European Organisation for Technical Approvals
Europäische Organisation für Technische Zulassungen
Organisation Européenne pour l'Agrément Technique

ETAG 21

Edition September 2005

GUIDELINE FOR EUROPEAN TECHNICAL APPROVAL

OF

COLD STORAGE PREMISES KITS
Part 1: COLD STORAGE ROOM KITS

Kunstlaan 40, avenue des Arts B-1040 Brussels

TABLE OF CONTENTS

Note: Annexes A to N are included in a separate document.

FOREWORD

Background

This Guideline has been drawn up by the EOTA Working Group 02.05/01 - Cold storage room kits.

The WG consisted of members from the following 6 EU-countries: Belgium, France, Finland, Germany, Italy and the United Kingdom. Poland was an observing country. The European Profiles and Panels Producers Federation (EPPF) became industrial representative after EOTA Technical Board endorsement of its request in May 2001.

The Guideline sets out the performance requirements, the verification methods used to examine the various aspects of performance, the assessment criteria used to judge the performance for the intended use and the presumed conditions for the design and execution of the cold storage room kits in the works.

The general assessment approach of the ETA-Guideline is based on relevant existing knowledge and testing experience. Assessment criteria were chosen based on an analysis of technical aspects related to the performance of cold storage room kits made of traditional materials. The assessment of the panels which are main components of cold storage rooms, i.e. composite panels with insulating cores, is primarily based on the draft harmonised technical specifications ETA-Guideline 016 "Self supporting light weight composite panels" or prEN 14509 "Double metal faced insulated sandwich panels".

This ETA-Guideline takes into account the construction product related provisions of the EC Foodstuff directive (93/43/EEC) and the EC Food Contact Materials directives (89/109/EEC and the related specific directives), in as far as they present barriers to trade for cold storage room kits, at the moment of writing of this ETA-Guideline. This means that the ETA-Guideline is subject to modification should additional requirements apply in EEA Member States.
This ETA-Guideline supports the EC *"farm to table" approach to food safety*, referred to in the Commission's White paper on food safety, which is an holistic approach embracing all elements, which may have an impact on the safety of food, at every level of the food chain and the proposed (amended) EC regulations with regard to food safety and food contact materials (COM(2003) 33 final and COM(2003) 689 final).

Notes:

- Users should be aware that the provisions in this ETA-Guideline, related to food safety, are to be considered as guidance to good hygiene practice. The Guideline does not in any way diminish, modify or supplement legislation in this area, nor constitute legal guidance. Individual food businesses are responsible for checking how the relevant EC Regulations and Directives apply in practice to them. The ETA-Guideline covers only that part of the Regulation's and Directive's requirements, related to the construction kit (product).
- If taken into account, kit and component specifications and recommendations for their use as specified in this ETA-Guideline, will contribute to cleanliness and food safety, by reducing the task of regular maintenance and cleaning. However, it should be understood that sanitation and cleanliness requires training and practice by the user of the assembled kit.

For power operated cold storage room doors and gates, the ETA-Guideline introduces compliance criteria for the Electromagnetic Compatibility (EMC) Directive 89/336/EEC and the Machinery Directive 98/37/EC, amended by Directive 98/79/EC.

Where relevant, national technical specifications have been discussed and taken into account in developing appropriate test and calculation methods for assessing the cold storage room kits.

Reference documents

Reference documents are referred to within the body of the ETA-Guideline and are subject to the specific conditions described therein.

The **list of reference** documents (mentioning the year of issue) for this ETA-Guideline is given in Annex C. When additional parts for this ETA-Guideline are written afterwards, they may comprise modifications to the list of reference documents applicable to that part.

Updating conditions of reference documents

The edition of a reference document given in this list is that which has been adopted by EOTA for its specific use.
When a new edition becomes available, this supersedes the edition mentioned in the list only when EOTA has verified or re-established (possibly with appropriate linkage) its compatibility with the guideline.

EOTA Technical Reports go into detail in some aspects and as such are not part of the ETA-Guideline, but express the common understanding of existing knowledge and experience of the EOTA-bodies at that moment. When knowledge and experience is developing, especially through approval work, these reports can be amended and supplemented.

EOTA Comprehension Documents permanently take on board all useful information on the general understanding of this ETA-Guideline as developed when delivering ETA's in consensus by the EOTA members. Readers and users of this ETA-Guideline are advised to check the current status of these documents with an EOTA-member.

EOTA may need to make alterations/corrections to the ETA-Guideline during its life. These changes will be incorporated into the official version on the EOTA-website www.eota.be and the actions catalogued and dated in the associated progress file.

Readers and users of this ETA-Guideline are advised to check the current status of the content of this document with that on the EOTA-website. The front cover will indicate if and when amendment has taken place.

Guidance for ETA-applicants

Construction products shall comply with the CPD when they are put on the European Economic Area (EEA) market. Putting into service, which takes place at the moment of first use within the EEA by the end user, is considered in some other "New approach" directives, but not the CPD.

Placing on the market as referred to in the CPD is the initial action of making a product available for the first time on the EEA market, with a view to distribution or use in the EEA. Making available can be either for payment or free of charge. This is considered to take place when a product is transferred from the stage of manufacture with the intention of distribution or use on the EEA market. Moreover, the concept of placing on the market refers to each individual product, not to a type of product, and whether it was manufactured as an individual unit or in series.

This ETA-Guideline covers cold storage room kits meeting the specification of the scope (see clause 2.1). The concept of the term "kit" is explained in EC Guidance paper C.
ETAs based on this ETA-Guideline will cover kits with identified intended use(-s) (e.g. unpackaged food storage). During the approval issuing process, the approval bodies will assess whether the kit design, the components and the installation and maintenance foreseen by the ETA-applicant lead to an overall favourable assessment of the kit for that/those intended use(-s).
Kits that are in conformity with an ETA can be CE Marked, all others cannot.
In practice, this might mean that in case a cold storage room kit manufacturer wants to put on the market a cold storage room kit for another intended use and/or using (an)other component(-s) than foreseen in the ETA, his ETA needs to revised or a new ETA needs to be issued, before he can CE Mark that kit. It is therefore necessary for manufacturers to envisage a broad intended use and to incorporate components that are being used in practice at the time of applying for an ETA.

The ETA-Guideline can be used to issue ETAs for continuously and discontinuously (intermittently) produced kits. Where kits are being adapted (e.g. changes to the dimensions of panels, additional windows, etc.) to project related requirements, but based on the same design, ETA-applicants need to ensure that all necessary variations have been considered in the ETA. Obviously, FPC requirements in the ETA shall be adapted to suite the type of production.

Components of cold storage rooms put on the EEA market separately are not covered by this ETA-Guideline. Such products (e.g. sandwich panels, profiles, sealants, gaskets), even if they are explicitly

intended to be used as a part of a cold storage room, will be covered by other harmonized technical specifications[1].

Contractors that assemble components of cold storage rooms put on the EEA market separately are not obliged to apply for an ETA, because they do not place a product on the market. However, they may apply for one. Their advantage may be that by obtaining an ETA, they dispose of a favourable assessment of the kit, i.e. the combination of components, for the intended use, whereas when they assemble components of cold storage rooms put on the EEA market separately, only the fitness for use of the separate components has been assessed through the individual CE Markings. The fitness for use of the combination of those components will need to be demonstrated on site.

It is important to note that some cold storage room kits might incorporate components that are covered by other EEA directives (e.g. power operated doors or gates, which are covered by the Low Voltage, the Electromagnetic Compatibility and the Machinery Directives). In such cases, those directives still need to be complied with, which might lead to additional requirements related to placing on the market of components and their putting into service (e.g. the Machinery Directive).

Placing products on the market

This ETAG-Guideline is the basis to issue ETAs for Cold storage premises kits. As such, the ETA by itself is insufficient to place products on the market. In addition to the technical specification, attestation of conformity, resulting in an EC Declaration of conformity, is required before CE Marking is possible.

Cold storage premises kits consist of a large number of components. In most known cases, the "kit manufacturer" manufacturers the most important components (e.g. wall, floor and ceiling panels), but he also buys a number of components from other manufacturers (suppliers), e.g. sealants and fixings. It is possible that the kit manufacturer does not manufacture any component and that he buys all components that enable him to assemble cold storage premises kits in accordance with his design requirements.

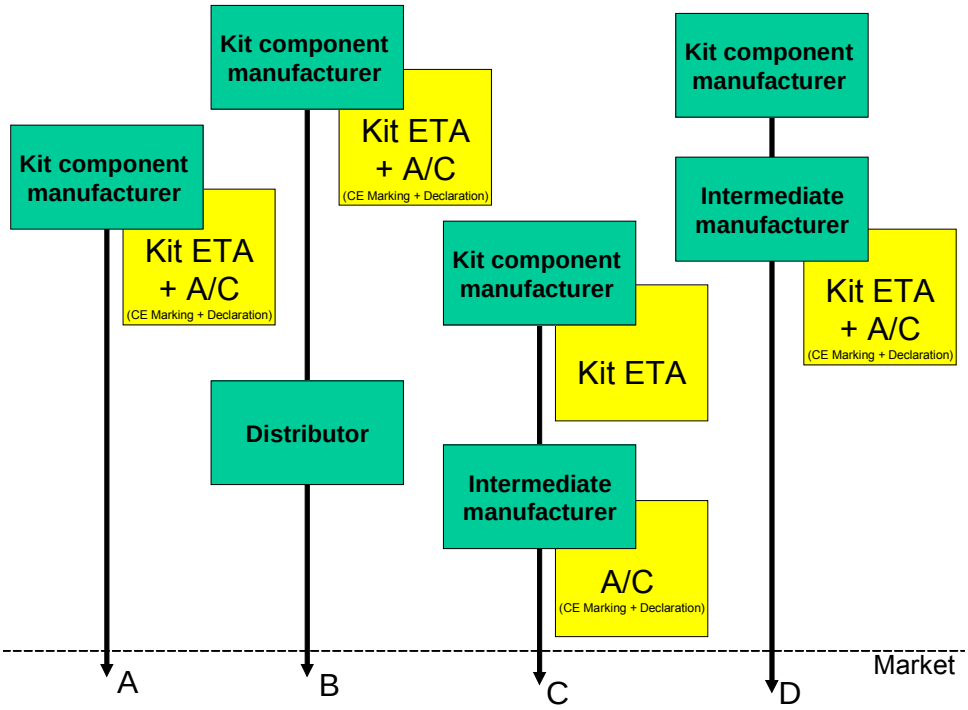

Figure 1: Known possibilities for placing cold storage premises kits on the market

[1] In the absence of an existing harmonised technical specification and if manufacturers want to see separate components covered by a harmonised technical specification, enabling them to CE Mark these components, with the intention of (also) placing them on the market separately, manufacturers should apply for an ETA, which will initiate the process leading to such specifications.

Figure 1 presents a number of possibilities that exist for placing cold storage premises kits on the market:

- Case A is the "normal" case. The ETA-holder is also the party that also performs the attestation of conformity tasks and signs the EC Declaration of conformity. The kits go directly from the ETA-holder to the market.
- In Case B, the products are stored by a distributor who places the kits on the market. Because the latter does not modify (in any way) the kit, the kit manufacturer (ETA-holder) can also perform all A/C tasks. In this case, it is possible that the distributor benefits from a "duplicate" ETA and that the kits bear the distributor's name.
- Case C represents the possibility that the kit manufacturer has an ETA that covers a number of possible kits, where an intermediate manufacturer places on the market some or all of them. The choice of the components and therefore also the performance of the kit is determined by the intermediate manufacturer and he becomes responsible for signing the EC Declaration of conformity and CE Marking of the kit.
- Case D is the case where the kit manufacturer does not obtain his ETA and does not put the kit on the market. His responsibility is reduced to that of a supplier. The intermediate manufacturer obtains the ETA and also performs the attestation of conformity tasks.

In any case, there must be a technical and legal link between the manufacturer(-s) or supplier(-s) and the party signing the EC Declaration of conformity. In case of problems, market surveillance authorities will contact the party putting the CE Marking on the product (the party signing the declaration of conformity) and, where relevant, the legal and technical link will allow the authorities to also examine the A/C tasks performed by the manufacturer/supplier manufacturing the kit component.

Section One:
INTRODUCTION

1. PRELIMINARIES

1.1 LEGAL BASIS

This ETA-Guideline has been established in compliance with the provisions of the Council Directive 89/106/EEC (Construction Products Directive) and has been established taking into account the following steps:

- The final mandate issued by the EC	2003-02
- The final mandate issued by the EFTA	2003-02
- Adoption of the ETA-Guideline by the Executive Commission of EOTA	2004-10
- Opinion of the Standing Committee for Construction	2005-04
- Endorsement by the EC	2005-11

This document is published by the Member States in the official language or languages according to Art. 11.3 of the Construction Products Directive.

No existing ETA-Guideline is superseded.

1.2 STATUS OF ETA-GUIDELINES

(a) **An ETA is one of two types of technical specifications** in the sense of the EC Construction Products Directive (89/106/EEC). This means that Member States shall presume that the approved products are fit for their intended use, i.e. they enable works in which they are employed to satisfy the Essential Requirements during an economically reasonable working life, provided that:

- the works are properly designed and built
- the conformity of the products with the ETA has been properly attested.

(b) This ETA-Guideline is a basis for ETA's, i.e. a basis for technical assessment of the fitness for use of a cold storage room kit for an intended use. An ETA-Guideline is not in itself a technical specification in the sense of the Construction Products Directive.

This ETA-Guideline expresses the common understanding of the approval bodies, acting together within EOTA, as to the provisions of the EC Construction Products Directive 89/106 and of the Interpretative Documents in relation to the products and uses concerned, and is written within the framework of a mandate given by the Commission and the EFTA secretariat, after consulting the EC-Standing Committee for Construction.

(c) When accepted by the European Commission after consultation with the Standing Committee for Construction, this **ETA-Guideline is binding** for the issuing of ETA's for the kits for the defined intended uses

The application and satisfaction of the provisions of an ETA-Guideline (examinations, tests and evaluation methods) leads to an ETA and a presumption of fitness of a cold storage room kit for the defined use only through an evaluation and approval process and decision, followed by the corresponding attestation of conformity. This distinguishes an ETA-Guideline from a harmonised European standard that is the direct basis for attestation of conformity.

Where appropriate, cold storage room kits, which are outside of the precise scope of this ETA-Guideline, may be considered through the approval procedure without guidelines according to art. 9.2 of the Construction Products Directive.

The requirements in this ETA-Guideline are set out in terms of objectives and of relevant actions to be taken into account. It specifies values and characteristics, the conformity with which gives the presumption that the requirements set out are satisfied, wherever the state of the art permits and after having been confirmed as appropriate for the particular product by the ETA.

2. SCOPE

2.1 SCOPE

This ETA-Guideline covers prefabricated cold storage room kits for installation inside an existing building or at least protected from external climate exposure, i.e. the cold storage room kits are not exposed to an external climate. The room is made out of composite panels with external and/or internal faces made of various materials and a homogeneous thermally insulating core, which consists of stone or glass wool, expanded or extruded polystyrene, polyurethane, polyisocyanurate, modified phenolic foam or cellular glass.

In the framework of this ETA-Guideline, thermally insulating products are considered to be products with a declared thermal conductivity lower than 0,06 W/(m.K) at 10 °C.

The assembled kits do not contribute to the load-bearing capacity of the works, but a load-bearing supporting system may be foreseen, to support the whole assembled kit or parts of it. It may be located inside or outside the cold storage room (or both).

The technical equipment (e.g. cooling systems) is excluded[2].

The design of the kit has to provide solutions and components for cold storage rooms (wall, floor and ceiling panels, doors and gates, windows, sealants, building hardware, gaskets, supporting and fixing systems and ancillary components), taking into account performance classifications under the Essential Requirements and Interpretative Documents.

The kits covered by this ETA-Guideline include at least all wall and ceiling panels in order to be assembled into an enclosed space (room), but may or may not include floor panels and/or floor finishes. The cold storage rooms may be relocatable. Although the composite panels used as a component of the kit shall be prefabricated, on site cutting of panels is permissible, if appropriate measures are taken (see §2.3.5.2 and §7.3.2).

These rooms are designed for specific internal climates expressed by temperature intervals (e.g. +5/+0 °C; +5/-5°C; -5/-30 °C), which will be specified by the ETA-applicant, and declared in the ETA.

Although cold storage room kits intended to be used for other temperature ranges are not necessarily excluded from the scope, this ETA-Guideline covers cold storage rooms intended to store products at temperatures below +15 °C and above –40 °C.

This ETA-Guideline covers assessment necessary to show compliance with the EC Foodstuff Directive (93/43/EEC) and the EC Food Contact Materials directives (89/109/EEC and the related specific directives).

This ETA-Guideline covers single-storey cold storage rooms.

The ETA-Guideline “Cold storage premises kits” is divided into 2 parts. Both parts deal with specific aspects relating to a different intended use:
Part 1: Cold storage room kits
Part 2: Cold storage building and building envelope kits

Notes:
1. This ETA-Guideline covers kits, which the ETA-applicant puts onto the market as such and for which he assumes responsibility, ensuring that the assembled kit is fit for its intended use, if constructed in accordance with the ETA-applicant’s specifications. Manufacturers who put onto the market one or more components separately, without assuming responsibility that the separate components can be assembled into a fit for use cold storage room, are not covered by this ETA-Guideline (e.g. manufacturers putting onto the market only double metal faced insulating sandwich panels have to conform to prEN 14509 only).

[2] Automated doors, gates, etc. as a component of the kit are covered.

2. In most known cases, the wall and ceiling composite panels consist of two metal faces, usually consisting of galvanised or zinc/aluminium coated steel sheet, stainless steel sheet, aluminium sheet or in some cases glass fibre reinforced polyester. Floor panels often have other finishing layers, such as wood-based panels, with or without resilient floor coverings, smooth or embossed metal sheet, glass fibre reinforced polyester, etc.
3. This ETA-Guideline can only be used to issue ETAs for cold storage room kits, not for separate components. Separate components can however obtain CE Marking on the basis of the ETA for the kit, if the components are put onto the market to extend or repair existing cold storage rooms (see §8.4.2.2).
4. Some, or even all components may be manufactured in other factories, than that of the ETA-applicant, who assumes responsibility for putting the fit for use kit onto the market.
5. When reference is being made to PUR in this ETA-Guideline, this term also includes PIR.

2.2 USE CATEGORIES, PRODUCT FAMILIES, KITS AND SYSTEMS

2.2.1 General

The cold storage room kits are usually intended to be used in flower or food industry (dairy, meat, bakery, …), in medical facilities, in restaurants and hotels, mortuaries, research laboratories and alike.

Synonyms for “cold storage room kits” include kits for cold or cool rooms or stores, walk-in or step-in coolers. In the framework of this ETA-Guideline, "chill stores" and "freezer rooms" are also covered by the term "cold storage rooms".

2.2.2 Robustness and rigidity

In the framework of this ETA-Guideline, several aspects of performance are assessed, from which an overall assessment of the robustness of the assembled system can be drawn.

The categories given in the tables beneath correspond to various degrees of exposure in use.

2.2.2.1 Impact resistance

Table 2.1: Definition of use categories – Dynamic loads for wall panels

Use category	Description
-	No Performance Determined
WI	Cold storage rooms accessible primarily to those with high incentive to exercise care. Small risk of accidents occurring and of misuse.
WII	Cold storage rooms accessible primarily to those with some incentive to exercise care. Some risk of accidents occurring and of misuse.
WIII	Cold storage rooms readily accessible to public and others with little incentive to exercise care. Risk of accidents occurring and of misuse.
WIV	Cold storage rooms as in WII and WIII, in case of failure risk includes the fall to a floor at a lower level, i.e. where the cold storage room wall has the function of a barrier.
WV_E	Cold storage rooms as in WII and WIII, in case of high "safety in use" impact resistance. Subscript "E" gives the impact energy resisted.
This use category is related to the assessment foreseen in §6.1.4.1.1	

Table 2.2: Definition of use categories – Dynamic loads for ceiling panels

Use category[3]	Description
-	No Performance Determined
CI	Cold storage rooms, where the ceiling is accessible for maintenance only. Small risk of accidents occurring and of misuse.
CII	Cold storage rooms, where the ceiling is accessible for maintenance. Some risk of accidents occurring and of misuse.
This use category is related to the assessment foreseen in §6.1.4.1.1	

[3] The use categories CI and CII can only be awarded if
- the requirement "Walkability" (§5.2.4.2.2.4) leads to a favourable assessment; and
- for ceiling panels which are supported by profiles, eccentrically attached to wall panels, if use category c (in table 2.3) has been awarded.

2.2.2.2 Eccentric loading

Table 2.3: Definition of loading use categories – Eccentric vertical loads

Loading use category	Description
-	No Performance Determined
a	Heavy objects such as small shelves
b	Very heavy objects such as refrigeration units, large shelves
c	Ceiling panels, supported by profiles, which are eccentrically attached to wall panels
d	Minimum requirement for France
This use category is related to the assessment foreseen in §6.2.4.3 and §6.2.7.2.2.2	

2.2.3 Walkability

Table 2.4: Definition of walkability categories

Use categories	Level of walkability	Explanation
A1	Not accessible ceilings (not even for installation)	These panels are considered not accessible.[4]
A2	Ceilings, accessible for installation and maintenance only (always with protective measures)	The walkability of ceiling panels depends both on the impact resistance of the panel assembly and on the walkability characteristics of the ceiling panels. However, access should always be limited to a single person, taking due care. The frequency should be limited to approximately once a month.
A3	Ceilings, accessible with protective measures	The walkability of ceiling panels depends both on the impact resistance of the panel assembly and on the walkability characteristics of the ceiling panels. The access on ceiling panels with protective measures however should always be limited to a single person, taking due care.
A4	Ceilings, accessible without protective measures	The walkability of ceiling panels depends both on the impact resistance of the panel assembly and on the walkability characteristics of the ceiling panels. If no protective measures are foreseen, the ceiling panels should be favourably assessed with reference to walkability. However, access on ceiling panels should always be limited to a single person, taking due care.
This use category is related to the assessment foreseen in §6.2.4.2.2.2		

2.2.4 Food Safety compliance

In the framework of this ETA-Guideline, several aspects of performance are assessed, from which an overall assessment of the fitness to store food or feed can be derived.
Distinction is being made into the following cold storage room kits:

[4] This use category shall be used, both for ceiling panels which were not assessed (NPD) and those that do not meet the criteria for accessible ceilings.

Table 2.5: Definition of use categories

Use Category	Description
F	Cold storage room kits intended to be used to store (packaged and unpackaged) food or feed and for non-food and non-feed uses
PF	Cold storage room kits intended to be used to store packaged food or feed and for non-food and non-feed uses
NF	Cold storage room kits intended for non-food and non-feed uses
This use category is related to the assessment foreseen in §6.1.7.4; §6.2.7.4, §6.2.7.2.2.3.4, §6.2.7.2.2.3.5, §6.3.7.4 and §6.4.7.4.	

