

HOW ENERGY AVAILABILITY INFLUENCED BUILDING FORM



DR ROBYN PENDER BUILDING CONSERVATION + CLIMATE CHANGE ADAPTATION TEAM

Brussels' big building grab

The EU wants to mandate energy efficiency upgrades for millions of old buildings.











1955



TIMELINE: DYMCHURCH MARTELLO TOWER

DATE	OCCURRENCE	COMMENTS
1805–12	Tower constructed	Original render of lime-ash-tallow (permeable)
18705	Military use ceases; Coastal Blockade and Coastguard take over	Was this when the original gun was removed?
Late 19th century	Brick exterior staircase installed	Was this coeval with the installation of hut on roof?
Before 1927	Timber hut installed on roof	What was hut for? How was it fixed in place?
Before 1940s	Roof covered in asphalt	Was this coeval with the installation of the hut?
1940s	Occupied by Royal Artillery	Did this result in any lasting alterations?
1951	Coastguard leaves	Maintenance issues as a result?
After 1955	Timber hut on roof removed	Was this part of the 1960s works programme?
After 1955	Exterior rendered in cement, tooled to resemble stone	Impermeable render will lead to moisture problems
1959	Transferred from War Office to Ministry of Works	Becomes historic monument
1960s	Major works programme	Was this when the render was applied and the hut removed?
Post 1960s	Total replacement of all wooden joinery in interior	When? Suggests severe moisture problems have begun
Date still unknown	Brick exterior staircase removed	Was this part of the 1960s works programme?









BUILDING ENVIRONMENT





BUILDING ENVIRONMENT













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MAITRE JACQUES datest des Compagnons du Devoir 1 Ant de Saubise ;































Cennino Cennini II Libro dell'Arte

"When you want to work on a wall... first of all get some lime and some sand, each of them well sifted. And if the lime is very fat and fresh it calls for two parts sand, the third part lime. And wet them up well with water... And let it stand for a day or so, until the heat goes out of it."








































































DRY WALL STAYS DRY

WET WALL GETS WETTER






















































































EARLIEST KNOWN STAINED GLASS



























































BUCKINGHAM PALACE 1897

AME

par

















































anarut.



























Hypothermia Wrap








$\frac{\text{HEAT LOSS INTO AIR:}}{2 - 22\%}$



HEAT LOSS BY DIRECT CONTACT



HEAT LOSS BY RADIATION: 60 - 65%



IS AIR TEMPERATURE THE RIGHT THING TO MEASURE?

THERMOMETER INVENTED BY FARENHEIT 1709





IS OUR FOCUS ON AIR TEMPERATURE LEADING US TO OVERLOOK PASSIVE MEASURES THERMAL COMFORT























Emperor Jovian: died of carbon monoxide poisoning



Emperor Julian poisoned in Paris:

"I ordered [my servants] to carry in fire that had burned down and to place in the room a very moderate number of hot coals. But the coals, though there were not very many of them, brought out from the walls quantities of steam and this made me fall asleep."







3. Schornsteinfeger.

7. Stellmacher.

11. Grobschmiede.

ZUNFTWAPPEN. II.



4. Glaser

8. Böttcher.

12. Schlouser.

1 Maurer.







5. Töpfer.









2. Dachdecker.

6. Zimmerleute.

10. Drechsler.





9. Tischler.











13. Nagelschmiede.



17. Goldschmieda.







19. Schiffer. 20. Bergieute.

Booldans Konversations Lacikon. 18. dail.

18. Uhrmacher.







UPHOLDERS, COMPANY OF











































SPREAD THE WORD: FORM ONCE DID FOLLOW FUNCTION



THINGS WE NEED TO DO





TEACH VERNACULAR MATERIALS & SKILLS TO ALL



ABANDON LABELS ('TRADITIONAL' VS 'MODERN')



DRAW ON THE BIGGEST POSSIBLE BAG OF TRICKS



ALWAYS DESIGN FOR MAINTENANCE




ALWAYS DESIGN FOR MAINTENANCE



GET THE MESSAGES OUT TO POLICY MAKERS



REMEMBER THE CLIMATE IS CHANGING





LEARN FROM THE 'GLOBAL SOUTH'

