00).

On concrete pools if you use 100mm styrozone outside the walls of a concrete pool which structure has a thermal resistance of 2.4, then you should be able to get up to 10 x 5 m pool with no floor insulation. Example:

45m² of wall at 2.4 + 3.4 = 5.8 x 45 = 261
 50m² of floor at 2.4 = 2.4 x $\frac{50}{95}$ = $\frac{120}{381}$

Average 381 / 95 = 4.01

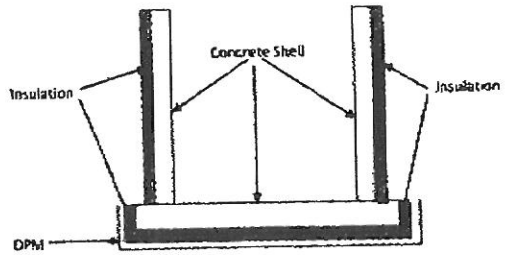


Fig 1. Insulation on the outside of the shell

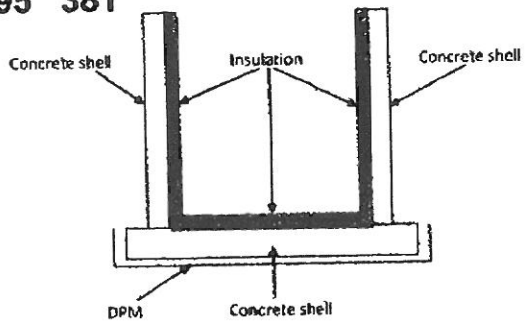


Fig 2 Insulation on the inside of the pool shell





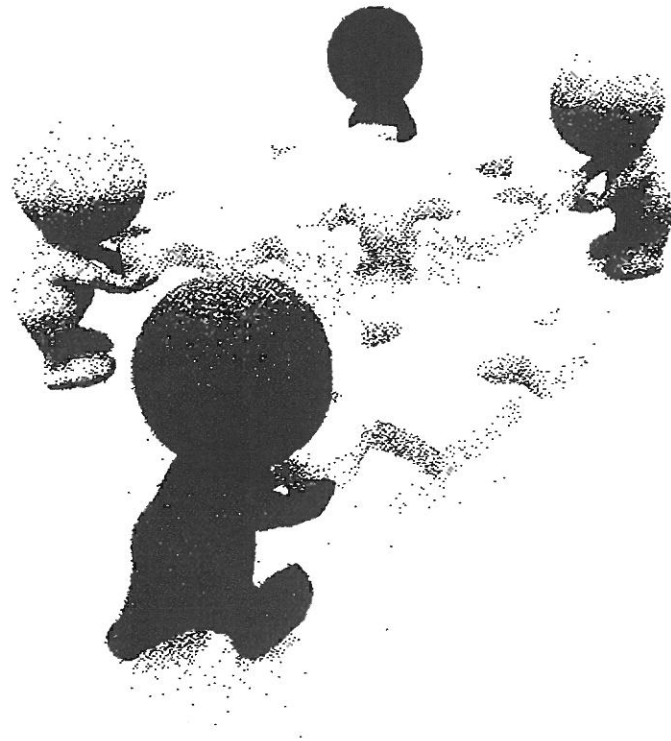
INSULATION MATERIALS

➤ Encapsulate pipe work attached to shell (to off set loss through build material)

➤ Present manufacturer spec sheets

➤ JOB DONE

THANK YOU FOR LISTENING



By Patrick Thorpe