In this ETA-Guideline, requirements, verification methods and criteria, especially related to Cold storage room kits intended to be used to store packaged and/or unpackaged food or feed are indicated as such. All other paragraphs apply to all Cold storage room kits.

Note: Even though construction products are not designated with the "F"- or "PF"-symbol, this does not mean that those products are not suitable for use in food businesses, as the Directive 93/43/EEC foresees that food business operators have the possibility to satisfy the competent authority that materials used, although not in accordance with the requirements of the directive, are appropriate for the intended use.

2.3 ASSUMPTIONS

2.3.1 General

The state of the art does not enable the development, within a reasonable time, of full and detailed verification methods and corresponding technical criteria/guidance for acceptance for some particular aspects or products. This ETA-Guideline contains assumptions taking account of the state of the art and makes provisions for appropriate, additional **case-by-case approaches** when examining ETA-applications, within the general framework of the ETA-Guideline and under the Construction Products Directive consensus procedure between EOTA members.

The guidance remains valid for other cases that do not deviate significantly. The general approach of the ETA-Guideline remains valid but the provisions then need to be used case-by-case in an appropriate way. This use of the ETA-Guideline is the responsibility of the ETA-body, which receives the special application, and subject to consensus within EOTA. Experience in this respect is collected after endorsement in EOTA TB, in the ETA-Format-Comprehension document.

2.3.2 Kit components and ancillary components

In the framework of this ETA-Guideline, distinction is being made between kit components and (construction) products that are not covered by the ETA. The latter will be referred to as Ancillary components.

- **Components** are products where the cold storage intended use introduces the need to assess over and above product specifications that envisage "normal" intended uses. These components are (exhaustive list):
  - composite panels and their coatings and finishes
  - doors, gates and windows
  - fixing systems
  - building hardware
  - gaskets
  - sealants
  - supporting profiles

- **Ancillary components** are (construction) products, which are delivered with the kit and added on purchaser's request. The assessment of the ancillary product is generally not required to assess compliance of the kit with the relevant Essential Requirements, unless the incorporation of the ancillary component might decrease the kit's performances. Therefore, in most cases, if it

is necessary, assessment shall be done on a case-by-case basis. The ancillary components are not covered by the ETA and this shall be clearly specified as such. Examples of ancillaries are (not exhaustive list):

- door kick plates
- hanging rails
- pressure relief provisions
- profiles (not supporting)
- ramp
- shelving (or racking)
- strip curtains
- wall protection provisions

2.3.3 Content of an ETA

This paragraph is intended to give guidance to Approval Bodies, when deciding whether an ETA-applicant is required to apply for more than one ETA.

A cold storage room kit is to be covered by one ETA, as far as the composite panel composition (core and face material families[5]) remains the same, with the exception of the floor composite panels, where different faces and finishes are acceptable within one ETA to allow for various intended uses.

The composite panel finishes of wall and ceiling panels are allowed to vary within one ETA. The other components (doors, gates, windows, hardware, etc) and ancillary components of the kit are also allowed to vary, both in nature, type and in number, as long as all the possible components and ancillary components are fully described in the ETA.

More than one ETA is required, if the composite panel composition varies and/or if the cold storage room design system changes.

Note: Cold storage room kits and cold storage building or building envelope kits cannot be covered in one ETA, even if the product put on the market is identical

2.3.4 Interchanging of components and ancillary components

This paragraph is intended to give guidance to Approval Bodies and ETA-applicants, to indicate what happens when a component, an accessory or materials are being modified, during the lifetime of an ETA.

For products supplied as kits, the ETA-holder has the following options regarding the specification of components and these options will have been taken into account by the Approval Body issuing the ETA:

- The incorporation of **specific components;** that is, components from a particular supplier that have been accepted by the Approval Body on the basis of their performance in the application.
- The incorporation of **generic components;** that is, components that have been accepted by the Approval Body on the basis of conformity to a relevant standard that fully covers the product in the application.

A kit could include specific and/or generic types of specifications for components.

Furthermore, it is likely that during the lifetime of an ETA, the ETA-holder will wish to change the specifications and/or supplier of some components.

It is the ETA-holder's responsibility to ensure that any product he puts on the market remains in conformity with the ETA. If the ETA-holder considers that any change to the product and/or production, e.g. interchanging of a component and/or supplier, would lead to the kit no longer complying with the ETA, he has the responsibility of informing the Approval body and the Approved

[5] Core material families (7 families): Glass and stone wool, PUR/PIR, EPS, XPS, modified PF and CG
Face material families (2 families): both metal faces and all other (including combinations with 1 metal face)

certification body.
When informed by the ETA-holder, it is the responsibility of the approval body to assess the continuing conformity of the changed kit with the ETA and, where necessary, amend the ETA.
During its surveillance visits, the approved body verifies conformity of the produced kit with the ETA, taking into account documented evidence of assessment performed or being performed by the approval body due to reported changes. An approved certification body cannot assess whether product or production changes allow continuing fitness for use.

Where a component has been defined in terms of a specific supplier's product or where the new component, intended to replace a generically specified component might not fully cover the fitness of a component for use in a cold storage room kit, any change can only be approved by the approval body issuing the ETA, on completion of additional verification as is deemed necessary.
Generally, in such cases, issuing a modified ETA will be necessary, with the consequent amendment of the instructions to the approved body.

Where a component of a cold storage room kit is specified generically, e.g. by reference to a product standard or an ETA, and the Approval Body has confirmed, in the ETA the full adequacy of that specification to prove the fitness for use of the component in the cold storage room kit, then a change of supplier will be acceptable.
The approved body checks the documentation as deemed necessary by the approval body issuing the ETA. In case of doubt reference shall be made to the approval body.
With an interchange of a component of a cold storage room kit, it shall be ensured that the new component does not have a negative influence on the performance level or the working life of that product.

Note: Where reference to "supplier" is being made in this clause, this could either refer to the ETA-holder or another manufacturer.

2.3.5 Use of this ETA-Guideline

2.3.5.1 General

Depending on the product under assessment, and in accordance with the ETA-Guideline scope (see §2.1), the ETA-Guideline needs to be taken into account completely or only in part (see also the introductory notes of Section 2).
The kit assessment is based on the assessment of kit related verifications and criteria (respectively §5.1 and §6.1) and the component related verifications as specified in §5.2, §5.3, §5.4 and §5.5 and criteria in §6.2, §6.3, §6.4 and §6.5, if and where relevant for the kit under consideration and taking into account its intended use.

2.3.5.2 On-site cutting of panels

If the ETA-applicant's specifications allow on-site cutting of panels (e.g. to arrive at specific, not modular, dimensions, or to introduce windows or hatches), the influences on the kit's performance as far as the essential requirements is concerned, should be thoroughly checked.
On-site cutting might have important detrimental effects on a large number of performance characteristics, but especially water vapour and air tightness and on the durability of the panels.

3. TERMINOLOGY

3.1 COMMON TERMINOLOGY AND ABBREVIATIONS

See Annex A.

3.2 SPECIFIC TERMINOLOGY AND ABBREVIATIONS RELATED TO THE PRODUCTS AND THEIR INTENDED USE COVERED BY THIS GUIDELINE

See Annex B.

Section Two:
GUIDANCE FOR THE ASSESSMENT OF THE FITNESS FOR USE

Introductory Notes

(a) Applicability of the ETA-Guideline

This ETA-Guideline provides guidance on the assessment of a family of cold storage room kits and their intended uses. It is the ETA-applicant who defines the kit for which he is seeking ETA and how it is to be used in the works, and consequently the scale of the assessment.

It is therefore possible that for some kits, which are fairly conventional, only some of the tests and corresponding criteria are sufficient to establish fitness for use. In other cases, e.g. special or innovative kits or materials, or where there is a range of uses, the whole package of tests and assessment may be applicable.

(b) General lay out of Section Two

The assessment of the fitness of products with regard to their fitness for intended use in construction works is a process with three main steps:

- Chapter 4 clarifies **the specific requirements for the works** relevant to the products and uses concerned, beginning with the Essential Requirements for works (CPD, Art. 11.2) and then listing the corresponding relevant characteristics or products.

- Chapter 5 extends the list in Chapter 4 into more precise definitions and the **methods available to verify** product characteristics and indicates how the requirements and the relevant product characteristics are described. This is done by test procedures, methods of calculation and of proof, etc.

- Chapter 6 provides guidance on **the assessing and judging methods to confirm fitness for the intended use** of the cold storage room kits.

- Chapter 7 **assumptions and recommendations** are only relevant in as far as they concern the basis upon which the assessment of the cold storage room kits is made concerning their fitness for the intended use.

(c) Levels or classes or minimum requirements, related to the essential requirements and to the product performance (see ID Clause 1.2 and EC Guidance Paper E)

According to the Construction Products Directive “Classes” in this ETA-Guideline refer only to mandatory levels or classes laid down in the EC-mandate.

This ETA-Guideline indicates however the compulsory way of expressing relevant performance characteristics for the cold storage room kit. If, for some uses at least one Member State has no regulations, an ETA-applicant always has the right to opt out of one or more of them, in which case the ETA will state “No Performance Determined” (NPD) against that aspect, except for those properties for which, when no determination has been made, the cold storage room kit no longer falls under the scope of the ETA-Guideline; such cases shall be indicated in the ETA-Guideline.

(d) Working life (durability) and serviceability

The provisions, test and assessment methods in this ETA-Guideline or referred to, have been written, based upon the assumed intended working life of the cold storage room kit for the intended use of **10 *years***, provided that the assembled cold storage room is subject to appropriate use and maintenance (in accordance with Chapter 7). These provisions are based upon the current state of art and the available knowledge and experience.

An “assumed intended working life” means that it is expected that, when an assessment following the ETA-Guideline-provisions is made, and when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the Essential Requirements.

The indications given as to the working life of a cold storage room kit cannot be interpreted as a guarantee given by the ETA-holder or the approval body. They should only be regarded as a means for the specifiers to choose the appropriate criteria for cold storage room kits in relation to the expected, economically reasonable working life of the works (based upon ID. Par. 5.2.2).

(e) Fitness for the intended use

According to the Construction Products Directive it has to be understood that within the terms of this ETA-Guideline, products shall “have such characteristics that the works in which they are to be incorporated, assembled, applied or installed, can, if properly designed and built, satisfy the Essential Requirements” (CPD, Art 2.1).

Hence, the cold storage room kits must be suitable for use in construction works which (as a whole and in their separate parts) are fit for their intended use, account being taken of economy, and in order to satisfy the Essential Requirements. Such requirements must, subject to normal maintenance, be satisfied for an economically reasonable working life. The requirements generally concern actions that are foreseeable (CPD, Annex I, preamble).

4. REQUIREMENTS FOR WORKS AND THEIR RELATIONSHIP TO THE PRODUCT CHARACTERISTICS

This chapter sets out the aspects of performance to be examined in order to satisfy the relevant Essential Requirements, by:

- expressing in more detail, within the scope of the ETA-Guideline, the relevant Essential Requirements (ER's) of the Construction Products Directive in the Interpretative Documents (IDs) and in the mandate, for works or parts of the works, taking into account the actions to be considered, as well as the expected durability and serviceability of the works.
- applying them to the scope of the ETA-Guideline (cold storage room kit and where appropriate its constituents, components and intended uses), and providing a list of relevant product characteristics and other applicable properties.

When a product characteristic or other applicable property is specific to one of the Essential Requirements, it is dealt with in the appropriate place. If, however, the characteristic or property is relevant to more than one Essential Requirement, it is addressed under the most important one with cross-reference to the other(s). This is especially important where an ETA-applicant claims “No Performance Determined” (NPD) for a characteristic or property under one Essential Requirement and it is critical for assessing and judging under another Essential Requirement. Similarly, characteristics or properties, which have a bearing on durability assessments, may be dealt with under ER1 to ER6, with reference under 4.7. Where there is a characteristic, which only relates to durability, this is dealt with in 4.7.

This chapter also takes into account further requirements, if any (e.g. resulting from other EC Directives) and identifies aspects of serviceability including specifying characteristics needed to identify the products (cf. ETA-format, par. II.2).

The relevant Essential Requirements, the relevant paragraphs of the corresponding Interpretative Documents and the related requirements to product performance are indicated in the following table 4.1:

Table 4.1 Essential Requirements, the relevant paragraphs of the corresponding Interpretative Documents and the related requirements to product performance**

ER	Corresponding ID Paragraph for works	Corresponding ID paragraph for product performance	Product Characteristics from the Mandate	ETAG paragraph on product performance	Related aspects of durability, serviceability and identification
1	This essential requirement is not relevant for cold storage room kits.				As relevant for the cold storage room kits and/or its components.
2	§4.2.3.3.1 Limitation of the generation of fire and smoke within the room of origin	§4.3.1.1 Products subject to reaction to fire requirements – walls	Reaction to fire	§4.2.1	
	§4.2.3.4.2 b Limitation of spread of fire and smoke beyond the room of origin	§4.3.1.3.5.1 Products subject to resistance to fire requirements – partitions	Fire resistance	§4.2.2	
3	§3.3.1.1 Air quality	§3.3.1.1.3.2 a Emission and release of pollutants	Release of dangerous substances	§4.3.1	
	§3.3.1.2 Dampness	§3.3.1.2.3.2.e Building products	Vapour permeability	§4.3.2	
			Moisture resistance	§4.3.3	
	§3.3.1.2 Dampness	§3.3.1.2.3.2.e Building products	Air tightness	§4.3.4*	

			Product Characteristics from the Mandate	ETAG paragraph on product performance	
4	§3.3.2.2 Behaviour on impact §3.3.1.2 Falling after slipping §3.3.6.2 Restricting the slipperiness of driving surfaces §3.3.2.2 Geometry (e.g. headroom) Presence of sharp or cutting edges Nature of surfaces (e.g. hardness, roughness) §3.3.2.2 Forces applied to a body	§3.3.2.3 mechanical resistance and stability §3.3.1.3 Falling after slipping §3.3.6.3 Slipperiness of driving surfaces §3.3.2.3 Definition of geometry §3.3.2.3 Safety devices characteristics	Impact resistance Mechanical resistance, incl. resistance to seismic actions Resistance to eccentric loads Slipperiness (floors) Safety against personal injury Safety against entrapment Safety against collapse (due to air pressure differences)	§4.4.1 §4.4.2 §4.4.3 §4.4.4 §4.4.5 §4.4.6 §4.4.7	
5	This essential requirement is not relevant for cold storage room kits.				
6	§4.2 Energy consumption limitation	Table 4.2 Component characteristics	Thermal resistance Air permeability Water vapour permeability	§4.6.1 §4.6.2 §4.6.3*	

* Characteristics added for completeness. Cross references have been made between ER3 and ER6

** Depending on their intended use, cold storage room kits may (in addition to the above) have to comply with the requirements of the Council Directive 93/34/EEC related to “Foodstuffs” and Council Directive 89/109/EEC and related specific directives, related to “Food contact materials”. This is covered under 4.7.4, 5.1.7.4, 5.2.7.4, 5.3.7.4, 5.4.7.4, 6.1.7.4, 6.2.7.4, 6.3.7.4 and 6.4.7.4 of this ETA-Guideline. The Standing Committee on Construction decided this characteristic is not covered by ER3, but an important and regulated aspect as regards the intended use of the kits.

4.1 MECHANICAL RESISTANCE AND STABILITY

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows: *The Construction Works must be designed and built in such a way that the loadings that are liable to act on it during its construction and use will not lead to any of the following*:

- *collapse of the whole or part of the works*
- *major deformations to an inadmissible degree*
- *damage to other parts of the works or to fittings or installed equipment as a result of major deformation of the load bearing construction*
- *damage by an event to an extent disproportionate to the original cause*

This essential requirement is not relevant for cold storage room kits.
Some aspects of mechanical resistance and stability are being considered either as part of "Safety in use" or as part of "Serviceability".

4.2 SAFETY IN CASE OF FIRE

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows:

The construction works must be designed and built in such a way that in the event of an outbreak of fire:

- *the load bearing capacity of the construction can be assumed for a specific period of time*
- *the generation and spread of fire and smoke within the works are limited*
- *the spread of fire to neighbouring construction works is limited*
- *occupants can leave the works or be rescued by other means*
- *the safety of rescue teams is taken into consideration*

The following aspects of performance are relevant to this Essential Requirement for cold storage room kits:

4.2.1 Reaction to Fire

The reaction to fire performance of cold storage room kits and its components shall be in accordance with laws, regulations and administrative provisions applicable to cold storage room kits and its components in its intended end use application. This performance shall be expressed in the form of a classification specified in accordance with the relevant EC decision and the appropriate CEN classification standards.

4.2.2 Resistance to Fire

The resistance to fire performance of cold storage room kits shall be in accordance with laws, regulations and administrative provisions applicable to cold storage room kits in its intended end use application. This performance shall be expressed in the form of a classification specified in accordance with the relevant EC decision and the appropriate CEN classification standards.

4.3 HYGIENE, HEALTH AND THE ENVIRONMENT

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows: *The construction works must be designed and built in such a way that it will not be a threat to the hygiene or health of the occupants or neighbours, in particular as a result of any of the following:*

- *the giving-off of toxic gases*
- *the presence of dangerous particles or gases in the air*
- *the emission of dangerous radiation*
- *pollution or poisoning of the water or soil*
- *faulty elimination of waste water, smoke, solid or liquid wastes*
- *the presence of damp in parts of the works or on surfaces within the works.*

The following aspects of performance are relevant to this Essential Requirement for cold storage room kits, in so far as "occupants" refers to users of the cold storage rooms and that requirements related to "neighbours" do not apply.

4.3.1 Release of dangerous substances

The cold storage room kits, including all components and ancillary components shall be such that, when installed according to the appropriate provisions of the Member States, it allows for the satisfaction of the ER3 of the CPD as expressed by the national provisions of the Member States and in particular does not cause harmful emission of toxic gases, dangerous particles or radiation to the indoor environment nor contamination of the outdoor environment (air, soil or water).

4.3.2 (Water) vapour permeability

The design of the cold storage room kits shall be such that when the product is in service there shall be no threat to the health of the users as a result of presence of moisture condensation which could promote the growth of fungi or other micro organisms or flow or otherwise enter the room (relevant also for consideration under ER6). This requirement is strongly related to the durability of the assembled kits.

4.3.3 Moisture resistance

The design of the cold storage room kits and/or the composition of its components shall be such that when the product is in service there shall be no threat to the health of the users as a result of presence of moisture condensation or ingress, which could promote the growth of fungi or other micro organisms or flow or otherwise enter the room, no loss of adhesion between core and faces of the composite panels, and no loss of thermal resistance. This requirement is strongly related to ER4, ER6 and the durability of the assembled kits.

4.3.4 Air tightness

The design of the cold storage room kits shall be such that when the product is in service, there shall be no threat to the health of the users of the stored products as a result of air infiltration (this aspect is being considered under ER6).

4.4 SAFETY IN USE

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows: *The construction works must be designed and built in such a way that it does not present unacceptable risks of accidents in service or in operation such as slipping, falling, collision, burns, electrocution, injury from explosion, etc.*

The following aspects of performance are relevant to this Essential Requirement for cold storage room kits:

4.4.1 Impact resistance

The risk and effect of direct impact shall be considered in relation to accidental collisions of persons with parts of the cold storage room, for example opening parts and/or the possibility of persons falling through brittle elements.

4.4.2 Mechanical resistance

The cold storage room kits shall have sufficient mechanical resistance and stability under all loading conditions or combinations, foreseeable for the application, to ensure that the safety of the users is not endangered.

4.4.2.1 Fixing resistance

The risk and effect of components, elements or objects attached to components falling down due to insufficient fixing resistance of the fixing system, the panel lock system or insufficient strength of the area of the component where the fixing is applied shall be considered in relation to collisions from objects being suspended, or attached, with users of the cold storage rooms.

4.4.2.2 Mechanical resistance of wall, ceiling and floor panels

The risk and effect of parts of panels falling down due to insufficient mechanical resistance shall be considered in relation to loads likely to work on the panels or collisions from those parts with users of the cold storage rooms.

4.4.2.3 Mechanical resistance of the cold storage rooms

The risk and effect of parts of the cold storage rooms falling down due to insufficient mechanical resistance shall be considered in relation to loads likely to work on the rooms.

4.4.3 Resistance to eccentric loads

The risk and effect of eccentric loads being applied to wall or ceiling elements shall be considered in relation to collisions from suspended or attached objects with users of the cold storage rooms. This requirement is also relevant when the ceiling is being supported by a fixing system, fastened to wall panels.

4.4.4 Slipperiness (of floor surfaces)

The floor of the cold storage room kits shall not be slippery, preventing users from slipping and/or falling, or vehicles from skidding, under all foreseeable conditions for the application, to ensure that the safety of the users is not endangered.

4.4.5 Safety against personal injuries by contact

The geometry of the assembled kit, the existence of sharp cutting edges and the nature of surfaces of the assembled kit shall not expose users to personal injury by contact.

This requirement is especially relevant in case the cold storage room components are intended to support ceiling panels, technical equipment or shelving.

4.4.6 Safety against entrapment

The cold storage room kit shall provide solutions preventing people from being trapped inside the assembled cold storage room.

4.4.7 Safety against collapse (due to air pressure differences)

The cold storage room kit shall provide solutions preventing collapse of components or of the whole assembled kit when in service, due to build-up of air pressure differences, between interior and exterior, occurring when the temperature inside the assembled cold storage room changes quickly.

4.5 PROTECTION AGAINST NOISE

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows: *The construction works must be designed and built in such a way that noise perceived by the occupants or people nearby is kept down to a level that will not threaten their health and will allow them to sleep, rest and work in satisfactory conditions.*

This essential requirement is not relevant for cold storage room kits.

4.6 ENERGY ECONOMY AND HEAT RETENTION

The Essential Requirement laid down in the Council Directive 89/106/EEC is as follows: *The construction works and its heating and ventilation installations must be designed and built in such a way that the amount of energy required in use shall be low, having regard to the climatic conditions of the location and the requirements of the occupants.*

The following aspects of performance are relevant to this Essential Requirement for cold storage room kits, as far as "occupants" refers to products being stored in the cold storage rooms.

- *limit energy consumption caused by radiation, convection or draught*
- *limit water vapour condensation within the cold storage room or onto any of its surfaces.*

4.6.1 Thermal performance

The thermal transmittance / resistance of the cold storage room kit shall be used to establish that it is in accordance with laws, regulations and administrative provisions, applicable for the location where the product is incorporated in the works.

If there is any discontinuity in the assembled system, such as the system frame or the fixing system, then the effect of thermal bridging shall be considered.

