

DEPARTMENT OF THE AIR FORCE
REGIONAL CIVIL ENGINEER, WESTERN REGION (AFESC)
630 SANSOME STREET-ROOM 1316
SAN FRANCISCO, CALIFORNIA 94111

RD
November 1983

25

Engineering Technical Letter WR-83-9, Insulation

SPDED-TM NPDEN-TE WESTNAVFACENCOM (Code 09A2A.26)

1. PURPOSE: The attached Engineering Technical Letter (ETL) provides guidance on maximum transmission values ("U") and establishes requirements for optimum insulation in new or existing Air Force "defense-owned" facilities.

2. IMPLEMENTATION: The guidance in this ETL supersedes criteria in change 10 to HQAF General Design Instruction No. 1, dated 25 May 1982, is mandatory, and applies to projects not yet 30% designed.

/s/
W. EDWARD FISCHER, Deputy
Regional Civil Engineer

1 Atch
AFETL 83-9 dated 14 Nov 83

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

LEEEU
November 1983

14

ALMAJCOM/DEE
AFRCE/CR
SAC/DEER
HQ AFCC/DEO

SPACECOM/DEE
AFRCE/SAC

AFRCE/WR
AFRCE/BMS

AFRCE/ER
HQ

1. Purpose: This letter:

a. Provides maximum transmission values ("U").

b. Establishes requirements for optimum insulation in all new or existing Air Force "defense-owned" facilities.

c. Supersedes insulation criteria in Change 10 to the General DI No 1, dated 25 May 1982.

2. Requirements: This guidance:

a. Pertains to design of new facilities, additions to or renovations of existing facilities which are heated and/or cooled with mechanical systems.

b. Is mandatory.

c. Is applicable starting with those projects not yet 30% designed as of the date of this letter.

3. Discussion: When the envelope (exterior walls) of an existing building will be altered to improve energy efficiency then these "U" values will pertain. Insulation values for all types of design will be optimized using a computerized energy analysis in accordance with (IAW) Engineering Technical Letter (ETL): Computer Energy Analyses. This is to ensure that the design energy budget meets or is less than DOD's Energy Budget Figures, IAW ETL: Energy Budget Figures.

4. Design Criteria:

a. Heat gain calculations shall be IAW the current edition of the ASHRAE Handbook of Fundamentals, as a minimum.

b. The inside design temperatures for personnel comfort shall be IAW AFM 88-15, Chapters 5 and 6. The design relative humidity will be 50 percent minimum or equal to the outside air dewpoint design temperature, whichever is less, provided that no new energy is consumed in achieving this humidity control. Recovered waste heat which not needed for heating domestic water may be used for preheat. A run-around system may also be used for preheat of outside air.

c. All new air conditioned or heated facilities will be constructed to meet the maximum heat transmission values "U" of Table 1, unless a rigorous engineering analysis shows that another "U" factor is more energy efficient and cost effective. The minimum requirement is that design energy budget figure must not exceed the required energy budget figure.

FOR THE CHIEF OF STAFF

/s/
G. HAMMOND MYERS, III
Chief, Utilities Branch
Engineering Construction Division
Directorate of Engineering & Services