4.6.2 Air permeability

The rate of air infiltration through the cold storage room enclosure shall be considered with particular reference to junctions, penetrations and doors and glazing (relevant also for consideration under ER3)

4.6.3 Water vapour permeability

The cold storage room kit shall be designed, constructed and installed in such a way that moisture transfer does not cause excessive water vapour condensation within the cold storage room or on its internal surfaces *(this aspect is being considered under ER3).*

4.7 ASPECTS OF DURABILITY, SERVICEABILITY AND IDENTIFICATION

4.7.1 Durability

The requirements considered in the following paragraphs are related to the Essential Requirements, but not to any one requirement in particular. As a consequence, failure to meet these requirements means that more than one of the Essential Requirements may no longer be met.

Cold storage room assemblies and components and their possible finishes shall be protected against / resistant to deterioration caused by physical, chemical or biological agents in order to prevent reduction of mechanical or other properties:

Physical agents
- Variations in temperature/humidity
- Differential temperature and/or relative humidity
- Ageing effects, due to temperature cycling and thermal shock

Chemical agents
- Water, carbon dioxide, oxygen (possible corrosion) and other normal chemical hazards likely to come into contact, for example cleaning materials.
- Chemical substances being stored or deriving from products being stored

Biological agents
- Fungi, bacteria, algae and insects.
- The cold storage room kit shall be designed and built in such a way that it does not encourage infestation by insects or vermin.

4.7.2 Serviceability

The requirements considered in the following paragraphs are not related to the Essential Requirements, but are necessary for the cold storage room kit to be fit for its intended use.

Provisions related to the kit as a whole:
- Rigidity and robustness

Provisions related to the components of the kit:
- Panels:
  - Panel finishes, influences from products being stored
  - Behaviour between two different climates
  - General serviceability of composite panels
- Windows, doors and gates:
  - Behaviour between two different climates
  - Behaviour under repeated opening and closing
  - Behaviour under operating forces
  - Resistance to vertical load and static torsion
  - Defrost provisions for doors
  - Light transmittance
- Fixing systems: compatibility with temperature range
- Sealants:
  - Tensile properties
  - Adhesion / cohesion properties at variable temperatures
- Gaskets: compatibility with temperature range
- Building hardware: compatibility with temperature range

4.7.3 Identification

The materials, products and components used in the cold storage room kits shall be identifiable as regards properties which have an influence on the ability of the kit to fulfil the Essential Requirements as described above.

4.7.4 Fitness for contact with food and feedstuffs

If the cold storage room kits are intended to store foodstuffs (or feedstuffs), the design and/or the composition of its components shall be such that the assembled products meet the requirements of Council Directives 93/43/EEC and 89/109/EEC, and the related specific directives for food contact materials.

Requirements for kits as a whole
Cold storage room kits intended for storage of food and/or feed shall be designed to permit adequate cleaning and/or disinfection. They shall be such as to protect against the accumulation of dirt, contact with toxic materials, the shedding of particles into food and the formation of condensation or undesirable mould on surfaces.
The assembled kits shall permit good food hygiene practices and provide, where necessary, suitable temperature conditions for the hygienic storage of products and shall have adequate natural and/or artificial lighting.

Requirements for kit components
In general, surfaces in contact with food or feed shall be easy to clean and, where necessary, disinfect. This shall require the use of smooth, washable and non-toxic materials.
Floor surfaces shall be easy to clean and, where necessary, disinfect. In general, this shall require the use of impervious, non-absorbent, washable and non-toxic materials.

Wall surfaces shall be easy to clean and, where necessary, disinfect. In general, this shall require the use of impervious, non-absorbent, washable and non-toxic materials and require a smooth surface up to a height appropriate for the operations.
Ceilings and overhead fixtures shall be designed and finished to prevent the accumulation of dirt and to reduce condensation, the growth of undesirable moulds and the shedding of particles.
Windows and other openings shall be designed to prevent the accumulation of dirt. Those which can be opened to the outside environment shall, where necessary, be fitted with insect-proof screens, which can be easily removed for cleaning.
Doors shall be easy to clean and, where necessary, disinfect. This shall require the use of smooth and non-absorbent surfaces.

5. METHODS OF VERIFICATION

This Chapter refers to the verification methods used to determine the various aspects of performance of the products in relation to the requirements for the works (calculations, tests, engineering knowledge, site experience, etc.) as set out in chapter 4.

The possibility exists to use existing data in accordance with the EOTA Guidance Document No. 4 on "the provision of data for assessment leading to ETA".

Not all the Essential Requirements will be relevant to every kit. A 'No Performance Determined' (NPD) option is possible in some cases and it will be for the ETA-applicant to decide, taking account of his intended market, which options he wishes to have assessed.

When Eurocodes are quoted in this ETA-Guideline as the methods for the verification of certain product characteristics, their application in this ETA-Guideline, as well as in the subsequent ETA's, issued according to this ETA-Guideline, shall be in accordance with the principles laid down in the EC Guidance Paper L on the use of Eurocodes in harmonised European technical specifications.

The relevant Essential Requirements, the corresponding product characteristics to be assessed and the corresponding verification methods are indicated in the following table 5.1:

Table 5.1 Product characteristics and corresponding verification methods**

ER	ETAG paragraph on product performance	ETAG paragraph on verification method of product characteristics	
		Kits	Components
1	This essential requirement is not relevant for cold storage room kits		
2	§4.2.1 Reaction to fire	§5.1.2.1	§5.2.2.1, §5.3.2.1, §5.4.2.1 and §5.5.2.1
	§4.2.2 Fire resistance	§5.1.2.2	§5.2.2.2, §5.3.2.2 and §5.4.2.2
3	§4.3.1 Release of dangerous substances	§5.1.3.1	§5.2.3.1, §5.3.3.1, §5.4.3.1 and §5.5.2.1
	§4.3.2 Vapour permeability	§5.1.3.2	§5.2.3.2, §5.3.3.2 and §5.4.3.2
	§4.3.3 Moisture resistance	§5.1.3.3	§5.2.3.3, §5.3.3.3 and §5.4.3.3
	§4.3.4 Air tightness	§5.1.3.4*	§5.2.3.4, §5.3.3.4 and §5.4.3.4*
4	§4.4.1 Impact resistance	§5.1.4.1	§5.2.4.1, §5.3.4.1 and §5.4.4.1
	§4.4.2 Mechanical resistance, incl. resistance to seismic actions)	§5.1.4.2	§5.2.4.2, §5.3.4.2, §5.4.4.2 and §5.5.4
	§4.4.3 Resistance to eccentric loads	§5.1.4.3	§5.2.4.3, §5.3.4.3 and §5.4.4.3
	§4.4.4 Slipperiness (floors)	§5.1.4.4	§5.2.4.4, §5.3.4.4 and §5.4.4.4
	§4.4.5 Safety against personal injury	§5.1.4.5	§5.2.4.5, §5.3.4.5 and §5.4.4.5
	§4.4.6 Safety against entrapment	§5.1.4.6	§5.2.4.6, §5.3.4.6 and §5.4.4.6
	§4.4.7 Safety against collapse (due to air pressure differences)	§5.1.4.7	§5.2.4.7, §5.3.4.7 and §5.4.4.7
5	This essential requirement is not relevant for cold storage room kits		
6	§4.6.1 Thermal resistance	§5.1.6.1	§5.2.6.1, §5.3.6.1, §5.4.6.1 and §5.5.6.1
	§4.6.2 Air permeability	§5.1.6.2	§5.2.6.2, §5.3.6.2 and §5.4.6.2
	§4.6.3 Water vapour permeability	§5.1.6.3*	§5.2.6.3, §5.3.6.3 and §5.4.6.3*

ER	ETAG paragraph on product performance	ETAG paragraph on verification method of product characteristics	
		Kits	Components
	Durability	§5.1.7.1	§5.2.7.1, §5.3.7.1 and §5.4.7.1 and §5.5.7.1
	Serviceability	§5.1.7.2	§5.2.7.2, §5.3.7.2 and §5.4.7.2
	Identification	§5.1.7.3	§5.2.7.3, §5.3.7.3 and §5.4.7.3 and §5.5.7.2

* Characteristics added for completeness. Cross references have been made between ER3 and ER6

** Depending on their intended use, cold storage room kits may (in addition to the above) have to comply with the requirements of the Council Directive 93/34/EEC related to “Foodstuffs” and Council Directive 89/109/EEC and related specific directives, related to “Food contact materials”. This is covered under 4.7.4, 5.1.7.4, 5.2.7.4, 5.3.7.4, 5.4.7.4, 6.1.7.4, 6.2.7.4, 6.3.7.4 and 6.4.7.4 of this ETA-Guideline. The Standing Committee on Construction decided this characteristic is not covered by ER3, but an important and regulated aspect as regards the intended use of the kits.

5.1 VERIFICATION METHODS RELEVANT FOR THE KIT / ASSEMBLED SYSTEM

5.1.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for cold storage room kits.
Some aspects of mechanical resistance and stability are being considered either as part of "Safety in use" or as part of "Serviceability".

5.1.2 Safety in case of Fire

5.1.2.1 Reaction to fire

Determination of the reaction to fire of cold storage room kits shall be undertaken by verification of the reaction to fire of its components (see §5.2.2.1, §5.3.2.1, §5.4.2.1 and §5.5.2.1).

5.1.2.2 Fire resistance

The cold storage room kits shall be tested, using the test method relevant for the corresponding fire resistance class, in order to be classified according to EN 13501-2.

When testing sandwich panel assemblies, conventional thermocouples shall be used for the first five minutes of all fire resistance tests and then a transition to plate thermometer control shall be made (see EN 1363-1, 5.1.2 – note).

Notes:
- Pending the publication of a (draft) standard on the subject, Annex K contains extended application rules for fire resistance assessment on composite panels.
- Ideally, a smooth transition should be made taking a maximum of five minutes before full control by plate thermometers. If the furnace control system does not allow this, then a sudden transition can be made. With care, if both control systems are set to follow the time temperature curve specified in EN 1363-1, the resulting time-temperature curve, as measured by the plate thermometers, should be within the tolerances allowed by EN 1363-1.

Doors and gates for cold storage room kits, subject to fire resistance regulations, need to be additionally tested in accordance with §5.3.2.2.

5.1.3 Hygiene, Health and the Environment

5.1.3.1 Release of dangerous substances

5.1.3.1.1 Presence of dangerous substances in the product

The ETA-applicant shall submit a written declaration stating whether or not the cold storage room kit contains dangerous substances according to European and national regulations, when and where relevant in the Member States of destination, and shall list these substances.

5.1.3.1.2 Compliance with the applicable regulations

If the cold storage room kit contains dangerous substances as declared above, the ETA will provide the method(s) which has/have been used for demonstrating compliance with the applicable regulations in the Member States of destination, according to the dated EU data-base (method(s) of content or release, as appropriate).

5.1.3.1.3 Application of the precautionary principle

An EOTA member has the possibility to provide to the other members, through the Secretary General, warning about substances, which, according to Health authorities of its country, are considered to be dangerous under sound scientific evidence, but are not yet regulated. Complete references about this evidence will be provided.

This information, once agreed upon, will be kept in an EOTA database, and will be transferred to the Commission services. The information contained in this EOTA database will also be communicated to any ETA-applicant.

Based on this information, a protocol of assessment of the product, regarding this substance, could be established on request of an ETA-applicant with the participation of the Approval Body, which raised the issue.

5.1.3.2 Water vapour permeability

The hygrothermal behaviour of the assembled kit, shall be determined on the basis of thermal properties and water vapour transmission coefficients of its components, using the calculation method described in EN ISO 13788 and taking into account any thermal bridges, inherent to the kit *(relevant also for consideration under ER6)*.

5.1.3.3 Moisture resistance

Verification of moisture resistance shall primarily be done by the approval body on the basis of the construction details for the kit, and by using the available technical knowledge and experience from similar well-known technical solutions.

However, if ETA-applicants fail to show that the design of the kit prevents the assembled kit, or components of it, from becoming moist, testing shall be done:
- to verify whether the kit or components of it are likely to become moist
- to quantify the moisture content

In most cases, a water absorption test shall be one of the possible methods used to determine the moisture content. If so, this shall be done in accordance with EN 1609 (short term) and/or EN 12087 (long term).

5.1.3.4 Air tightness

The air tightness of the assembled kit is being considered under ER6 (in §5.1.6.2).

5.1.4 Safety in use

5.1.4.1 Impact resistance

5.1.4.1.1 Resistance to structural damage from soft body impact load – 50 kg bag

The resistance to structural damage from soft body impact load, shall be determined in accordance with EOTA TR 001, §1.

5.1.4.1.2 Resistance to structural damage from hard body impact load – 1 kg steel ball

The resistance to structural damage from hard body impact load, shall be determined in accordance with EOTA TR 001, §2.

5.1.4.2 Mechanical resistance

5.1.4.2.1. Verification of structural capacities in general

The structural components and the structure shall be verified in conformity with the basis of structural design as given in EN 1990, i.e. in accordance with the limit state design method, and taking into account the actions on structures in accordance with EN 1991-1. The verification can normally be undertaken by structural calculations, supplemented if necessary by testing in special cases, and shall when relevant include resistance against disproportionate collapse.

Alternatively, indication of geometrical data of the kit components and of properties of the materials and constituent products used, can also be considered sufficient.

A combination of the above mentioned assessment methods is also permitted.

Notes:
1. Although indication of geometrical data is acceptable (EC Guidance Paper L), it will necessitate structural calculations on a case-by-case basis, once the ETA has been delivered.
2. Design situations in EN 1991-1 also includes transient situation which refer to temporary conditions applicable to the structure, e.g. during execution or repair.

5.1.4.2.2. Indication of geometrical data

The Approval body shall verify at least the following information:
- the geometrical data (dimensions and cross sections, including tolerances) of the structural kit components and of the assembled kit
- the properties of the materials and constituent products used that are needed to determine, according to the National Provisions, valid in the place of use, or possible use, load-bearing capacities and other properties, including aspects of durability and serviceability, of the assembled kit installed in the works, as far as possible.

Note: The possibility of providing geometrical data is especially relevant in those cases where Eurocodes are not available, e.g. due to:
- the nature of the structural components (e.g. composite panels)
- the constituent materials of structural components (e.g. plastic columns).

5.1.4.2.3. Verification by calculation

Calculations should be made according to relevant parts of the Eurocodes to verify that the structural components and the structure do not exceed the relevant ultimate state:
- EN 1992-1-1 and EN 1992-1-2 for concrete elements
- EN 1993-1-1 and EN 1993-1-2 for steel elements
- EN 1994-1-1 and EN 1994-1-2 for composite steel-concrete elements
- EN 1995-1-1 and EN 1995-1-2 for timber elements
- EN 1999-1-1 and EN 1999-1-2 for aluminium elements

Supplementary calculations which are relevant for the resistance against seismic actions should be performed in accordance with the provisions of EN 1998-1, for various materials and elements. Other information on capacities against seismic actions based on Nationally Determined Parameters (NDP) or other national regulations may be undertaken as a basis for the specific structural design for each individual work.

Note: National annexes to the Eurocodes may provide supplementary information, alternative procedures, values and recommendations for classes. Each Eurocode indicates which clauses provide national choices.

5.1.4.2.4. Verification assisted by testing

Where calculations rules or material properties given in the referenced Eurocodes according to §5.1.4.2.3 are not sufficient or where economy may result from tests on the products under consideration, part of the design procedure may be performed on the basis of tests. In general, this design assisted by testing shall be done according to Annex D of EN 1990.
Only test methods which are part of this ETA-Guideline (or Progress file), may be used, or, alternatively, those specified in European standards (CEN), International standards (ISO), EOTA Technical Reports, UEAtc Guidelines, Nordtest standards or RILEM test methods[6]. If such alternatives are being used, the ETA shall specify the method in sufficient detail (the specification's reference and edition, and, if relevant, any deviations made, compared with the specified method).

The following general principles shall be adopted for alternative tests:
- Choose the test configuration to create the appropriate mode of failure (e.g. bending or shear)
- Avoid undue influence arising from the method of load application and member support.
- Make sure that the load transmission principles within the arrangement are determinable, e.g. by using additional load cells to determine the exact load transferred by the component, kit or building unit; if relevant, the weight of the test equipment should be taken into account in the

[6] Preference shall be given to test methods from the organisation which is highest on the list.

recorded data.
- Determine and record the relevant characteristics of the components tested and of the material used to manufacture the component, e.g. dimensions of components and coupon tests to establish actual tensile strength of material tested.
- A comprehensive record of load-deformation behaviour should be made for each variable of interest.
- Testing may be carried out using incremental or continuous loading.

5.1.4.2.4.1 Fixing resistance

5.1.4.2.4.1.1 General

For fixing resistance the verification methods depend on the way in which the composite panels are being mechanically fastened. It is possible that for one kit, more than one possibility arises (e.g. wall panels are connected by panel lock systems, while the ceiling panel is supported by a provision connected to the load-bearing structure of the surrounding building).
Finally, fixing resistance is also relevant as far as components or ancillary components are fixed to other cold storage room kit components.

5.1.4.2.4.1.2 Kits, where the composite panels are connected, without being mechanically fastened to a supporting system.

If the composite panels are not being mechanically fastened to a supporting system, the fixing resistance is relevant for the panel lock system, which is an integral part of the composite panels. The assessment shall be performed through an assembly test, as referred to in §5.1.4.2.4.1.3.2

5.1.4.2.4.1.3 Kits, where the composite panels are mechanically fastened to a supporting system

If the composite panels are being mechanically fastened to a supporting system, the fixing resistance is relevant for the composite panels and the fixing system only (See §5.2.4.2.1.2 and §5.4.4.2.1). The assessment of the supporting system is being treated in §5.1.4.2.4.3.1.

5.1.4.2.4.1.4 Kits, where fixing resistance is necessary to attach components or ancillary components to other cold storage room kit components

In the framework of this ETA-Guideline, this aspect is being treated as an aspect related to the fixing system (See §5.4.4.2.1).

5.1.4.2.4.2 Mechanical resistance of kit components

The mechanical resistance of wall, ceiling and floor panels is relevant for composite panels, doors, gates and windows (See §5.2.4.2.2 and §5.3.4.2.2).

5.1.4.2.4.3 Mechanical resistance of the cold storage rooms

5.1.4.2.4.3.1 Mechanical resistance of the supporting system

In case the kit foresees an internal or external supporting system to support the ceiling panel and additional weight (e.g. technical equipment or internal hanging rails), then this supporting system shall be assessed in accordance with the relevant Eurocodes and the possible influences of these provisions on the ER2, ER3, ER4 and ER6 of the kit as a whole.

Given the number of possibilities, the assessment should be performed on a case-by-case basis and in line with provisions in the Eurocodes.

5.1.4.2.4.3.2 Racking resistance of the cold storage rooms

5.1.4.2.4.3.2.1 General

The racking resistance of wall panel assemblies shall be determined in accordance with Annex D.

The test method in Annex D only provides information related to safety in use. Test results shall be accompanied by the following note: “These test results are related to safety in use requirements. Resistance to loads resulting in serviceability failure can be significantly lower.”

For products covered by the Eurocodes, the following may be used in addition.

5.1.4.2.4.3.2.2 Racking tests on full size panels

The racking resistance of a full size panel may be tested directly using this test. In such cases the characteristic values for racking stiffness and racking strength shall be established in accordance with the statistical procedures given in EN 1990, clause 10. However, the data should be examined to ensure that obviously erroneous data does not unduly influence the statistical analysis.

The design racking resistance of the panel will then be the lesser of either:
i) the characteristic stiffness determined racking load or
ii) the characteristic racking strength divided by an appropriate factor γ_{rs}.

The factor shall be determined as follows:

For materials with partial factors defined in Eurocodes then
γ_{rs} = 1,6 x the material factor from the Eurocode

In other cases and such as where racking performance relies adhesives, foams, or bond between composite products or several complimentary factors then
γ_{rs} = 1,5 x 1,6 x γ_m material factor
where
γ_m = a material factor based on the most appropriate value from a Eurocode

Note: In those cases where the Eurocodes do not provide the required γ_m, the value used in the ETA shall be specified.

5.1.4.2.4.3.2.3 Racking tests on other panels

The racking characteristics for the panel tested shall be analysed as above. The data generated can be converted to provide the specific values for the panels in the cold storage room kit as follows:

$$F_{kp} = K_b \times K_h \times F_{test,k}$$

Where:
F_{kp} is the design racking resistance of the panel
$F_{test.k}$ is the design racking resistance of the panel of the panel tested
K_b is the breadth coefficient and $K_b = b / b_{test}$, if $b > btest$ or
$K_b = (b / b_{test})^2$, if $b > b_{test} / 2$ or
$K_b = 0$, if $b < b_{test} / 2$
K_h is the height coefficient and $K_h = (h_{test} / h)^2$, if $h \geq h_{test}$ or
$K_h = 1$, if $h < h_{test}$
b is the width of the cold storage room and b_{test} is the width of the panel tested
h is the height of the cold storage room and h_{test} is the height of the panel tested

The type and spacing of fixing at the lower and upper face of the panel and between the sheathing and the structural members must be identical in the panel under evaluation with the tested panel.

5.1.4.3 Resistance to eccentric loads

The resistance to eccentric loads is only relevant for panel assemblies (See §5.2.4.3).

5.1.4.4 Slipperiness of floor surfaces

The slipperiness of floor surfaces is being considered as a component requirement only (See §5.2.4.4).

5.1.4.5 Safety against personal injuries by contact

The product specifications shall be examined to confirm that the geometry of the assembled kit, the existence of sharp cutting edges and the nature of surfaces of the assembled kit shall not expose users to personal injury by contact and that no sharp or cutting edges are present at e.g. corners, joints, etc. and that the surface texture and its degree of risk of abrasion or cutting to users or users' clothing, is acceptable.

5.1.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors and gates only (See §5.3.4.6).

5.1.4.7 Safety against collapse

To prevent air pressure from causing collapse of the assembled kit (and jamming of doors), provisions preventing pressure build-up are usually foreseen. The presence of these pressure relief provisions shall be established, and their possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed.

Given the number of possible solutions, the pressure relief provisions themselves shall be assessed on a case-by-case basis. However, the air vent provisions shall function in both directions and their concept shall take into account the necessary maintenance.

This requirement is not relevant for kits only intended to be used in temperature ranges above 0°C.

5.1.5 Protection against noise

This Essential Requirement is not relevant for cold storage room kits.

5.1.6 Energy Economy and Heat Retention

5.1.6.1 Thermal performance

The thermal transmittance / resistance of the cold storage room kit shall be determined on the basis of the thermal properties of its components (See §5.2.6.1, §5.3.6.1, §5.4.6.1 and §5.5.6).

If there is any discontinuity in the assembled system, such as the system frame, then the effect of thermal bridging shall be considered in accordance with EN ISO 10211-1, EN ISO 10211-2 and prEN ISO 14683.

5.1.6.2 Air permeability

The rate of air infiltration from the cold storage room kit shall be determined in accordance with EN 13829 (relevant also for consideration under ER3).
The test assembly shall be the most onerous one, assembled in accordance with ETA-applicant's specifications and consist of the kit with a floor surface of 10 to 15 m², with all ancillary components, which are marketed as such by the ETA-applicant, and the largest windows, as appropriate for a kit of such dimensions, applied to the assembly. The door or gate shall be the most onerous one, with respect to air permeability, but shall not be of the swing door type. The tolerances of the door or gate dimensions shall be the most extreme (onerous) tolerances.
During the test, The pressure used shall be 100 Pa, as recommended in the standard, and pressure relief provisions shall be closed.

Alternatively, air permeability may also be assessed in accordance with EN ISO 12569.

5.1.6.3 Water vapour permeability

The hygrothermal behaviour of the assembled kit is being assessed under ER3 (in §5.1.3.2).

5.1.7 Aspects of Durability, Serviceability and Identification

5.1.7.1 Durability

The product specification shall be examined to determine whether the product durability is appropriate for the intended use. This is dealt with in more detail in the sections dealing with the various components.

Where materials of composition and performance, the Approval body is not familiar with before the assessment, are used, where the ETA-applicant makes specific claims, where the location of the cold storage room is such that cleaning is an important requirement or where the intended external environment (i.e. the internal environment of the building where the cold storage room is to be located) is recognised as particularly aggressive, further evidence shall be presented and use may be made of documented evidence of performance, existing approvals or compliance with other standards.

5.1.7.1.1 Compatibility of components used

Case-by-case assessment is necessary to ensure that all kit components and ancillary components, or products likely to be used or present in cold storage rooms – are compatible, and that the interreaction between them does not influence the kit performance, with regard to the Essential Requirements.

Special attention should be paid to the compatibility of:
- core material and internal face surfaces
- sealants and core material
- sealants and exterior face surface

5.1.7.1.2 Influences from products being stored in the cold storage room on kit durability

Case-by-case assessment is necessary to ensure that products likely to be stored in cold storage rooms do not affect the kit's performance, with regard to the Essential Requirements.

5.1.7.2 Serviceability

5.1.7.2.1 Provisions related to the kit as a whole

5.1.7.2.1.1 Rigidity and robustness

5.1.7.2.1.1.1 Resistance to functional failure from soft body impact load – 50 kg bag

The resistance to functional failure from soft body impact load, shall be determined in accordance with EOTA TR 001, §1.

5.1.7.2.1.1.2 Resistance to functional failure from hard body impact load – 0,5 kg steel ball

The resistance to functional failure from hard body impact failure, shall be determined in accordance with EOTA TR 001, §2.

5.1.7.2.1.1.3 Resistance to functional failure from point loads parallel or perpendicular to the surface

The resistance to functional failure from point loads parallel or perpendicular to the surface shall be determined in accordance with ETA-Guideline 016.

5.1.7.2.1.1.4 Rigidity of walls and partitions to be used as a substrate for ceramic tiling

Testing of sufficient strength and rigidity of walls and partitions to be used as a substrate for ceramic tiling shall be performed as described in EOTA TR 001, §1. The test is carried out in place of the test described in §5.1.7.2.1.1.1, and not as a supplement to it.

5.1.7.2.2 Provisions related to components of the kits

Provisions related to the components of the kit are given in the relevant paragraphs (See §5.2.7.2.2, §5.3.7.2.2 and §5.4.7.2.2).

5.1.7.2.3 Provisions related to ancillary components of the kits

Internal partitions shall be assessed in accordance with the requirements for wall panels or assemblies.

5.1.7.2.3.1 General assessment of ancillary components

The assessment of ancillary components which are part of the kit shall ensure that incorporation of those ancillary components does not influence ER2, ER3, ER4 and ER6 of the kit as a whole. If

there is a negative influence to be expected, this influence shall be assessed and declared in the ETA.

5.1.7.2.3.2 Specific assessment of ancillary components

Given the number of ancillary components and their possible variety of intended uses, it is not possible, within the framework of an ETA-Guideline to give specific requirements, verification methods and criteria for each accessory.
Therefore, the assessment of ancillary components shall be done on a case-by-case basis.

5.1.7.2.3.3 Assessment of relationship with technical equipment

Although outside the scope of this ETA-Guideline, the assessment of the cold storage room kit, shall also take into account the fact that technical equipment may need to be installed.

Therefore, the assessment shall also verify whether:
- the kit and accompanying installation guide foresee the possibility to incorporate technical equipment
- incorporation of the technical equipment does not influence ER2, ER3, ER4 and ER6 of the kit as a whole.

5.1.7.3 Identification

All components[7] and ancillary components of the cold storage room kit shall be identified, either by reference to[8]:
- Harmonised product standards
- European Technical Approvals, based on other ETA-Guidelines
- Non-harmonised European product standards
- Non-harmonised International product standards
- Descriptive identification, identifying the products by their composing materials and their function

In any case, dimensions (length, width, thickness), geometry (squareness, flatness, …), significant properties (mechanical, physical, chemical, …) and their tolerances shall be given. In those cases where the above listed product specifications do not specify test methods for identification, test methods used should be based on European standards (CEN), International standards (ISO), EOTA Technical Reports, UEAtc Guidelines, Nordtest standards or RILEM test methods[9].
Ultimately, a formulation, a manufacturer's specific reference or a similar unique specification shall also be accepted.

Overview (see also §5.2.7.3, §5.3.7.3, §5.4.7.3 and §5.5.7.2 for the specified identification of kit components):
- Panels: dimensions, with tolerances; geometry, with tolerances and accompanying figures; squareness, with tolerances; flatness, with tolerances; tensile strength perpendicular to the faces of composite panels; detailing at specific points (panel joints, etc.)
  - Faces: materials and mechanical characteristics; thickness(-es), with tolerances; geometry, with accompanying figures
  - Coatings: type of (internal and external) finishes (coatings); film thickness; specular gloss (60°)
  - Cores: materials; thickness(-es), with tolerances; density, with tolerances
- Floor finishes: case-by-case basis, but usually the following are declared: type and surface structure, dimensions and tolerances, mass, density and/or surface mass, linear expansion, …).
- Adhesives: specification of the nature of the adhesive.
- Doors and windows: in accordance with prEN 14351-1, -2 or 3. In any case, dimensions (length, width, thickness), geometry (squareness, flatness, …), significant properties (mechanical, physical, chemical, …) and their tolerances shall be given.

[7] With the exception of technical equipment, which will only be identified in a general way and as far as relevant for ER2, ER3, ER4 and ER6 of the kit (e.g. weight of technical equipment or connections which influence kit tightness)
[8] Preference shall be given to the identification method which is highest on the list.
[9] Preference shall be given to test methods from the organisation which is highest on the list.

- Fixing systems: product description; type of metal and protection; dimensions and design of the mechanical fastener
- Sealants: ISO 11600
- Gaskets: nature, colour; dimensions; apparent density, tensile strength and elongation at break; compression properties;
- Impregnating fluid: nature; viscosity; solids content
- Building hardware: identification through the relevant product standards.
- Profiles, studs, framework, etc.: nature; classification in accordance with EN 10326, EN 10327, EN 10152, EN 10169-1 (for steel) or EN 573-3 (for aluminium); dimensions with tolerances; shape

Note: These provisions only apply in case the components are part of the kit placed on the market by the ETA-applicant,

5.1.7.4 Fitness for contact with food and feedstuffs

5.1.7.4.1 Compliance to the EC Foodstuff directive (93/43/EEC)

5.1.7.4.1.1. General sanitary provisions

The Approval body shall verify whether the ETA-applicant's specifications for the cold storage room kit, its components and its equipment are designed and constructed to prevent the harbourage of vermin and the accumulation of dirt, debris, and moisture, and to facilitate the inspection, maintenance, servicing and cleaning of the equipment and its components.
Kit component surfaces in direct contact with packaged or unpackaged foods and/or feeds shall be readily accessible and easily cleanable.

5.1.7.4.1.2. Internal angles and corners

The Approval body shall verify whether the ETA-applicant's specifications for internal angles and corners of less than 135° in cold storage room kits intended to be used to store unpackaged food or feed, are smooth and have minimum continuous radii of 3 mm, except the angles and corners formed by the ceiling with wall panels. This requirement does not apply for kits intended to store packaged food or feed.

Note: In some cases, higher requirements for the minimum continuous radii might apply.

The requirements for coving are such that an easily cleanable surface is provided. However, an additional advantage of coved corners is that it provides protection from damage to walls (see also Chapter 7).
Solder (or alike) shall not be used to obtain the required minimum radius of an internal angle.

5.1.7.4.1.3. External angles and corners

The Approval body shall verify whether the ETA-applicant's specifications for external angles and corners in cold storage room kits intended to be used to store unpackaged food or feed, are closed, sealed and smooth.

5.1.7.4.1.4. Anti-slip strips

Anti-slip adhesive strips (if any) shall be exempt from the requirement that materials be smooth and easily cleanable.

5.1.7.4.1.5. Material formulation

The Approval body shall verify whether the ETA-applicant's specifications for materials of cold storage room kits intended to be used to store unpackaged food or feed:
- are manufactured from or composed of substances that may not reasonably be expected to result, directly or indirectly, in their becoming a component of food or feed, or otherwise affecting the characteristics of food or feed, including the imparting of a colour, taste, odour to food or feed.
- do not contain lead, arsenic, cadmium, or mercury as intentional ingredients, unless where

brass and bronze are specifically permitted for use. [10]

5.1.7.4.1.6 Specific requirements

The Approval body shall verify that exposed reinforcing and framing members, beams and gussets (if any) are easily cleanable and designed to prevent the harbourage of vermin, they shall not form ledges, where debris or dirt may accumulate. Vertical channels that form hollow sections shall be either closed at each end, or open at each end to permit cleaning and inspection.

The Approval body shall verify that envelope penetrations of cold storage room kits intended to be used to store unpackaged food or feed, can be closed and sealed at the point of entry and exit.

Note: EEA MS' regulations for the EC Directive 93/43/EEC, might require verification of the following characteristics of kit components:

- Imperviousness
- Non-absorptivity
- Non-toxicity
- Smoothness
- Surface drainage
- Susceptibility to the growth of harmful micro-organisms
- Washability / cleanability
- Impairing odour and taste

based on national verification methods. Pending harmonisation, the results of those national verifications, including the method of verification and criteria, shall be specified in the ETA.

In those cases where verification methods are available in European standards, preference to those methods should be given in case tests still need to be performed in the framework of an approval procedure. EOTA has identified the availability of the following relevant standards:

- Surface drainage: ETA-Guideline Annex G
- Susceptibility to the growth of harmful micro-organisms: ETA-Guideline Annex H

In case harmonisation occurs, this information will be introduced during revision of this ETA-Guideline or (pending revision) in its “Progress file”.

5.1.7.4.2 Compliance to EC Directives and EEA Member States' legislation related to materials and articles intended to come into contact with foodstuffs

Cold storage room kit components intended to come into contact with foodstuffs, i.e. internal components of cold storage room kits intended to store unpackaged food (or feedstuff) shall comply with the relevant EU legislation, as well as, in absence of EU legislation, the relevant national legislations, as indicated in the document “References Of The European And National Legislations” on the website: http://europa.eu.int/comm/food/food/chemicalsafety/foodcontact/legi_ref_en.pdf.

[10] Copper and copper alloys shall not be used, except where exposure to food or feed is limited to potable, non-carbonated water under constant water pressure.
Brass and bronze may be used, where exposure to food is clearly and specifically limited to tea, coffee, or water. When used, the lead content of brass and bronze components shall not exceed 8,0 %.
Copper-nickel alloys may be used where exposure is clearly and specifically limited to non-acidic foods and feeds and beverages (ph ≥ 6,0).

5.2 VERIFICATION METHODS RELEVANT FOR COMPONENTS: COMPOSITE PANELS

5.2.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for components of cold storage room kits.
Some aspects of mechanical resistance and stability are being considered as part of "Safety in use".

5.2.2 Safety in case of Fire

5.2.2.1 Reaction to fire

5.2.2.1.1 General

Testing of composite panels, with respect to reaction to fire shall be undertaken as described in:

- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016
- For floor panels: Although not part of the scope of the above mentioned technical specifications, floor panels should be assessed in accordance with those documents. In addition, the provisions of clause 5.2.2.1.2 apply.
- Supporting profiles: The supporting profiles shall be tested in order to be classified in accordance with EN 13501-1.

5.2.2.1.2 Additional information regarding the determination of the burning behaviour using a radiant heat source

This test method is only required for floor panels and their coverings (if any). It shall be performed in accordance with EN ISO 9239-1, unless modified below.

5.2.2.1.2.1 Number of test specimen (EN ISO 9239-1, clause 5)

In case the ETA covers more than one floor covering, the test will need to be repeated for each floor covering.

5.2.2.1.2.2 Test specimen (EN ISO 9239-1, clauses 5.2, 5.3 and 5.4)

In accordance with the note in clause 5.2, the length of the specimen shall be reduced to (1025 ± 5) mm, unless the test is performed on the floor covering alone.
The test specimen consists of the floor panel and the floor covering (if any), using the adhesive specified by the ETA-applicant (if any). The test specimen shall be secured to the substrate by mechanical means. The test substrate shall be in accordance with clause 5.1 of EN 13238.
No durability assessment is foreseen in connection with this characteristic.

Note: GNB-SH02 Guidance is under development and should be used by Approval Bodies when approved.

5.2.2.1.2.3 Conditioning (EN ISO 9239-1, clauses 5.4 and 6)

The curing time of the adhesive is in accordance with the ETA-applicant's specifications.

5.2.2.1.2.4 Test report (EN ISO 9239-1, clause 9)

In addition to the requirements of EN ISO 9239-1, the test report shall be in accordance with EC Guidance paper K.

5.2.2.2 Fire resistance

Fire resistance testing is only relevant for assemblies (See §5.1.2.2). These components shall be tested as a part of the assembly.

5.2.3 Hygiene, Health and the Environment

5.2.3.1 Release of dangerous substances

See §5.1.3.1. Additional provisions may be described in:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

5.2.3.2 Water vapour permeability

The water vapour permeability of composite panels shall be determined in accordance with:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

5.2.3.3 Moisture resistance

The moisture resistance is considered as a kit related requirement only, possibly leading to components needed to be tested (See §5.1.3.3)

5.2.3.4 Air tightness

The air tightness of the composite panel is being considered under ER6 (See §5.2.6.2).

5.2.4 Safety in Use

5.2.4.1 Impact resistance

The impact resistance is only relevant for assemblies (See §5.1.4.1) and doors and gates (See §5.3.4.1).

5.2.4.2 Mechanical resistance

5.2.4.2.1 Fixing resistance

For fixing resistance the verification methods depend on the way in which the composite panels are being mechanically fastened. It is possible that for one kit, more than one possibility arises (e.g. wall panels are connected by panel lock systems, while the ceiling panel is supported by a provision connected to the load-bearing structure of the surrounding building).

5.2.4.2.1.1 Kits, where the composite panels are connected, without being mechanically fastened to a supporting system.

The fixing resistance of the connection between panels is only relevant for assemblies (See §5.1.4.2.4.1.1)

5.2.4.2.1.2 Kits, where the composite panels are mechanically fastened to a supporting system

The fixing resistance for composite panels shall be determined in accordance with:
- For metal faced sandwich panels: ETA-Guideline 016
- For other composite panels: ETA-Guideline 016
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

5.2.4.2.1.3 Kits, where fixing resistance is necessary to attach ancillary components to the composite panels

In the framework of this ETA-Guideline, this aspect is being treated as an issue, relevant for the fixing system only (See §5.4.4.2.1).

5.2.4.2.2 Mechanical resistance of wall and ceiling

Notes:
- Unless the test methods referred to specify which panels should be tested, the most onerous composition (thickness of the faces and the thickness and density of the core) and the minimum and the maximum thickness shall be tested.
- Requirements for floor panels are covered under serviceability, as they cannot have an influence on safety in use

5.2.4.2.2.1 Mechanical resistance of wall panels

The following characteristics shall be determined:
- Axial load-bearing capacity: See Annex E.
- Bending strength: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel
- Shear strength: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel

5.2.4.2.2.2 Mechanical resistance of ceiling panels

The following characteristics shall be determined:
- Bending strength: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel
- Shear strength: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel
- Compressive strength: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel
- Walkability: See prEN 14509 or the relevant part of ETA-Guideline 016, depending on the nature of the panel

5.2.4.2.2.3 Mechanical strength of pre-shaped panel intersections and supporting profiles

Due to the large number of possible elements, the mechanical strength of the pre-shaped panel intersections and supporting profiles shall be determined on a case-by-case basis. At least the bending strength and axial load resistance (for supporting profiles) shall be determined, either through testing or through calculation.

5.2.4.2.3 Mechanical resistance of cold storage rooms

The mechanical resistance of cold storage rooms is only relevant for assemblies (See §5.1.4.2.3)

5.2.4.3 Resistance to eccentric loads

The resistance to structural damage from eccentric loads shall be determined in accordance with Annex E. For "use category d" the load is applied instantaneously.

5.2.4.4 Slipperiness of floor surfaces

Floors of cold storage room kits are presented in various ways:

- the floor is an integral part of the kit, i.e. the floor consists of a composite panel with a floor finishing, which is, in most cases, interchangeable, depending on the intended use
- the floor is not a part of the kit, i.e. the cold storage room is assembled on an existing floor, i.e. the floor of the building; the ETA-applicant might however supply the floor finishing

In case the ETA-applicant supplies the floor finishing, the slipperiness of the floor surfaces shall be verified in accordance with Annex F and Annex G (if relevant).

Note: In some cases, a maximum friction resistance is prescribed, e.g. for easy displacement of products on the floor. This aspect is project dependant and is not covered by this ETA-Guideline.

5.2.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §5.1.4.5).

5.2.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors and gates only (See §5.3.4.6).

5.2.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §5.1.4.7).

5.2.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

5.2.6 Energy Economy and Heat Retention

5.2.6.1 Thermal performance

The thermal transmittance / resistance of composite panels shall be determined in accordance with:

- For metal faced sandwich panels: prEN 14509. If not applicable, ETA-Guideline 016 shall be used.
- For other composite panels: ETA-Guideline 016
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

For the thermally insulated core, the determination of the thermal transmittance, shall be in accordance with prEN 14509, Annex A.10.

5.2.6.2 Air permeability

The product specifications shall be examined and performance in respect of air permeability assessed on the basis of known material properties, design details and the intended use, relevant to any energy conservation measures.

However, the following should be verified when a compressed gasket is part of the composite panel joint:

- that the degree of compression, taking into account the dimensional deviations of installation, is likely to provide the required air tightness
- that the force necessary to obtain the compression is compatible with the methods of installation
- that the gasket shall retain sufficient elasticity to ensure that the force of compression will not decrease unduly over time

In general, testing of the air permeability of the components is considered unnecessary, because the air permeability of the assembled cold storage room is being assessed (See §5.1.6.2).

However, if testing is required, the air permeability of composite panels shall be determined in accordance with:

- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

5.2.6.3 Water vapour permeability

The hygrothermal behaviour of composite panels is being assessed under ER3 (in §5.2.3.2).

5.2.7 Aspects of Durability, Serviceability and Identification

5.2.7.1 Durability

5.2.7.1.1 Panels:

The durability of composite panels shall be determined in accordance with:
- For metal faced sandwich panels: prEN 14509. Where relevant, ETA-Guideline 016 shall be used for aspects not covered by prEN 14509.
- For other composite panels: ETA-Guidelines 016 and "Prefabricated building units" (for GRP panels).
- For floor panels and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.

5.2.7.1.2 Faces:

The assessment of the durability of faces shall be limited to the establishment of the conformance of materials with the relevant product standard (if available). Some of the most likely references are:
- for metal sheets: prEN 14509, clause 5.1.2
- for wood-based panels: EN 13986

Where GRP is used as a face material for composite panels in cold storage room kits, in the absence of standardised methods, its durability can be assessed by undertaking the following test to ensure that the moisture does not affect the long-term strength of the material (effects of boiling in water).
An accelerated ageing test shall be undertaken by boiling a sample in water, followed by tensile strength tests perpendicular to the faces. The samples shall correspond to the provisions of EN 1607. The sample shall be boiled for a period of (120 ± 10) min. The tensile strength, perpendicular to the faces, in accordance with EN 1607, shall be determined before and after this accelerated ageing.

5.2.7.1.3 Coatings - Resistance to humidity:

The test shall be performed in accordance with EN ISO 6270 and shall have a duration as specified in table 5.2.

Table: 5.2: Resistance to humidity categories.

Category[11]	I	II	III, IIIa, IV and IVb	V, Vc and VI
Duration (h)	None prescribed	500	1 000	1 500

5.2.7.1.4 Floor finishes:

The durability of floor finishes shall be determined on a case-by-case basis, taking into account the product composition and effects that may be detrimental (e.g. frost resistance, chemical resistance, …).

[11] See §7.5.5 for categories.

5.2.7.2 Serviceability

5.2.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §5.1.7.2.1.

5.2.7.2.2 Provisions related to composite panels

Not all provisions foreseen in this paragraph are strictly speaking necessary to market kits for cold storage rooms. However, most ETA-applicants will foresee some or all of these aspects.

5.2.7.2.2.1 Mechanical resistance of floor panels

5.2.7.2.2.1.1 Compressive strength

Floor panels shall be assessed in accordance with prEN 14509, Annex A2.

5.2.7.2.2.1.2 Concentrated load-bearing capacity

- Wood-based top face: the strength and stiffness under point load shall be determined according to EN 1195, in conjunction with EN 12871
- Metal top face: prEN 14509 or CEN/TC134 standards (where relevant)

5.2.7.2.2.1.3 Resistance to rolling loads

Floor panels shall be assessed in accordance with Annex I of this ETA-Guideline.

5.2.7.2.2.2 Resistance to functional failure due to eccentric loads

The resistance to eccentric loads shall be determined in accordance with Annex E.

5.2.7.2.2.3 Performance characteristics of finishes

5.2.7.2.2.3.1. Adherence after bending

Finishes with a nominal thickness equal to 60 microns or smaller
The adherence shall be determined in accordance with EN 13523-7.

Finishes with a nominal thickness larger than 60 microns
The adherence shall be determined in accordance with EN 13523-6. With a blade (utility knife), make two parallel cuts 5 mm apart and two other similar cuts perpendicular to the first ones to form a 5 mm x 5 mm square. The cuts shall be sufficiently deep to reach the substrate; their length is at least 50 mm. A progressive deformation is carried out with a ball of diameter 20 mm until a indentation depth equal to 80% of the depth that provokes the rupture of the substrate. After indentation make an attempt to tear the coating from the substrate by drawing in each of the four directions starting from the central square. The end of the coating strips is lifted with the blade and disbonded. The disbonding is observed and expressed as a percentage of the distance between the top and the base of the dome formed by the coating.

5.2.7.2.2.3.2. Cracking after bending

The test shall be performed in accordance with EN 13523-7

5.2.7.2.2.3.3. Impact resistance

The test shall be performed in accordance with EN 13523-5. Another, similar, test method shall be used for finishes that cannot be tested with the above specified test method.

5.2.7.2.2.3.4. Resistance to staining

The test shall be performed in accordance with EN 13523-18
This characteristic is only relevant for finishings intended to be used in cold storage room kits intended for food storage.
Another, similar, test method shall be used for finishes that cannot be tested with the above specified test method.

5.2.7.2.2.3.5. Resistance to chalking

The test shall be performed in accordance with EN 13523-14
This characteristic is only relevant for finishings intended to be used in cold storage room kits intended for food storage.
Another, similar, test method shall be used for finishes that cannot be tested with the above specified test method.

5.2.7.2.2.4 Floor finishes:

The serviceability of floor finishes shall be determined on a case-by-case basis, taking into account the product composition and performances that may be required, linked to the intended use (e.g. indentation, abrasion resistance, wear resistance, …).

5.2.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §5.1.7.2.3.

5.2.7.3 Identification

Usually, ETA-applicants will have acquired product certificates or test and/or classification reports for the kit components. In those cases, the approval body shall verify whether those documents are acceptable and still apply and introduce the relevant information in the ETA. Only if such is not available, the ETA-applicant shall determine the identification parameters as specified below.
In either case, the product certificates or test and/or classification reports shall be based on the determination methods as specified below or equivalent (in which case the ETA shall provide appropriate explanation).

Identification of composite panels, shall be performed in accordance with §5.1.7.3 and for metal faced sandwich panels: prEN 14509; for other composite panels: ETA-Guideline 016, verifying at least:

- Panels:
  - dimensions, with tolerances
  - geometry, with tolerances and accompanying figures
  - squareness, with tolerances
  - flatness, with tolerances
  - tensile strength perpendicular to the faces of composite panels shall be determined in accordance with:
    - For metal faced sandwich panels: prEN 14509
    - For other composite panels: ETA-Guideline 016
    - For floor panels[12] and supporting profiles: Although not part of the scope of the above mentioned technical specifications, these components shall be assessed in accordance with those documents.
  - detailing at specific points (panel joints, etc.)
- Faces:
  - materials[13] and mechanical characteristics
  - thickness(-es), with tolerances
  - geometry, with accompanying figures
- Coatings:
  - type of (internal and external) finishes (coatings)
  - determination of film thickness in accordance with EN 13523-1
  - specular gloss (60°) in accordance with EN 13523-2
- Cores:
  - materials[14]
  - thickness(-es), with tolerances
  - density, with tolerances
- Floor finishes: Identification requirements for floor finishes shall be determined on a case-by-case basis, taking into account the product composition and performances have already been determined in the approval process. Usually the following are declared: type and surface structure, dimensions and tolerances, mass, density and/or surface mass, linear expansion, …).

[12] For floor panels, tensile strength should be regarded as an identification parameter. For clarity is has been written here.
[13] Description of constituents and composition

- Adhesives: Specification of the nature of the adhesive.

5.2.7.4 Fitness for contact with food and feedstuffs

5.2.7.4.1 Core Material

It shall be established that the core material is free of any objectionable odour, chemical or gas emission, which if it escapes from the panel may cause tainting of products stored within the cold storage room or compromise the air quality within.

5.2.7.4.2 Finished faces

The Approval body shall verify that the finished faces used inside the cold storage room shall comply with the following requirements:
- Water vapour permeability
- non absorbent
- washable
- easy to clean and, where necessary, disinfect
- no emission of undesirable odours or taint products to be stored (or processed)
- no contribution to the contamination and no adverse influence on stored (or processed) food

The Approval body shall verify whether the ETA-applicant's specifications for organic coatings used to render components corrosion resistant are abrasion resistant and resist cracking, chipping, and peeling when subject to impact (impact resistant).

Notes:
- Some feed or food, their run-off liquids, or gaseous emissions, may be highly corrosive and might require the use of very corrosion resistant interiors, e.g. stainless steel.
- See also the important note under §5.1.7.4.1.6.

The susceptibility to the growth of harmful micro-organisms is being considered in accordance with §5.1.7.4.

5.3 VERIFICATION METHODS RELEVANT FOR COMPONENTS: DOORS, GATES AND WINDOWS

Note 1: For Approval testing of cold storage room doors, gates and/or windows, approval bodies are recommended to use the following possibilities, to limit the amount of testing:
- results of sandwich panels assessment, which in some cases apply for doors and gates as well
- grouping, if for different doors or door configurations, the performance is identical
- extended application, if test results can be used for doors or door configurations that are known to have superior performance.

The Comprehension document contains recommended extended application rules. The issuing Approval body is responsible for applying these rules, as far as relevant and applicable.

Note 2: For power operated cold storage room doors and gates, products need to comply with compliance criteria for the Electromagnetic Compatibility (EMC) Directive 89/336/EEC and the Machinery Directive 98/37/EC, amended by Directive 98/79/EC, as specified in EN 13241-1, prEN 13241-2 or prEN 14351-1, -2 or -3.

5.3.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for components of cold storage room kits.
Some aspects of mechanical resistance and stability are being considered either as part of "Safety in use" or as part of "Serviceability".

5.3.2 Safety in case of Fire

5.3.2.1 Reaction to fire

Testing of doors, gates and windows, with respect to reaction to fire shall be undertaken as described in prEN 14351-1, -2 or -3 (for doors and windows) or EN 13241-1 and prEN 13241-2 (for industrial doors and gates).

For doors, gates and windows, which are part of a cold storage room kit, only the most onerous types should be subjected to reaction to fire testing. The test results would then be valid for the other, less onerous, door, gate and window types.
The decision about the most onerous door, gate and window type within a range of possibilities, which are specified in the ETA, needs to be taken in conjunction with a notified fire laboratory, notified for performing fire tests on doors, gates and windows in the framework of the CPD.

In case, the kit as a whole is subject to reaction to fire regulations, every door, gate and window type that is part of the ETA, needs to be subjected to the provisions for reaction to fire of the above mentioned product standards.

5.3.2.2 Fire resistance

Fire resistance testing is only relevant for assemblies (See §5.1.2.2). These components shall be tested as a part of the assembly.
However, doors and gates, which are part of cold storage room kits, subject to fire resistance regulations, need to be tested in accordance with prEN 13916 as well. Smoke leakage, self-closing ability and ability to release might be relevant in some cases.

5.3.3 Hygiene, Health and Environment

5.3.3.1 Release of dangerous substances

See §5.1.3.1. Additional provisions may be described in prEN 14351-1, -2 or -3 (for doors and windows) or EN 13241-1 and prEN 13241-2 (for industrial gates).

5.3.3.2 Water vapour permeability

The water vapour permeability of doors, gates and windows shall be determined by calculation in accordance with EN ISO 13788, taking into account tabulated values as specified in EN 12524.

Note: EN 12524 can be used, as far as applicable for the product concerned.

5.3.3.3 Moisture resistance

The moisture resistance is considered as a kit related requirement only, possibly leading to components needed to be tested (See §5.1.3.3)

5.3.3.4 Air tightness

The air tightness of doors, gates and windows is being considered under ER6 (in §5.3.6.2).

5.3.4 Safety in Use

5.3.4.1 Impact resistance

The impact resistance of manually operated pedestrian doors shall be determined in accordance with EN 949 (soft body) and EN 950 (hard body), classification in accordance with EN 1192. For other doors and gates: EN 12604 and EN 12605.
This requirement is not relevant for cold storage room windows.

5.3.4.2 Mechanical resistance

5.3.4.2.1 Fixing resistance

The fixing resistance is only relevant for assemblies (See §5.1.4.2.1), composite panels (See §5.2.4.2.1) and fixing systems (See §5.4.4.2.1).

5.3.4.2.2 Mechanical resistance of wall, ceiling and floor panels

In cold storage rooms, doors, gates and windows are subjected to air pressure, caused by under pressure inside the rooms.
Tests on complete windows and doors and gates shall be carried out in accordance with EN 12211, but under the following conditions: 1200Pa ± 1 %. The deflection of fixed frame elements shall be determined by calculation or test.

5.3.4.2.3 Mechanical resistance of cold storage rooms

The mechanical resistance of cold storage rooms is only relevant for assemblies (See §5.1.4.2.3).

5.3.4.3 Resistance to eccentric loads

The resistance to eccentric loads is only relevant for assemblies (See §5.1.4.3).

5.3.4.4 Slipperiness of floor surfaces

Not relevant. The slipperiness of floor surfaces is being considered as a component requirement only (See §5.2.4.4).

5.3.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §5.1.4.5).

5.3.4.6 Safety against entrapment

To prevent entrapment an interior safety release shall be foreseen on at least one exit. The presence of safety releases shall be established, and if applicable, their correspondence with EN 1125, EN 179 or prEN 13637 and the possible influences on ER2, ER3, ER4 and ER6 of the kit

shall be assessed.

5.3.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §5.1.4.7).

5.3.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

5.3.6 Energy Economy and Heat Retention

5.3.6.1 Thermal performance

Applicable for all cold storage doors and gates. In most cases, the thermal resistance, determined for the sandwich panels, can be used to calculate the thermal resistance of the door and gate sets. Alternatively, the hot-box test method can be offered. In case no assessment results are available, the verification methods are:

- Tables F.1 and F.2 of EN ISO 10077-1 or
- EN ISO 10077-1 or
- EN ISO 10077-1 and EN ISO 10077-2 or
- EN ISO 12567-1.

For non-pedestrian doors, EN 12428 and Annex B of EN 13241-1 could be applicable (calculation method).

5.3.6.2 Air permeability

The product specifications shall be examined and performance in respect of air permeability assessed on the basis of known material properties, design details and the intended use, relevant to any energy conservation measures.

In general, testing of the air permeability of the components is considered unnecessary, because the air permeability of the assembled cold storage room is being assessed (See 5.1.6.2).
However, if testing is required, the air permeability of pedestrian doors, windows and panels with transparent surfaces, shall be determined in accordance with EN 1026, classification in accordance with EN 12207. For other doors and gates, verification in accordance with EN 12427, classification with EN 12426.

5.3.6.3 Water vapour permeability

The hygrothermal behaviour of doors, gates and windows is being assessed under ER3 (in §5.3.3.2).

5.3.7 Aspects of Durability, Serviceability and Identification

5.3.7.1 Durability

5.3.7.1.1 Mechanical resistance

The verification of the durability of mechanical resistance for pedestrian doors shall be performed in accordance with EN 1191 in order to be classified in accordance with EN 12400. For other doors and gates, EN 12604 and EN 12605 apply respectively.

5.3.7.1.2 Performance characteristics of non-pedestrian doors

The verification of the durability of the durability of non-pedestrian doors and gates shall be performed in accordance with EN 12605.

5.3.7.2 Serviceability

5.3.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §5.1.7.2.1.

5.3.7.2.2 Provisions related to doors, gates and windows

Not all provisions foreseen in this paragraph are strictly speaking necessary to market cold storage room kits. However, most ETA-applicants will foresee some or all of these aspects.

5.3.7.2.2.1 Behaviour of doors, gates and windows placed between two different climates

The effect on doors, gates, windows and panels with transparent surfaces, due to being placed between two different climates, both of which shall be specified by the ETA-applicant, shall be determined in accordance with EN 1121 (doors) or ENV 13240 (windows and panels with transparent surfaces).

These tests shall be performed on the most onerous type of door, gate, window and panel with transparent surfaces, within the range of doors, gates and windows that are part of the kit, and in the most onerous, i.e. the most extreme, conditions.

The doors and gates shall be tested in accordance with EN 1121, under the following circumstances: ϕ_1 = (23 $\pm$ 2) °C; ϕ_2 = (-15 $\pm$ 2) °C or the most extreme intended negative temperature (in case this is lower than -15°C); φ_1 = (30 $\pm$ 5) %RH; φ_2 = no requirement. An air permeability test shall be performed subsequently.

5.3.7.2.2.2 Automatic opening and / or closing devices

Occasionally, this might be relevant for cold storage doors and gates (in case of fire). Verification method: respectively prEN 13916, prEN 14013, EN 12445 or EN 12978.

5.3.7.2.2.3 Behaviour of doors, gates (and windows) under repeated opening and closing

The resistance of doors (and windows) under the influence of being opened and closed repeatedly, shall be determined in accordance with EN 12046-1 and -2, in order to be classified in accordance with EN 13115 and EN 12217.

5.3.7.2.2.4 Behaviour of doors, gates and windows under operating forces

The behaviour under operating forces of doors and windows, shall be determined in accordance with EN 12217 (doors) and EN 12046-1 (windows).

These tests shall be performed on the most onerous type of door, gate and window, within the range of doors, gates and windows that are part of the kit.

5.3.7.2.2.5 Behaviour of doors and gates under loads

The behaviour under loads of manually operated pedestrian doors, shall be determined in accordance with EN 947 (vertical load) and EN 948 (static torsion), classification in accordance with EN 1192. For other doors and gates: EN 12604 and EN 12605.
These tests shall be performed on the most onerous type of door within the range that is part of the kit.

5.3.7.2.2.6 Defrost provisions for doors

To prevent the door from freezing to the door frame, and therefore preventing opening it, defrost provisions are usually foreseen. The presence of these provisions shall be established, and their possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed.
Given the number of possible solutions, the defrost provisions themselves shall be assessed on a case-by-case basis.

5.3.7.2.2.7 Radiation properties – Light transmittance[14]

The determination of light transmittance of glazing of windows and panels with transparent

[14] Voluntary aspect, considered in the framework of the EOTA Common Procedural Rules, §3.0.

surfaces shall be carried out in accordance with EN 410.

5.3.7.2.2.8 Safe opening

Applicable for vertically moving cold storage doors and gates. Verification: EN 12604 and 12605.

5.3.7.2.2.9 Power operation

Applicable for power operated cold storage doors and gates. Verification: EN 12453.

5.3.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §5.1.7.2.3.

5.3.7.3 Identification

Usually, ETA-applicants will have acquired product certificates or test and/or classification reports for the kit components. In those cases, the approval body shall verify whether those documents are acceptable and still apply and introduce the relevant information in the ETA. Only if such is not available, the ETA-applicant shall determine the identification parameters as specified below.
In either case, the product certificates or test and/or classification reports shall be based on the determination methods as specified below or equivalent (in which case the ETA shall provide appropriate explanation).

Identification of doors and windows shall be performed in accordance with §5.1.7.3 and with prEN 14351-1, -2 or 3.

In any case, dimensions (length, width, thickness), geometry (squareness, flatness, …), significant properties (mechanical, physical, chemical, …) and their tolerances shall be given.

5.3.7.4 Fitness for contact with food and feedstuffs

The Approval body shall verify that doors and gates are sized to fit their openings and close properly (e.g. in order to prevent vermin entering). Sliding doors and gates shall slide freely. They shall be designed to minimise the sweeping of dirt or other contaminants from the outside floor into the interior, when closing the door or gate.
Additionally, sliding doors and gates of cold storage room kits intended to be used to store unpackaged food or feed shall be readily removable or removable, provided that they are easily cleanable when installed.
Door thresholds shall be designed to facilitate the cleaning of the interior floor.

The susceptibility to the growth of harmful micro-organisms is being considered in accordance with §5.1.7.4.

5.4 VERIFICATION METHODS RELEVANT FOR COMPONENTS: FIXING SYSTEMS, SEALANTS, GASKETS AND BUILDING HARDWARE

5.4.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for components of cold storage room kits.
Some aspects of mechanical resistance and stability are being considered as part of "Safety in use".

5.4.2 Safety in case of Fire

5.4.2.1 Reaction to fire

Not relevant for these components, unless the cold storage room kit is subject to reaction to fire regulations.
In that case, the following shall apply:

5.4.2.1.1 Point fixing systems

These shall be tested as a part of a door set (See §5.3.2.1) or as part of the panel assembly (See §5.2.2.1). The fixing system shall also be tested as a part of the assembly in the fire resistance test (see §5.1.2.2). No reaction to fire classification shall be awarded.

5.4.2.1.2 Other components

Generally, for other components, one of the following options shall apply.
Option 1: The cold storage room kit component shall be tested, using the test method(s) relevant for the corresponding reaction to fire class, in order to be classified according to EN 13501-1.

Option 2: The cold storage room kit component is considered to satisfy the requirements for performance Class A1 of the characteristic reaction to fire, in accordance with the provisions of EC Decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that Decision. In this case, the Approval body shall verify product compliance with the definitions of the decision.

5.4.2.2 Fire resistance

Fire resistance testing is only relevant for assemblies (See §5.1.2.2). These components shall be assessed as a part of the assembly.

5.4.3 Hygiene, Health and the Environment

5.4.3.1 Release of dangerous substances

See §5.1.3.1. Additional provisions may be described in:
- Fixing systems: ETA-Guideline 001
- Sealants: ETA-Guideline xx1 "Fire sealing and fire stopping products"
- Gaskets: No additional information available
- Building hardware: No additional information available

5.4.3.2 Water vapour permeability

The water vapour permeability of gaskets and sealants shall be determined in accordance with EN ISO 12572 (test method) or EN 12524 (tabulated values).

Note: EN 12524 can be used, as far as applicable for the product concerned.

5.4.3.3 Moisture resistance

The moisture resistance is considered as a kit related requirement only, possibly leading to components needed to be tested (See §5.1.3.3)

5.4.3.4 Air tightness

The air tightness is being considered under ER6 (in §5.4.6.2).

5.4.4 Safety in Use

5.4.4.1 Impact resistance

Not relevant for these components. They shall be assessed as a part of the assembly (See §5.1.4.1).

5.4.4.2 Mechanical resistance

5.4.4.2.1 Fixing resistance

The fixing resistance is only relevant assemblies (See §5.1.4.2.1), composite panels (See §5.2.4.2.1) and fixing systems. It is not relevant for sealants, for gaskets, nor for building hardware.

If sufficient evidence is not available from tests performed in accordance with §5.1.4.2.1 and §5.2.4.2.1, then verification in accordance with UEAtc-Guide M.O.A.T. No. 59:1996, §3.1.5, EN 1993-1-8 or prEN 14592, is possible.

However, particularities of the fixing system may necessitate alterations to the test set-up. Determination of a representative sample and test set-up is carried out by the approval body in co-operation with the ETA-applicant and is based on the experience of the approval body.

5.4.4.2.2 Mechanical resistance of wall, ceiling and floor panels

The mechanical resistance of wall, ceiling and floor panels is only relevant for composite panels (See §5.2.4.2.2).

5.4.4.2.3 Mechanical resistance of cold storage rooms

The mechanical resistance of cold storage rooms is only relevant for assemblies (See §5.1.4.2.3).

5.4.4.3 Resistance to eccentric loads

Not relevant for these components. They shall be assessed as a part of the assembly (See §5.1.4.3).

5.4.4.4 Slipperiness of floor surfaces

Not relevant. The slipperiness of floor surfaces is being considered as a component requirement only (See §5.2.4.4).

5.4.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §5.1.4.5).

5.4.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors only (See §5.3.4.6).

5.4.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §5.1.4.7).

5.4.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

5.4.6 Energy Economy and Heat Retention

5.4.6.1 Thermal performance

The thermal transmittance / resistance of these components shall be determined in accordance with EN 12524 (tabulated values).

Note: EN 12524 can be used, as far as applicable for the product concerned.

5.4.6.2 Air permeability

Not relevant for these components. They shall be assessed as a part of the assembly (See §5.1.6.2).

5.4.6.3 Water vapour permeability

The hygrothermal behaviour is being assessed under ER3 (in §5.4.3.2).

5.4.7 Aspects of Durability, Serviceability and Identification

5.4.7.1 Durability

5.4.7.1.1 Fixing systems

The behaviour of fixing systems can be influenced by corrosion and the degradation of the coating. Therefore, the following shall be considered:

5.4.7.1.1.1 Corrosion

No special test conditions are required, if the conditions given in §6.4.7.1.1 are complied with. If the fixing system is to be used in particularly aggressive conditions or atmospheres with extreme chemical pollution, special considerations including testing are necessary, taking into account the environmental conditions and the available experience.

5.4.7.1.1.2 Coating

The durability of the coating that ensures the suitability and the bearing behaviour of the fixing system shall be shown. No special test conditions are given in this ETA-Guideline for checking the durability of any coating, because it depends on the type of coating. Appropriate tests should be decided on by the responsible approval body.

The following environmental conditions should be taken into account in assessing durability of coatings:

Dry internal conditions
- high alkalinity (pH $\geq$ 13,2)
- temperature range

Other environmental conditions
- high alkalinity (pH $\geq$ 13,2)
- condensed water
- chlorides
- sulphur dioxide

- nitrogen oxide
- ammonia

Zinc coatings (electroplated or hot dip galvanised) need not be subjected to testing if used under dry internal conditions.

5.4.7.1.2 Sealants

The durability of sealants shall be determined in accordance with ISO 10590 (adhesion / cohesion properties at maintained extension after immersion in water) and ISO 11431 (adhesion / cohesion properties after exposure to heat and artificial light)

5.4.7.1.3 Gaskets

5.4.7.1.3.1 Resistance to heat ageing

The residual compression deformation of gaskets, in accordance with EN ISO 1856, shall be determined after heat ageing of (72 ± 1) h at (70 ± 2) °C and subsequent conditioning during (24 ± 1) h at laboratory conditions.

5.4.7.1.3.2 Compatibility with adjoining construction materials

The compatibility of the gasket with the intended materials (insulation, metal, ...) shall be determined.

The gasket shall be introduced in an assembly of approximately 0,2 m length, with the material under scrutiny at each side of the gasket. The test specimen shall be tightly wrapped up with aluminium foil and stored in the oven at (80 ± 2) °C during (14 ± 1) days.
The residual compression deformation of the gaskets shall be determined, in accordance with EN ISO 1856.

5.4.7.1.4 Building hardware

The durability of building hardware shall be determined in accordance EN 1670 (corrosion resistance).

5.4.7.2 Serviceability

5.4.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §5.1.7.2.1.

5.4.7.2.2 Provisions related to fixing systems, sealants, gaskets and building hardware

Not all provisions foreseen in this paragraph are strictly speaking necessary to market cold storage room kits. However, most ETA-applicants will foresee some or all of these aspects.

5.4.7.2.2.1 Fixing systems

No particular requirements.

5.4.7.2.2.2 Sealants

The tensile properties of sealants shall be determined in accordance with ISO 8339 and the adhesion / cohesion properties at variable temperatures, in accordance with ISO 9047.
The sealants shall at least be of class F20 or higher.

5.4.7.2.2.3 Gaskets

5.4.7.2.2.3.1 Resistance to changes in temperatures

In this test, the product is subjected to accelerated ageing. Before and after ageing, the test specimens are subjected to compression deformation and the resulting deterioration judged.
The product shall be introduced in an assembly of two rectangular tubes, made of aluminium in accordance with EN 755-1, of approximately 0,2m length, which are mounted parallel to the length of the joint (see figure 2). Between the product and one of the rectangular tubes a separating foil

shall be arranged, preventing adherence between the product and the tube. The sealant sample width should correspond with its maximum width in its intended use.
After conditioning in laboratory conditions during 7 days, one test specimen shall be subjected three times to the following artificial exposure cycle:
(a) (48 ± 1) h at (50 ± 2) °C
(b) (24 ± 1) h immersion in distilled water at (23 ± 2) °C
(c) (72 ± 1) h exposure in a freezer at ((t-2) ± 2) °C
Where "t" is the extreme negative temperature, in accordance with the ETA-applicant's specifications (e.g. -20°C, -25°C, -30°C or –40°C).

Subsequently the test specimen shall be stored one additional day at laboratory conditions.
Then the contact surface(-s) shall be visually inspected for discolouring (naked eye) and drifting of adhesive. The remaining compression deformation of the product shall be determined in accordance with EN ISO 1856.

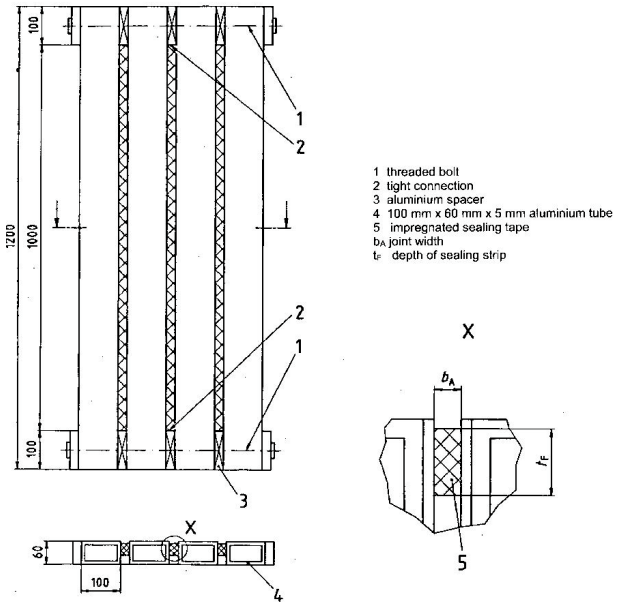

Figure 2: Assembly for testing resistance to temperature fluctuations

5.4.7.2.2.3.2 In service temperature range

The in-service temperature range shall be in accordance with the intended use of the cold storage room. Gaskets shall be of grade 4 in accordance with EN 12365-1.

5.4.7.2.2.4 Building hardware

No particular requirements.

5.4.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §5.1.7.2.3.

5.4.7.3 Identification

Usually, ETA-applicants will have acquired product certificates or test and/or classification reports for the kit components. In those cases, the approval body shall verify whether those documents are acceptable and still apply and introduce the relevant information in the ETA. Only if such is not available, the ETA-applicant shall determine the identification parameters as specified below.
In either case, the product certificates or test and/or classification reports shall be based on the determination methods as specified below or equivalent (in which case the ETA shall provide appropriate explanation).

Identification of fixing systems, sealants and gaskets, shall be performed in accordance with §5.1.7.3 and:

- Fixing systems:
  The approval body shall verify the following properties:
  - product description (e.g. self-tapping screw, self drilling screw, drywall screw, etc.)
  - type of metal and protection
  - dimensions and design of the mechanical fastener
- Sealants: ISO 11600
- Gaskets:
  Flexible foam/cellular plastics
  - Nature, colour
  - Dimensions
  - Apparent density, in accordance with EN ISO 845
  - Tensile strength and elongation at break, in accordance with EN ISO 527-1 and -2.
  - Compression properties in accordance with ISO 844

  Impregnating fluid (if any)
  The values determined shall be within admissible limits as given by the manufacturer.
  - Nature
  - Viscosity, in accordance with EN ISO 2884-1
  - Solids content, in accordance with EN ISO 3251
- Building hardware: Identification through the relevant product standards.

5.4.7.4 Fitness for contact with food and feedstuffs

The susceptibility to the growth of harmful micro-organisms is being considered in accordance with §5.1.7.4.

5.4.7.4.1 Sealants

The Approval body shall verify that permanent joints in cold storage room kits intended to be used to store packaged food or feed can be formed such that they are sealed and smooth. Additionally, it needs to be verified that permanent joints in cold storage room kits intended to be used to store unpackaged food or feed, can formed flush with the adjoining surfaces.

5.4.7.4.2 Gaskets

The Approval body shall verify that exposed surfaces of door gaskets in cold storage room kits intended to be used to store unpackaged food or feed, are easily cleanable. Hollow sections shall be closed/sealed.
They shall be capable of being removed and replaced by hand or with the use of simple tools. Staples, pop rivets, adhesives and alike, that cannot be reattached easily, shall not be used to secure door gaskets. Retaining grooves and alike for holding readily removable gaskets shall be easily cleanable.

5.4.7.4.3 Building hardware – tracks and guides

The Approval body shall verify that tracks and guides for doors in cold storage room kits intended to be used to store unpackaged food or feed, shall be easily cleanable (or readily removable). Preferably, they shall have clean-out holes at each end.

5.4.7.4.4 Building hardware - hinges

The Approval body shall verify that hinges in cold storage room kits intended to be used to store unpackaged food or feed, are easily cleanable while in place, or are designed to be disassembled without the use of tools for routine cleaning.

5.4.7.4.5 Fixing systems

The Approval body shall verify that in principle fasteners of fixing systems are not used in areas having direct food contact. Fasteners used in food storage compartments shall be removable, they

shall be tight fitting to the surface.

5.5 VERIFICATION METHODS FOR COMPONENTS: PROFILES, FRAMEWORK, STUDS, ETC.

5.5.1 ER1: Mechanical resistance and stability

Not relevant to this component

5.5.2 ER2: Safety in case of fire

5.5.2.1 Reaction to fire

Generally, one or more of the following options shall apply. However, certain end use applications of some products may not be able to be satisfactorily classified using EN 13501-1 (e.g. facades).

Option 1: The supporting framework shall be tested, using the test method(s) relevant for the corresponding reaction to fire class, in order to be classified according to EN 13501-1. Mounting and fixing provisions are given in the relevant product specification.

Option 2: If the supporting framework is considered to satisfy the requirements for performance Class A1 of the characteristic reaction to fire, in accordance with the provisions of EC Decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that Decision.

5.5.3 ER3: Hygiene, health and the environment

5.5.3.1 Release of dangerous substances

See §5.1.3.1 of this part of the ETA-Guideline.

5.5.4 ER4: Safety in use – Mechanical resistance

5.5.4.1 General

The load-bearing capacity and suitability of the supporting framework of a kit shall be determined taking account of EN 1990 either by calculation, testing or a combination of calculation assisted by testing (see clauses 5.5.4.1.2 or 5.5.4.1.3).

However, usually, the supporting framework has no load-bearing function and only transmits loads onto structural elements (e.g. floors, walls).
In such cases, the mechanical resistance of the supporting framework may be considered satisfactory, if the assembly tests required in this ETA-Guideline (e.g. SBI, resistance to fire, impact resistance) have been performed with satisfactory result.

Extended application and engineering knowledge may be used to verify supporting framework, profiles, etc. that are made out of the same material and have comparable intended use(-s).

5.5.4.2 Calculation

The additional supporting framework shall be calculated in accordance with the following, depending upon the materials used:
- EN 1993: Design of steel structures
- EN 1999: Design of aluminium structures

5.5.4.3 Testing

Where the additional supporting framework cannot be calculated or where a testing approach is preferred, the profiles are tested on a case-by-case approach, taking into account the particular design and intended use.

5.5.5 Protection against noise

Not relevant to this component

5.5.6 Energy economy and heat retention

Usually, the ETA-applicant will allow EN 12524 to be used to determine the thermal resistance of the supporting framework.

Where a manufacturer makes specific claims for the thermal performance of a fire protective board kit, the thermal characteristics of the frame members shall be determined using relevant tests and calculations, e.g. given in EN 12412-2 and EN ISO 10077-2.

5.5.7 Aspects of durability, serviceability and identification

5.5.7.1 Durability and serviceability requirements

If supporting profiles or a framework are components of the kit, then these shall also be assessed, with regard to durability and serviceability, on the basis of European (CEN) or International standards (ISO). Because such components can be designed in a large number of possibilities and materials, the assessment method shall be considered on a case-by-case basis, taking into account that a number of verification methods already foresee the incorporation of these components in a number of assembly tests (e.g. SBI, fire resistance, impact resistance).

In order to demonstrate the durability and serviceability of supporting framework, the approval body may make use of information derived from documented sources, such as listed experience, previous approval procedures etc. The file must make clear under what conditions of climate and product usage the satisfactory experience has been gained.

The following references shall be used for aluminium, steel or timber supporting framework:

Aluminium

The corrosion protection of aluminium supporting framework shall be classified in accordance with EN 1396 or EN 573-3.

Steel

The corrosion protection of steel supporting framework shall be classified in accordance with EN 10327 or EN 10152. Coating of steel parts with zinc compatible organic coating shall be verified according to EN ISO 12944-3 (paints, coatings) or with equivalent coil coating according to EN 10169-1.

Unplasticised polyvinyl chloride

White PVC-U extrusions may be assessed against the requirements of EN 12608.

5.5.7.2 Identification

The Approval body shall verify the following:
- Nature of the profiles, framework, studs, …: Classification in accordance with EN 10326, EN 10327, EN 10152, EN 10169-1 (for steel) or EN 573-3 (for aluminium).
- Dimensions with tolerances
- Shape

6. ASSESSING AND JUDGING OF THE FITNESS FOR USE OF PRODUCTS FOR AN INTENDED USE

This Chapter details the performance requirements to be met by a kit for prefabricated cold storage room (chapter 4) into precise and measurable criteria (as far as possible and proportional to the importance of the risk) or qualitative terms, related to the products and their intended use, using the outcome of the verification methods (chapter 5).
The possible ways of expressing the results of the assessment of the mandatory performance requirements are shown in the following table 6.1:

Table 6.1 Ways of expressing the results of the assessment of the mandatory performance requirements

ER	ETAG paragraph on product performance	ETAG paragraph on assessment and judgement of product characteristics		NPD allowed
		Kits	Components	
1	This essential requirement is not relevant for cold storage room kits.			
2	Reaction to fire	§6.1.2.1	§6.2.2.1, §6.3.2.1, §6.4.2.1 and §6.5.2.1	Yes
	Fire resistance	§6.1.2.2	§6.2.2.2, §6.3.2.2 and §6.4.2.2	Yes
3	Release of dangerous substances	§6.1.3.1	§6.2.3.1, §6.3.3.1, §6.4.3.1 and §6.5.3.1	Yes
	Vapour permeability	§61.3.2	§6.2.3.2, §6.3.3.2 and §6.4.3.2	Yes
	Moisture resistance	§6.1.3.3	§6.2.3.3, §6.3.3.3 and §6.4.3.3	Yes
	Air tightness	§6.1.3.4*	§6.2.3.4, §6.3.3.4 and §6.4.3.4*	Yes
4	Impact resistance	§6.1.4.1	§6.2.4.1, §6.3.4.1 and §6.4.4.1	Yes
	Mechanical resistance, incl. resistance to seismic actions	§6.1.4.2	§6.2.4.2, §6.3.4.2, §6.4.4.2 and §6.5.4	Yes
	Resistance to eccentric loads	§6.1.4.3	§6.2.4.3, §6.3.4.3 and §6.4.4.3	Yes
	Slipperiness (floors)	§6.1.4.4	§6.2.4.4, §6.3.4.4 and §6.4.4.4	Yes
	Safety against personal injury	§6.1.4.5	§6.2.4.5, §6.3.4.5 and §6.4.4.5	Yes
	Safety against entrapment	§6.1.4.6	§6.2.4.6, §6.3.4.6 and §6.4.4.6	No
	Safety against collapse (due to air pressure differences)	§6.1.4.7	§6.2.4.7, §6.3.4.7 and §6.4.4.7	No[15]
5	This essential requirement is not relevant for cold storage room kits.			
6	Thermal resistance	§6.1.6.1	§6.2.6.1, §6.3.6.1, §6.4.6.1 and §6.5.6.1	No
	Air permeability	§6.1.6.2	§6.2.6.2, §6.3.6.2 and §6.4.6.2	Yes
	Water vapour permeability	§6.1.6.3*	§6.2.6.3, §6.3.6.3 and §6.4.6.3*	Yes
	Durability	§6.1.7.1	§6.2.7.1, §6.3.7.1, §6.4.7.1 and §6.5.7.1	No
	Serviceability	§6.1.7.2	§6.2.7.2, §6.3.7.2 and §6.4.7.2	Yes
	Identification	§6.1.7.3	§6.2.7.3, §6.3.7.3, §6.4.7.3 and §6.5.7.1	No

* Characteristics added for completeness. Cross references have been made between ER3 and ER6

** Depending on their intended use, cold storage room kits may (in addition to the above) have to comply with the requirements of the Council Directive 93/34/EEC related to "Foodstuffs" and Council Directive 89/109/EEC and related specific directives, related to "Food contact materials". This is covered under 4.7.4, 5.1.7.4, 5.2.7.4, 5.3.7.4, 5.4.7.4, 6.1.7.4, 6.2.7.4, 6.3.7.4 and 6.4.7.4 of this ETA-Guideline[16]. The Standing Committee on Construction decided this characteristic is not covered by ER3, but an important and regulated aspect as regards the intended use of the kits.

Note: The general rule, when considering the cases where the "NPD" (No Performance Determined) option should not be allowed, is that NPD should always be allowed, if there is at least one EEA Member State that does not have a regulatory requirement for the characteristic under consideration. The one derogation from that general rule is that ETA-Guidelines have the possibility to not allow NPD in those cases where the characteristic almost defines the product (e.g. water tightness for a waterproofing membrane).
The WG has decided to not allow NPD in the following cases:

- Thermal resistance, because this is a vital characteristic of a cold storage room
- Safety against entrapment and against collapse due to air pressure differences, because these are characteristics that might lead to loss of life, if not present or not functioning properly.

[15] Unless the intended use of the kit is limited to a temperature range above 0°C.

[16] The "No Performance Determined" option is not allowed under conditions specified in clause 6.1.7.4 (see also §6.2.7.4, §6.2.7.2.2.3.4, §6.2.7.2.2.3.5, §6.3.7.4 and §6.4.7.4).

For durability and identification, NPD is not an option, as far as:

- durability is related to components that are part of the kit and as far as relevant for the intended use of the kit and for (a) performance(-s) declared in the ETA
- identification is related to components that are part of the kit.

6.1 ASSESSING AND JUDGING OF THE FITNESS FOR USE OF THE KIT / ASSEMBLED SYSTEM

6.1.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for cold storage room kits.

6.1.2 Safety in case of Fire

6.1.2.1 Reaction to fire

Components of cold storage room kits shall be classified in accordance with EN 13501-1 (see §6.2.2.1, §6.3.2.1, §6.4.2.1 and §6.5.2.1).

6.1.2.2 Fire resistance

Cold storage room kit assemblies shall be classified in accordance with EN 13501-2.

6.1.3 Hygiene, Health and the Environment

6.1.3.1 Release of dangerous substances

The cold storage room kit shall comply with all relevant European and national provisions applicable for the uses for which it is brought to the market. The attention of the applicant should be drawn on the fact that for other uses or other Member States of destination there may be other requirements which would have to be respected. For dangerous substances contained in the product but not covered by the ETA.

6.1.3.2 Water vapour permeability

On the basis of the calculation method described in EN ISO 13788 and taking into account any thermal bridges, inherent to the kit, the hygrothermal behaviour of the assembled kit shall be determined.
If there are substantial risks of condensation, these shall be reported in the ETA *(relevant also for consideration under ER6)*.

6.1.3.3 Moisture resistance

In accordance with §5.1.3.3, verification of moisture resistance shall primarily be done by the approval body on the basis of the construction details for the kit, and by using the available technical knowledge and experience from similar well-known technical solutions.
Therefore, the result declared in the ETA shall be a descriptive one: "The kit and its components are moisture resistant, as far as the relevant recommendations in chapter 7 of the ETA-Guideline are being taken into account".

However, if ETA-applicants fail to show that the design of the kit prevents it, or components of it, from becoming moist, results of verification methods shall be declared:

- determining whether the moisture content presents a likely danger regarding deterioration of other performance characteristics
- to find out how the intended use of the kit should be restricted, to prevent the above from happening.

6.1.3.4 Air tightness

The air tightness of the assembled kit is being considered under ER6 (in §6.1.6.2).

6.1.4 Safety in Use

6.1.4.1 Impact resistance

6.1.4.1.1 Resistance to structural damage from soft body impact load – 50 kg bag

6.1.4.1.1.1 For wall panels

The soft body impact resistance, related to structural damage, shall be determined in accordance with §5.1.4.1.1. The assembly shall be classified in accordance with table 6.2.

Table 6.2: Assessment criteria for large soft body impact test

Use category	Structural damage test criteria	
-	No Performance Determined	
WI	1 x 100 Nm	No penetration No collapse No other dangerous failure
WII	1 x 200 Nm	
WIII	1 x 300 Nm	
WIV	1 x 400 Nm	
WV_E	Declaration of impact energy resisted	

6.1.4.1.1.2 For ceiling panels

The soft body impact resistance, related to structural damage, shall be determined in accordance with §5.1.4.1.1. The assembly shall be classified in accordance with table 6.3.

Table 6.3: Assessment criteria for large soft body impact test

Use category	Structural damage test criteria	
-	No Performance Determined	
CI, CII	1 x 1200 Nm	No penetration No collapse No other dangerous failure

6.1.4.1.2 Resistance to structural damage from hard body impact load – 1 kg steel ball

The hard body impact resistance, related to structural damage, shall be determined in accordance with §5.1.4.1.2. The assembly shall be classified in accordance with table 6.4.

Table 6.4: Assessment criteria for small hard body impact test

Use category	Structural damage test criteria	
-	No Performance Determined	
I, II, III, IV	1 x 10 Nm on several points	No complete penetration No other dangerous failure

6.1.4.2 Mechanical resistance

6.1.4.2.1. Indication of geometrical data

The ETA shall include at least the following information:

- the geometrical data (dimensions and cross sections, including tolerances) of the structural kit components and of the assembled kit
- the properties of the materials and constituent products used that are needed to determine, according to the National Provisions, valid in the place of use, or possible use, load-bearing

capacities and other properties, including aspects of durability and serviceability, of the assembled kit installed in the works, as far as possible.

If assistance through testing has been used to accompany geometrical data, the tests performed and the test results shall be specified with sufficient detail.

6.1.4.2.2. Verification by calculation with or without assistance through testing

6.1.4.2.2.1 General

The properties of structural components related to "mechanical resistance and stability" should be specified in the ETA with regard to the needs of fulfilling National Provisions.

This may be done by expressing the properties in terms of:
- characteristic values for strength and other cross section properties from which the load-bearing capacities of the assembled kit installed in the works, taking into account the National Provisions, can be calculated, or
- design values provided that the Nationally Determined Parameters (NDP) applicable to works have been taken into account by appropriate levels and classes, which correspond to sets of NDPs.

Notes
1. Each declared value shall correspond, as far as practicable, to a defined statistical confidence (defined fractile and confidence level).
   To express a property by the “design value” involves that the set of applicable NDPs are expressed in the ETA in terms of classes. For this purpose, the classes shall be defined in the ETA by the combination of NDPs applicable in Member States. Normally, for a given structural component and its intended use:
   - a number of symbols, classes or alternative methods, which in Eurocodes have the status of NDPs, will not be relevant, and
   - the relevant NDPs will not always be different from one Member State to the other.
     This means that, in most cases, a reduced number of classes in the ETA will be sufficient to cover the NDPs and the differences of NDPs in the various Member States.
2. Possibly, in particular cases, it may happen that there is just one set of NDPs to be taken into account in the ETA, which covers the end use conditions in all the Member States.

Each ETA shall state that for each individual project, calculations for the mechanical resistance and stability of the structure should be made, taking into account the National Provisions.

Note: All methods presented in EC Guidance paper L are available for Approval Bodies, but NDPs used in calculations shall always be specified in the ETA. Providing more than geometrical data and properties (see §6.1.4.2.1, i.e. method 1 of EC Guidance paper L) is a possibility, it is not an obligation. If the ETA-applicant only places the product covered in the ETA in one country, the ETA will need to specify the design values and NDPs for that country. If the ETA-applicant places the product covered by the ETA in more than one country, he will need to provide various design values, using the various sets of NDPs.

6.1.4.2.2.2 Structural capacities

6.1.4.2.2.2.1 Internal (load-bearing) walls

The following design resistances for internal walls shall normally be declared:
- Vertical resistance in kN/m
- Racking resistance in kN/m for instantaneous loads, assuming that studs are effectively anchored to the substructure

6.1.4.2.2.2.2 (Suspended) floors

The following design resistances for suspended floors shall normally be declared:
- Net vertical uniformly distributed medium-term imposed floor load resistance in kN/m² as defined in EN 1991-1-1
- Vertical local concentrated medium-term imposed floor load resistance in kN as defined in EN 1991-1-1
- Horizontal diaphragm shear resistance in kN/m at ultimate limit state for instantaneous load

6.1.4.2.2.2.3 Ceiling structures

The following design resistances for ceiling structures shall normally be declared:

- Maximum uniformly distributed vertical medium-term, short-term and instantaneous load resistance in kN/m²
- Vertical local concentrated short-term imposed roof load resistance in kN as defined in EN 1991-1-1
- Horizontal diaphragm shear resistance in kN/m at ultimate limit state for instantaneous load
- Vertical and horizontal anchorage resistances of standard roof structure fixings at ultimate limit state for instantaneous loads, when such fixings are part of the kit or unit.

Notes:
1. Vertical load-carrying resistances for wall structures may include openings for windows and doors when the kit or unit has standard openings with specified dimensions, and standard load-carrying components around the openings.
2. Racking load resistances are normally declared only for wall sections without openings. The racking load should normally also be declared on the basis that vertical uplift of walls are prevented by separate anchors designed for each individual works.
3. Resistances against instantaneous and short-term loads for ceilings shall normally be declared separately. On request from the ETA-applicant, specified combinations (with a specified wind load action) may also be declared.
4. Densities and total mass necessary for the calculation of seismic forces should also be declared when relevant for the intended use (geographical zones). Assessment of the seismic resistance of buildings is otherwise assumed to be possible to be undertaken on the basis of the declared racking resistance and diaphragm shear capacities for the kit or unit, and also the anchorage capacities of fixings when relevant.
5. In France, the fixing resistance of suspension fixings shall be at least 4500 N.

6.1.4.2.2.3 Resistance against seismic actions

Load-bearing capacities of the main room parts and anchorage, including racking resistance and horizontal diaphragm shear load capacity, is covered by §6.1.4.2.2.2. If a room kit is to be put on the market in areas with seismic zones, the masses of the room kit components shall be declared, as well as the specific characteristics of connections and factors for energy dissipation according to the methods of calculation given in §5.1.4.2.3.

6.1.4.2.2.4 Structural analysis

The detailed structural analysis to verify the declared capacities mentioned in §6.1.4.2.2.2 and §6.1.4.2.2.3 shall always be available to the approval body as a part of the technical file for the ETA.

6.1.4.3 Resistance to structural damage from eccentric vertical load

The resistance to structural damage from eccentric vertical load is being considered as a component requirement only (See §6.2.4.3).

6.1.4.4 Slipperiness of floor surfaces

The slipperiness of floor surfaces is being considered as a component requirement only (See §6.2.4.4).

6.1.4.5 Safety against personal injuries by contact

The geometry, the existence of sharp cutting edges and the nature of surfaces shall be described in qualitative terms with regard to the potential risk of abrasion.

6.1.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors only (See §6.3.4.6).

6.1.4.7 Safety against collapse

The presence of pressure relief provisions, and their possible influences on ER2, ER3, ER4 and ER6 of the kit, shall be declared in the ETA.

As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the

responsibility of the Approval Body.

If cold storage room kit ETA-applicants do not supply these provisions, the only indication that shall be given in the ETA is that pressure relief provisions should be foreseen, and under which circumstances.
If cold storage room kit ETA-applicants supply pressure relief provisions as a kit component, the ETA shall provide the following information:

- a generic reference to the pressure relief that should be foreseen (when and how much), depending on size of the rooms and intended in-service temperatures
- a specified type of pressure relief provision, according to size of the cold storage rooms, and/or the speed of refrigeration and intended in-service temperatures

6.1.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

6.1.6 Energy Economy and Heat Retention

6.1.6.1 Thermal performance

The thermal transmittance / resistance of the components (See §6.2.6.1, §6.3.6.1 and §6.4.6.1) of the cold storage room kit shall be declared.

6.1.6.2 Air permeability

The rate of air infiltration through the cold storage room kit shall be determined in accordance with EN 13829 or EN ISO 12569. The air permeability shall be declared in $m^3/(m^2.h)$.

6.1.6.3 Water vapour permeability

The hygrothermal behaviour of the assembled kit is being assessed under ER3 (in §6.1.3.2).

6.1.7 Aspects of Durability, Serviceability and Identification

6.1.7.1 Durability

6.1.7.1.1 Compatibility of components used

If, during the assessment incompatibilities between components and/or ancillary components, or products likely to be used or present in cold storage rooms are found, these shall be judged as to whether or not the minimum working life can be achieved and whether or not suitable maintenance techniques exist to overcome the problem. If maintenance measures are required, these shall be described in the ETA (see also §7.4).

6.1.7.1.2 Influences from products being stored in the cold storage room on kit durability

On the basis of the verification method, specified in §5.1.7.1.2, the influences shall be declared.
In the ETA, extended application of the test results (if any) shall be declared, under the responsibility of the Approval Body.

6.1.7.2 Serviceability

6.1.7.2.1 Provisions related to the kit as a whole

6.1.7.2.1.1 Rigidity and robustness

6.1.7.2.1.1.1 Resistance to functional failure from soft body impact load – 50 kg bag

6.1.7.2.1.1.1.1 For wall panels

The soft body impact resistance, related to functional failure, shall be determined in accordance with §5.1.7.2.1.1.1. The assembly shall be classified in accordance with table 6.5.

Table 6.5: Assessment criteria for large soft body impact test

Use category	Functional failure test criteria	
-	No Performance Determined	
WI	3 x 60 Nm	Maximum deflection during impact to be reported No functional failure Maximum residual deflection 5 mm Increase in residual deflection systematically decreasing
WII, WIII, WIV	3 x 120 Nm	
WV_E	3 x Energy resisted	

6.1.7.2.1.1.1.2 For ceiling panels

The soft body impact resistance, related to functional failure, shall be determined in accordance with §5.1.7.2.1.1.1. The assembly shall be classified in accordance with table 6.6.

Table 6.6: Assessment criteria for large soft body impact test

Use category	Functional failure test criteria	
-	No Performance Determined	
CI	1 x 700 Nm	Maximum deflection during impact to be reported No functional failure Maximum residual deflection 5 mm Increase in residual deflection systematically decreasing
CII	5 x 700 Nm	

6.1.7.2.1.2 Resistance to functional failure from hard body impact load – 0,5 kg steel ball

The hard body impact resistance, related to functional failure, shall be determined in accordance with §5.1.7.2.1.1.2. The assembly shall be classified in accordance with table 6.7.

Table 6.7: Assessment criteria for small hard body impact test

Use category	Functional failure test criteria	
-	No Performance Determined	
I, II	1 x 2,5 Nm	Range of diameters of indentation marks to be reported No functional failure
III, IV	1 x 6 Nm	

6.1.7.2.1.3 Resistance to functional failure from point loads parallel or perpendicular to the surface

The resistance to point loads, related to functional failure, shall be determined in accordance with §5.1.7.2.1.1.4. The assembly shall be classified in accordance with table 6.8.

Table 6.8: Assessment criteria for point vertical load test

Functional failure test criteria	
100 N (perpendicular) 250 N (parallel)	No functional failure

6.1.7.2.1.1.4 Rigidity of walls and partitions to be used as a substrate for ceramic tiling

Walls and partitions to be used as a substrate for ceramic tiling shall comply with the following requirements. The resistance to point loads, related to functional failure, shall be determined in accordance with EOTA TR 001, §1. The assembly shall be classified in accordance with table 6.9. The assessment is carried out in place of the assessment described in §6.1.7.2.1.1.1, and not as a supplement to it. A wall or partition passing the test described in §6.1.7.2.1.1.5 is deemed to satisfy the test described in §6.1.7.2.1.1.1.

Table 6.9: Assessment criteria for large soft body impact load test

Test criteria			
3 x 120 Nm	Max. deflection during impact 30 mm Max. residual deflection 2 mm No damages	1 x 240 Nm	After all 4 impacts: Rate of increase in residual deflection stabilised No damages

6.1.7.2.2 Provisions related to components of the kits

Provisions related to the components of the kit are given in the relevant paragraphs (See §6.2.7.2.2, §6.3.7.2.2 and §6.4.7.2.2).

6.1.7.2.3 Provisions related to ancillary components of the kits

Internal partitions shall be assessed in accordance with ETA-Guideline 003.

6.1.7.2.3.1 General assessment of ancillary components

The presence of ancillary components as a part of the kit shall be declared.
As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the responsibility of the Approval Body.
The possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed and declared if appropriate.

6.1.7.2.3.2 Specific assessment of ancillary components

As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the responsibility of the Approval Body.
The possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed and declared if appropriate.

6.1.7.2.3.3 Assessment of relationship with technical equipment

Although outside the scope of this ETA-Guideline, the assessment of the cold storage room kit, shall also take into account the fact that technical equipment may need to be installed.

The ETA shall refer to the ETA-applicant's installation guide and indicate how technical equipment should be installed. If installation is likely to endanger the kit's ability to meet the relevant Essential Requirements, the ETA shall describe how to prevent this.

6.1.7.3 Identification

The cold storage room kit shall be clearly identified in the ETA in accordance with the provisions presented in chapter 5. Where possible, reference to European standards shall be made.

Where required and in accordance with legal and intellectual property rights, the approval body may require additional information, such as the chemical constituents and composition of the materials (e.g. through fingerprinting) to support its assessment. The approval body shall observe strict rules of confidentiality. Under no circumstances will such information be disclosed to any other party.

The ETA is issued for the cold storage room kit, in accordance with the ETA and the confidential file (if any) of the approval body. Changes of design, components, material composition, suppliers

and/or production process, should be immediately notified to the Approval Body, which will decide whether a new assessment is necessary (see also §2.3.4).

See also §6.2.7.3, §6.3.7.3 and §6.4.7.3 for the specified identification of kit components

6.1.7.4 Fitness for contact with food and feedstuffs

6.1.7.4.1 Compliance to the EC Foodstuff directive (93/43/EEC)

The Approval body shall check whether the kit, its components and/or the ETA-applicant's specifications (as applicable) take into account the provisions as specified in §5.1, §5.2, §5.3, §5.4 and §5.5. If any of these provisions are not foreseen, then the kit shall be considered not be intended to store packaged and/or unpackaged food or feed.
For cold storage room kits intended to store packaged and/or unpackaged food or feed, No performance determined is **not** an option (but see important note under §2.2.4).

6.1.7.4.2 Compliance to EC Directives and EEA Member States' legislation related to materials and articles intended to come into contact with foodstuffs

Where relevant, the approval body shall require the ETA-applicant to submit the necessary supporting evidence for each component, as far as required, and retain it in its files. The ETA shall contain references to the relevant EC Directives and EEA Member States' legislation, as indicated in the document "References of the European and National Legislations" on the website: http://europa.eu.int/comm/food/food/chemicalsafety/foodcontact/legi_ref_en.pdf.
For cold storage room kits intended to store unpackaged food or feed (use category "F" as indicated in §2.2.4), No performance determined is **not** an option.

Notes:

- In most cases, it will be the ETA-applicant's suppliers that will enable the ETA-applicant to submit such proof (e.g. metal coil suppliers – see example below).
- When issuing ETAs, the Approval body and ETA-applicant should verify the current situation of the applicable legislation. For national legislation, corresponding with the intended market places of the cold storage room kits, national focal points (see the addresses on the website http://cpf.jrc.it/webpack/) should be contacted.

The ETA shall contain a paragraph in accordance with the following guidance. The text in italics shall be replaced by appropriate terms:
"The Company *'company x'* ensures, in accordance with the declaration of conformity, *'reference'* issued by the supplier *'supplier y'* of the '*material / finishing'* used for the production of '*component'* that are components of this kit, that it complies with the provisions in force in '*country or countries'* concerning the contact of materials with food (*'applicable European legislation'* – implementing EC directives *'xx/xxx/EEC, xx/xxx/EEC, xx/xxx/EEC, xx/xxx/EEC and xx/xxx/EEC' and 'applicable national legislation'*)".

6.2 ASSESSING AND JUDGING OF THE FITNESS FOR USE OF COMPONENTS OF THE KIT: COMPOSITE PANELS

6.2.1 Mechanical Resistance and Stability

This essential requirement is not relevant for components of cold storage room kits.

6.2.2 Safety in case of Fire

6.2.2.1 Reaction to fire

Assessment of composite panels, with respect to reaction to fire shall be undertaken as described in:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.2.2 Fire resistance

Fire resistance testing is only relevant for assemblies (See §6.1.2.2).

6.2.3 Hygiene, Health and the Environment

6.2.3.1 Release of dangerous substances

See §6.1.3.1. Additional assessment criteria may be described in:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.3.2 Water vapour permeability

The water vapour permeability of composite panels shall be assessed in accordance with:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.3.3 Moisture resistance

Moisture resistance is considered as a kit related requirement (see §6.1.3.3).

6.2.3.4 Air tightness

The air tightness of the composite panels is being considered under ER6 (See §6.2.6.2).

6.2.4 Safety in Use

6.2.4.1 Impact resistance

The impact resistance is only relevant for assemblies (See §6.1.4.1) and doors (See §6.3.4.1).

6.2.4.2 Mechanical resistance

6.2.4.2.1 Fixing resistance

6.2.4.2.1.1 Kits, where the composite panels are connected, without being mechanically fastened to a supporting system.

The fixing resistance of the connection between panels is only relevant for assemblies (See §6.1.4.2.1.1).

6.2.4.2.1.2 Kits, where the composite panels are mechanically fastened to a supporting system

The fixing resistance for composite panels shall be assessed in accordance with:
- For metal faced sandwich panels: ETA-Guideline 016
- For other composite panels: ETA-Guideline 016

6.2.4.2.1.3 Kits, where fixing resistance is necessary to attach ancillary components to the composite panels

In the framework of this ETA-Guideline, this aspect is being treated as an issue, relevant for the fixing system only (See §6.4.4.2.1).

6.2.4.2.2 Mechanical resistance of wall, ceiling and floor panels

6.2.4.2.2.1 Mechanical resistance of wall panels

On the basis of the verification method, specified in §5.2.4.2.2.1, the axial load-bearing capacity and the bending and shear strength shall be declared in the ETA.
In the ETA, extended application of the test results (if any) shall be declared, under the responsibility of the Approval Body.

6.2.4.2.2.2 Mechanical resistance of ceiling panels

On the basis of the verification method, specified in §5.2.4.2.2.1, the bending, shear and compressive strength and walkability (see table 6.10) shall be declared in the ETA.
In the ETA, extended application of the test results (if any) shall be declared, under the responsibility of the Approval Body.

Table 6.10: Ceiling walkability use category criteria

Use categories	Level of walkability	Impact resistance		Walkability
		Hard body impact	Soft body impact	
A1	Not accessible roofs/ceilings (not even for installation)	None	NPD or Fail	NPD or fail
A2	Roofs/ceilings, accessible for installation and maintenance only (always with protective measures)	ER4: - Serv.: 1 x 5 Nm	ER4: 1 x 1200 Nm Serv.: 1x700 Nm	NPD or fail (visible damage)
A3	Roofs/ceilings, accessible with protective measures	ER4: - Serv.: 1 x 10 Nm	ER4: 1 x 1200 Nm Serv.: 5x700 Nm	NPD or fail (visible damage)
A4	Roofs/ceilings, accessible without protective measures	ER4: - Serv.: 1 x 10 Nm	ER4: 1 x 1200 Nm Serv.: 5x700 Nm	Pass

Note: For the definition of "walkability" see §2.2.

6.2.4.2.2.3 Mechanical strength of pre-shaped panel intersections

The mechanical strength of the pre-shaped panel intersections shall be declared.
As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the responsibility of the Approval Body.
The possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed and declared if appropriate.

6.2.4.3 Resistance to eccentric loads

The resistance to structural damage from eccentric load, shall be determined in accordance with §5.2.4.3. The assembly shall be classified in accordance with table 6.11.

Table 6.11: Assessment criteria for eccentric vertical load test

Loading use category	Structural damage test criteria
-	No Performance Determined
a	1000 N during 24 hours
b	4000 N during 24 hours
c	10000 N during 24 hours
d	4500 N (instantaneous, test until failure)

The criteria are in each case: increase in residual deflection systematically decreasing, no collapse and no other dangerous failure.

6.2.4.4 Slipperiness of floor surfaces

On the basis of the results of the verification method, specified in §5.2.4.4, the slipperiness of the floor surface(-s) shall be declared.

6.2.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §6.1.4.5).

6.2.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors only (See §6.3.4.6).

6.2.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §6.1.4.7).

6.2.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

6.2.6 Energy Economy and Heat Retention

6.2.6.1 Thermal performance

The thermal transmittance / resistance of composite panels shall be assessed in accordance with:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.6.2 Air permeability

If testing is required, the air permeability of composite panels shall be assessed in accordance with:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.6.3 Water vapour permeability

The hygrothermal behaviour of composite panels is being assessed under ER3 (in §6.2.3.2).

6.2.7 Aspects of Durability, Serviceability and Identification

6.2.7.1 Durability

6.2.7.1.1 Panels:

The durability of composite panels shall be assessed in accordance with:
- For metal faced sandwich panels: prEN 14509
- For other composite panels: ETA-Guideline 016

6.2.7.1.2 Faces:

Compliance with the specification shall be specified in the ETA.

For GRP faced composite panels, it is for the Approval Body to judge the effects, based on the way the material is used in the cold storage room kit.

6.2.7.1.3 Coatings - Resistance to humidity:

After the test, the blistering shall be smaller or equal than the blistering category 2(S2) as defined in ISO 4628-2.

6.2.7.1.4 Floor finishes:

On the basis of the verification method(-s) used (see §5.2.7.1.4) the assessment result shall be declared.

6.2.7.2 Serviceability

6.2.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §6.1.7.2.1.

6.2.7.2.2 Provisions related to composite panels

6.2.7.2.2.1 Mechanical resistance of floor panels

6.2.7.2.2.1.0 General

In the ETA, extended application (if any) of the test results shall be declared, under the responsibility of the Approval Body. No performance determined is an option.

6.2.7.2.2.1.1 Compressive strength

Having been tested in accordance with prEN 14509.

6.2.7.2.2.1.2 Concentrated load-bearing capacity

Having been tested in accordance with the verification methods as specified in §5.2.7.2.2.2, the concentrated load-bearing capacity shall be declared in the ETA.

6.2.7.2.2.1.3 Resistance to rolling loads

Floor coverings, tested for resistance to rolling loads, with or without floor panels (only in case the floor panels are not part of the kit), shall be classified in accordance with table 6.12. The products shall be classified in accordance with the lowest level obtained for one of the characteristics.

Table 6.12 : Classification for rolling load resistance

Classification	Resistance to Impact	Resistance to perforation	Skid resistance	Resistance to abrasion
Level 1	I_1	P_1	S_1	A_1
Level 2	I_2	P_2	S_2	A_2
Level 3	I_3	P_3	S_3	A_3
Level 4	I_4	P_4	S_4	A_4

Table 6.13 : Correspondence of the classification for rolling load resistance with acceptable rolling loads.[17]

Classification	Corresponding acceptable rolling loads (kg/tyre)	
	Hard tyres	Soft (pneumatic) tyres
Level 1	≤ 300 kg	≤ 1 ton
Level 2	≤ 1 ton	≤ 2 ton
Level 3	≤ 2 ton	≤ 4 ton
Level 4	> 2 ton	> 4 ton

6.2.7.2.2.2 Resistance to functional failure due to eccentric loads

The resistance to functional failure from eccentric load, shall be determined in accordance with §5.1.7.2.1.1.3. The assembly shall be classified in accordance with table 6.14

Table 6.14: Assessment criteria for eccentric vertical load test

Loading use category	Functional failure test criteria	
-	No Performance Determined	
a	500 N short term	Maximum deflection:
b	2000 N short term	1/500 of height or 5 mm
c	5000 N short term	No functional failure

6.2.7.2.2.3 Performance characteristics of finishes

6.2.7.2.2.3.1. Adherence after bending

Finishes with a nominal thickness equal to 60 microns or smaller
No loss of adherence allowed for a bending at 2T.

Finishes with a nominal thickness larger than 60 microns
The disbonding shall not exceed 75% of the distance (see 5.2.7.2.2.3.1).

6.2.7.2.2.3.2. Cracking after bending

The finishing shall be classified in accordance with table 6.15.

Table: 6.15: Cracking after bending

Category	II	III and IIIa	IV and IVb	V, Vc and VI
Minimal bending radius (T)	6	5	4	3

[17] The WG will develop test data to develop a deemed-to-satisfy list of products.

6.2.7.2.2.3.3. Impact resistance

The impact resistance shall be declared in the ETA.

6.2.7.2.2.3.4. Resistance to staining

This characteristic is only relevant for finishings intended to be used in cold storage room kits intended for food storage. The test result shall be declared in the ETA.

6.2.7.2.2.3.5. Resistance to chalking

This characteristic is only relevant for finishings intended to be used in cold storage room kits intended for food storage. The test result shall be declared in the ETA.

6.2.7.2.2.4 Floor finishes

On the basis of the verification method(-s) used (see §5.2.7.1.4) the assessment result shall be declared.

6.2.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §6.1.7.2.3.

6.2.7.3 Identification

6.2.7.3.1 Composite panels

Identification of the composite panels shall be performed in accordance with §6.1.7.3 and §5.2.7.3.

6.2.7.3.2 Finishings

6.2.7.3.2.1. Nature

Declaration of the nature of the coating.

6.2.7.3.2.2. Thickness

The thickness shall meet the criteria and be classified as specified in table 6.16.

Table 6.16 Thickness tolerances of finishings

Thickness (in µm)	$3 < x \leq 5$	$6 < x \leq 10$	$11 < x \leq 20$	$21 < x \leq 25$	$26 < x \leq 35$	$36 < x \leq 60$	$61 < x \leq 100$	$101 < x \leq 150$	$151 < x \leq 500$	$501 < x \leq 800$
Tolerances for measurements on 3 points	- 2	- 3	- 3	- 4	- 5	- 8	- 15	- 20	- 30	- 40
Tolerances for measurement on 1 point	- 2	- 3	- 4	- 5	- 7	- 12	- 20	- 25	- 35	- 50

Notes:
- If the facing has a thickness of 600 µm or larger, then the measuring shall take place on three points, on one longitudinal line across the face; one in the centre, the two other 50mm from the sides. The test result on one sample is the mean of the three measurements.
- If the facing has a thickness smaller than 600 µm, then the measuring shall take place on one point, at least 50mm from the sides.
- No positive tolerances are imposed.
- This information is identical to EN 10169-1

6.2.7.3.2.3. Specular gloss

The specular gloss shall meet the criteria and be classified as specified in table 6.17.

Table 6.17: Specular gloss

Nominal specular gloss[18]	Tolerances on nominal specular gloss	Designation
≤ 10	± 3	Mat
11 < x ≤ 20	± 4	
21 < x ≤ 40	± 6	Satinised
41 < x ≤ 60	± 8	
61 < x < 80	± 10	Brilliant
≥ 80	- 0	Highly brilliant
Note: This information is identical to EN 10169-1		

6.2.7.3.2.4. Colour:

Declaration of colour.

6.2.7.4 Fitness for contact with food and feedstuffs

The Approval body shall check whether the kit components and/or the ETA-applicant's specifications (as applicable) take into account the provisions as specified in §5.2.7.4. If any of these provisions are not foreseen, then the kit shall be considered not be intended to store packaged and/or unpackaged food or feed.
For components of cold storage room kits intended to store packaged and/or unpackaged food or feed, No performance determined is not an option.

[18] When putting the product onto the market

6.3 ASSESSING AND JUDGING OF THE FITNESS FOR USE OF COMPONENTS OF THE KIT: DOORS, GATES AND WINDOWS

6.3.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for components of cold storage room kits.
Some aspects of mechanical resistance and stability are being considered either as part of "Safety in use" or as part of "Serviceability".

6.3.2 Safety in case of Fire

6.3.2.1 Reaction to fire

Doors, gates and windows shall be classified in accordance with EN 13501-1.

6.3.2.2 Fire resistance

Fire resisting door sets shall be classified in accordance with prEN 13916.

6.3.3 Hygiene, Health and the Environment

6.3.3.1 Release of dangerous substances

See §6.3.3.1. Additional provisions may be described in prEN 14351-1, -2 or -3 (for doors and windows) or EN 13241-1 and prEN 13241-2 (for industrial doors and gates).

6.3.3.2 Water vapour permeability

The water vapour permeability of doors, gates and windows shall be declared.

6.3.3.3 Moisture resistance

Moisture resistance is considered as a kit related requirement (see §6.1.3.3).

6.3.3.4 Air tightness

The air tightness of doors, gates and windows is being considered under ER6 (in §6.3.6.2).

6.3.4 Safety in Use

6.3.4.1 Impact resistance

The impact resistance of doors and gates shall be classified in accordance with EN 1192.

6.3.4.2 Mechanical resistance

6.3.4.2.1 Fixing resistance

The fixing resistance is only relevant for assemblies (See §6.1.4.2.1), composite panels (See §6.2.4.2.1) and fixing systems (See §6.4.4.2.1).

6.3.4.2.2 Mechanical resistance of wall, ceiling and floor panels

In accordance with §5.3.4.2.2, classification of complete windows and doors and gates shall be carried out in accordance with EN 12210, but under the following conditions: 1200 Pa ± 1 %. The deflection of fixed frame elements shall be determined by calculation or test.

6.3.4.2.3 Mechanical resistance of cold storage rooms

The mechanical resistance of cold storage rooms is only relevant for assemblies (See §6.1.4.2.3).

6.3.4.3 Resistance to eccentric loads

The resistance to eccentric loads is only relevant for assemblies (See §6.1.4.3).

6.3.4.4 Slipperiness of floor surfaces

Not relevant. The slipperiness of floor surfaces is being considered as a component requirement only (See §6.2.4.4).

6.3.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §6.1.4.5).

6.3.4.6 Safety against entrapment

The presence of safety releases as a part of the kit shall be declared
As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the responsibility of the Approval Body.
The possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed and declared if appropriate.

6.3.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §6.1.4.7).

6.3.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

6.3.6 Energy Economy and Heat Retention

6.3.6.1 Thermal performance

The thermal transmittance/resistance of doors, gates and windows shall be declared in accordance with the provisions of §5.3.6.1.

6.3.6.2 Air permeability

In general, assessment of the air permeability of the components is considered unnecessary, because the air permeability of the assembled cold storage room is being assessed.

However, if testing is required, the air permeability of doors, gates, windows and panels with transparent surfaces, shall be classified in accordance with EN 12207.

6.3.6.3 Water vapour permeability

The hygrothermal behaviour of doors, gates and windows is being assessed under ER3 (in §6.3.3.2).

6.3.7 Aspects of Durability, Serviceability and Identification

6.3.7.1 Durability

6.3.7.1.1 Mechanical resistance

The durability of mechanical resistance for pedestrian doors shall be classified in accordance with EN 12400. For other doors and gates EN 12605 applies.

6.3.7.1.2 Performance characteristics of non-pedestrian doors and gates

The classification of the durability of the durability of non-pedestrian doors and gates shall be performed in accordance with EN 12605.

6.3.7.2 Serviceability

6.3.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §6.1.7.2.1.

6.3.7.2.2 Provisions related to doors, gates and windows

6.3.7.2.2.1 Behaviour of doors, gates and windows placed between two different climates

The effect on doors, gates, windows and panels with transparent surfaces, due to being placed between two different climates, both of which shall be specified by the ETA-applicant, shall be classified in accordance with EN 12219.

6.3.7.2.2.2 Automatic opening and / or closing devices

Occasionally, this might be relevant for cold storage doors and gates (in case of fire).

6.3.7.2.2.3 Behaviour of doors and gates (and windows) under repeated opening and closing

The resistance of doors and gates (and windows) under the influence of being opened and closed repeatedly, shall be classified in accordance with EN 13115 and EN 12217.

6.3.7.2.2.4 Behaviour of doors, gates and windows under operating forces

The behaviour under operating forces of doors, gates and windows, shall be classified in accordance with EN 12217.

6.3.7.2.2.5 Behaviour of doors and gates under loads

The behaviour under loads of doors and gates, shall be classified in accordance with EN 1192.

6.3.7.2.2.6 Defrost provisions for doors and gates

The presence of defrost provisions as a part of the kit shall be declared.
As the verification is done on a case-by-case basis, the verification method and the characteristics shall be declared in the ETA, as well as extended application of the test results (if any), under the responsibility of the Approval Body.
The possible influences on ER2, ER3, ER4 and ER6 of the kit shall be assessed and declared if appropriate.

6.3.7.2.2.7 Radiation properties – Light transmittance

The light transmittance of glazing of windows and panels with transparent surfaces shall be declared in accordance with EN 410.

6.3.7.2.2.8 Safe opening

Applicable for vertically moving cold storage doors and gates. Verification: EN 12604 and 12605.

6.3.7.2.2.9 Power operation

Applicable for power operated cold storage doors and gates. Verification: EN 12453.

6.3.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §6.1.7.2.3.

6.3.7.3 Identification

Identification of doors, gates and windows shall be performed in accordance with §6.1.7.3 and §5.3.7.3.

The ETA shall at least specify the following information for:

- Doors and gates:
  - range of dimensions of all door and gate types
  - air and water tightness design principle used
  - all production, handling or installation features that may influence the performances of the doors and gates
  - possible door and gate configuration, using the ancillary components as listed below
- windows:
  - range of dimensions of all window types
  - air tightness design principle used
  - all production, handling or installation features that may influence the performances of the windows
  - possible window configuration, using the accessories as listed below
- accessories for windows and doors (see also §6.4.7.3):
  - glazing: generic type (nature), density, thermal conductivity and production method
  - frame: generic type (nature), thickness and design (drawing)
  - finishing: generic type (nature), thickness
  - building hardware: design, geometry (by drawings) and generic type (nature)
  - gaskets: generic type (nature), geometry and dimensions
  - sealants: generic type (nature)
  - door heating devices: type and other useful information
  - door kick plates: nature and dimensions

6.3.7.4 Fitness for contact with food and feedstuffs

The Approval body shall check whether the kit components and/or the ETA-applicant's specifications (as applicable) take into account the provisions as specified in §5.3.7.4. If any of these provisions are not foreseen, then the kit shall be considered not be intended to store packaged and/or unpackaged food or feed.
For components of cold storage room kits intended to store packaged and/or unpackaged food or feed, No performance determined is not an option

6.4 ASSESSING AND JUDGING OF THE FITNESS FOR USE OF COMPONENTS OF THE KIT: FIXING SYSTEMS, SEALANTS, GASKETS AND BUILDING HARDWARE

6.4.1 Mechanical Resistance and Stability

This Essential Requirement is not relevant for components of cold storage room kits.
Some aspects of mechanical resistance and stability are being considered either as part of "Safety in use" or as part of "Serviceability".

6.4.2 Safety in case of Fire

6.4.2.1 Reaction to fire

Not relevant for these components, unless the cold storage room kit is subject to reaction to fire regulations.
In that case, the following shall apply:

6.4.2.1.1 Point fixing systems

These shall be classified as a part of a door set (See §6.3.2.1) or as part of the panel assembly (See §6.2.2.1).

6.4.2.1.2 Other components

Larger fixing systems, sealants, gaskets and building hardware shall be classified in accordance with EN 13501-1.

6.4.2.2 Fire resistance

Fire resistance testing is only relevant for assemblies (See §6.1.2.2). These components shall be assessed as a part of the assembly.

6.4.3 Hygiene, Health and the Environment

6.4.3.1 Release of dangerous substances

See §6.1.3.1. Additional provisions may be described in:
- Fixing systems: ETA-Guideline 001
- Sealants: ETA-Guideline xx1
- Gaskets: EN 12365-1
- Building hardware: No additional information available

6.4.3.2 Water vapour permeability

The water vapour permeability of gaskets and sealants shall be declared in accordance with EN ISO 12572 (test method) or EN 12524 (tabulated values).

Note: EN 12524 can be used, as far as applicable for the product concerned.

6.4.3.3 Moisture resistance

Moisture resistance is considered as a kit related requirement (see §6.1.3.3).
For components of cold storage room kits intended to store packaged and/or unpackaged food or feed, No performance determined is not an option.

6.4.3.4 Air tightness

The air tightness is being considered under ER6 (in §6.4.6.2).

6.4.4 Safety in Use

6.4.4.1 Impact resistance

Not relevant for these components. They shall be assessed as a part of the assembly (See §6.1.4.1).

6.4.4.2 Mechanical resistance

6.4.4.2.1 Fixing resistance

The fixing resistance is only relevant assemblies (See §6.1.4.2.1), composite panels (See §6.2.4.2.1) and fixing systems. It is not relevant for sealants, nor for gaskets.

If sufficient evidence is not available from tests performed in accordance with §5.1.4.2.1 and §5.2.4.2.1, then the results from the tests in accordance with §5.4.4.2.1 shall be declared.

6.4.4.2.2 Mechanical resistance of wall, ceiling and floor panels

The mechanical resistance of wall, ceiling and floor panels is only relevant for composite panels (See §6.2.4.2.2).

6.4.4.2.3 Mechanical resistance of cold storage rooms

The mechanical resistance of cold storage rooms is only relevant for assemblies (See §6.1.4.2.3).

6.4.4.3 Resistance to eccentric loads

Not relevant for these components. They shall be assessed as a part of the assembly in the test to determine the resistance to eccentric loads of the assembly (See §6.1.4.3).

6.4.4.4 Slipperiness of floor surfaces

Not relevant. The slipperiness of floor surfaces is being considered as a component requirement only (See §6.2.4.4).

6.4.4.5 Safety against personal injuries by contact

The safety against personal injuries by contact is being considered as an assembly requirement only (See §6.1.4.5).

6.4.4.6 Safety against entrapment

The safety against entrapment is being considered as a requirement, relevant for doors and gates only (See §6.3.4.6).

6.4.4.7 Safety against collapse

The safety against collapse is being considered as an assembly requirement only (See §6.1.4.7).

6.4.5 Protection against Noise

This Essential Requirement is not relevant for cold storage room kits.

6.4.6 Energy Economy and Heat Retention

6.4.6.1 Thermal performance

The thermal transmittance/resistance of these components shall be determined in accordance with EN 12524 (tabulated values) and taking into account when calculating in accordance with EN ISO 6946 (See §6.1.6.1).

Note: EN 12524 can be used, as far as applicable for the product concerned.

6.4.6.2 Air permeability

Not relevant for these components. They shall be assessed as a part of the assembly (See §6.1.6.2).

6.4.6.3 Water vapour permeability

The hygrothermal behaviour is being assessed under ER3 (in §6.4.3.2).

6.4.7 Aspects of Durability, Serviceability and Identification

6.4.7.1 Durability

6.4.7.1.1 Fixing systems

6.4.7.1.1.1 Corrosion

The assessment/testing required with respect to corrosion resistance will be dependent upon the specification of the fixing systems in relation to its use. Supporting evidence that corrosion will not occur is not required if the fixing systems are protected against corrosion of steel parts, as set out below:

6.4.7.1.1.1.1 Fixing systems for use in structures subject to exposure in permanently damp internal conditions:

The metal parts of the fixing systems shall be made of an appropriate grade of stainless steel. The grade of stainless steel suitable for the various service environments (marine, industrial, etc.) shall be in accordance with existing rules. Grade 1.4301 of EN 10088-1 or equivalent may be used under internal or other environmental conditions if no particularly aggressive conditions exist.

6.4.7.1.1.1.2 Fixing systems intended for use in structures subject to dry, internal conditions:

In general, no special corrosion protection is necessary for steel parts as coatings provided for preventing corrosion during storage prior to use, to ensure proper functioning (e.g. a zinc coating with a minimum thickness of 5 microns) is considered sufficient. Malleable cast iron parts in general, e.g. type B32-12 and W40 05 to ISO 5922 do not require any protection.

Where a form of protection (material or coating) other than those mentioned above is specified, it shall be necessary to provide evidence in support of its effectiveness in the defined service conditions; with due regard to the aggressiveness of the conditions concerned.

If fixing systems involve the use of different metals, these shall be electrolytically compatible with each other. In dry internal conditions, carbon steel is compatible with malleable cast iron.

6.4.7.1.1.2 Coating

Assessment of the durability of the coating shall be based on the type of coating and the intended conditions of use (i.e. dry internal conditions).

6.4.7.1.2 Sealants

The durability of sealants shall be classified in accordance with ISO 11600.

6.4.7.1.3 Gaskets

6.4.7.1.3.1 Resistance to heat ageing

The product is judged by evaluating the re-deformation which shall be at least 50% larger than the nominal joint width.

6.4.7.1.3.2 Compatibility with adjoining construction materials

The product is judged by evaluating the re-deformation which shall be at least 50% larger than the nominal joint width.

6.4.7.1.4 Building hardware

The durability of building hardware shall be classified in accordance EN 1670 (corrosion resistance).

6.4.7.2 Serviceability

6.4.7.2.1 Provisions related to the kit as a whole

Provisions related to the kit as a whole are given in §6.1.7.1.

6.4.7.2.2 Provisions related to fixing systems, sealants, gaskets and building hardware

6.4.7.2.2.1 Fixing systems

No additional requirements.

6.4.7.2.2.2 Sealants

The serviceability aspects of sealants shall be assessed in accordance with ISO 11600.

6.4.7.2.2.3 Gaskets

6.4.7.2.2.3.1 Resistance to changes in temperatures

The product is judged by evaluating the re-deformation which shall be at least 50% larger than the nominal joint width.
If claimed, the product shall remain watertight after being subjected to the driving rain test.

6.4.7.2.2.3.2 In service temperature range

Gaskets shall be of grade 4 in accordance with EN 12365-1.

6.4.7.2.2.4 Building hardware

No additional requirements.

6.4.7.2.3 Provisions related to ancillary components of the kits

Provisions related to ancillary components are given in §6.1.7.2.3.

6.4.7.3 Identification

Identification of fixing systems, sealants, gaskets and building hardware shall be performed in accordance with §6.1.7.3 and §5.4.7.3.

6.4.7.4 Fitness for contact with food and feedstuffs

The Approval body shall check whether the kit components and/or the ETA-applicant's specifications (as applicable) take into account the provisions as specified in §5.4.7.4. If any of these provisions are not foreseen, then the kit shall be considered not be intended to store packaged and/or unpackaged food or feed.

6.5 ASSESSING AND JUDGING OF THE FITNESS FOR USE OF COMPONENTS OF THE KIT: PROFILES, FRAMEWORK, STUDS, ETC.

6.5.1 ER1: Mechanical resistance and stability

Not relevant to this component

6.5.2 ER2: Safety in case of fire

6.5.2.1 Reaction to fire

The component shall be classified according to EN 13501-1.

6.5.3 ER3: Hygiene, health and the environment

6.5.3.1 Release of dangerous substances

See §6.1.3.1.

6.5.4 ER4: Safety in use - Mechanical resistance and stability (for room and building envelope kits only)

6.5.4.1 General

The performance of the supporting framework will have been determined by calculations, testing or a combination of calculation and testing.

6.5.4.2 Calculation

Where the performance of the supporting framework has been determined by calculation in accordance with the relevant Eurocodes (see 5.5.4.1) the bearing, bending and shear capacities together with predictions for deformations shall be determined. Any Nationally Determined Parameters (NDP) used shall be declared.

6.5.4.3 Testing

Where the performance of the supporting framework has been determined by testing or a combination of calculation and testing, then the principles of the relevant structural Eurocodes shall be followed to determine an overall performance relating to strength and stiffness.
The statistical analysis of the test results to determine the characteristic value is to be undertaken according to EN 1990.

6.5.5 Protection against noise

Not relevant to this component

6.5.6 Energy economy and heat retention

Considered in relation to the kit

6.5.7 Aspects of durability, serviceability and identification

6.5.7.1 Durability and serviceability requirements

The technical file and the ETA shall contain details of the supporting framework materials and the

means by which their durability has been proven. Where the evidence is from previous assessments or from experience it shall be clear over what period the evidence has been gathered and under what circumstances the material and/or its corrosion protection or preservative treatment has proved satisfactory. Comment shall be made on any hazard that might arise in particular exposure conditions e.g. marine or industrial areas.

7. ASSUMPTIONS AND RECOMMENDATIONS UNDER WHICH THE FITNESS FOR USE OF THE PRODUCTS IS ASSESSED

This chapter sets out the assumptions, recommendations for design, installation and execution, packaging, transport and storage, use, maintenance and repair under which the assessment of the fitness for use according to the ETA-Guideline can be made (only when necessary and in so far as they have a bearing on the assessment or on the products).

7.1 DESIGN OF WORKS

7.1.1 General

The design of a building, incorporating a cold storage room kit, will most of the time, not be specific to the works on which it is to be used.

However, there are a few aspects it is assumed will be taken into account when designing the building in which the cold storage room(-s) is/are to be incorporated; the list is not exhaustive:

- Attachment of the supports to the structure of the building
- The assessment of condensation risk and the provision of vapour control layers and thermal insulation
- Fire protection
- Means of access for inspection and maintenance
- Mechanical resistance and stability of the existing floor construction

The ETA shall indicate the conditions for design of the particular cold storage room kit into the works. It is for the designer to ensure that the cold storage room as installed in the works provides the required performance on the basis of the information given in the ETA such as the following:

- Where and how the kit is fixed to the rigid supports
- When appropriate, special fixings for seismic conditions. In case of dynamic actions such as those occurring in case of an earthquake, the designer shall take account of the possible contribution of the cold storage room kit in accordance with national or local regulations.

7.1.2 Specific

7.1.2.1 In-service safety provisions

7.1.2.1.1 Doors and gates

Apart from the measures foreseen in the previous chapters (safety release provisions on doors and gates), an additional pedestrian door should be foreseen, if the cold storage room is sufficiently large. Such additional door should be located as a means for quick evacuation in the case of an emergency. Escape doors should open outwards and be fitted with an easily operated opening mechanism, activated from the inside only.
A provision should foresee that it is possible to open the main door from the inside, even when it has been locked externally.

7.1.2.1.2 Presence of interior light

The designer should take into account that the presence of interior light in the cold storage room might be necessary, depending on the intended use and the dimensions of the room.
However, care should be taken that the heat, generated by the light, does not adversely affect the core material, nor the products stored.

7.1.2.1.3 Pressure equalising devices

For cold storage rooms intended to be used in negative temperatures, even when no such provisions are part of the cold storage room kit, pressure equalising device(-s) should be fitted in each cold storage room, to prevent damaged caused by under or over pressure, resulting from for

instance defrosting or the introduction of warm products in large quantities.

7.1.2.1.4 Other safety provisions

Other safety provisions, such as the presence of alarm systems, telephones and transparent surfaces in doors and gates might improve in-service safety considerably. It is possible that in some countries such provisions are regulated, depending on the intended use and/or size of the assembled cold storage room.

The assembled kit should ensure a satisfactory air quality and in general a healthy indoor environment for cold storage room users. Where relevant, the ventilation rate should at least correspond with minimum regulatory requirements.

Active fire protection provisions (e.g. fixed fire fighting systems) should be incorporated, at least in accordance with national regulatory requirements.

7.1.2.2 Cold storage room floor

7.1.2.2.1 Protection of the building floor (and foundation)

The designer should take into account that the presence of the cold storage room, inducing low temperatures in the ground, might lead to water in the ground becoming frozen. In certain subsoils, this might lead to "frost heave".
Cold storage rooms used year round might suffer damages, if the freezing plane in the ground is permitted to move into the soil that is susceptible to frost (usually soils with fine graines, through which moisture can move), where moisture is present, due to subsequent build-up of ice.
The necessary provisions should be taken (e.g. sufficient insulation, heating devices, alarm systems). The design method, given in EN ISO 13793 should be taken into account, but special attention should be paid to the low temperatures that the cold storage room induces.

7.1.2.2.2 Energy conservation

If the kit for prefabricated cold storage room does not contain floor panels all necessary precautions should be taken to prevent disproportionate loss of energy due to insufficient building floor insulation.

7.1.2.2.3 Frost damage

If on site applied concrete or mortar is being used as a part of the floor construction, the floor should be allowed to dry out sufficiently, to limit the amount of humidity in it, preventing frost damage.

7.1.2.2.4 Discontinuously laid floor finishes

If discontinuously laid floor finishes are used (tiles, sheets), it is generally recommended to:

- use resin based joint materials, because they are more resistant to chemical, physical and biological deterioration, to high-pressure cleaning and to thermal loads and humidity, which is essential to prevent frost damage.
- limit the difference in height between the elements and to give flatness requirements, especially in relationship with important dynamic and static loads (e.g. vehicular traffic).

7.1.2.2.5 Floor slipperiness

It should not be expected that floor coverings, complying with the criteria set in §6.2.4.4, provide an automatic guarantee that no person (or vehicle) ever slips and falls on it.

7.1.2.3 Food safety

7.1.2.3.1 Council Directive 93/43/EEC of 14 June 1993 on the hygiene of foodstuffs

Council Directive 93/43/EEC lays down the general rules of hygiene for foodstuffs. It supplements Council Directive 89/397/EEC of 14 June 1989 on the official control of foodstuffs. These general rules, as set out in the annex of the Directive, should be observed at the time of preparation, processing, manufacturing, packaging, storing, transportation, distribution, handling and offering for sale and supply of foodstuffs. The Directive is a horizontal Directive and therefore applies across

the whole of the food industry. It covers producers, manufacturers, distributors, wholesalers, retailers and caterers. Food businesses are required to use a self-control programme (Hazard analysis and critical control points (HACCP) system) and foresee maintenance to ensure safety of foodstuffs.

7.1.2.3.2 Food safe internal panel facings

To comply with the EC Foodstuff directive (93/43/EEC), wall and ceiling surfaces should be smooth, light coloured, durable, impermeable, easily cleaned and, where necessary, disinfected.
In areas prone to high humidity and condensation, the surface materials and finishes should be selected to minimise flaking and mould growth.
Designers should evaluate where the emphasis related to safety lies when determining floor finishes. Generally, "food safe" floor finishes are easily cleanable, which makes them less slip resistive (and vice versa). If slippery floors are not avoidable, users should be made aware of the nature of the risk and/or special footwear should be provided.

Note: Wall and ceiling finishes should be light coloured, so that contamination is clearly visible.

7.1.2.3.3 Food safe shelving

Shelving and shelf supporting systems of cold storage room kits intended to be used to store unpackaged food or feed, should be easily cleanable and should not provide harbourage for vermin. It should, in most cases, be readily removable.

7.1.2.3.4 Food safe equipment

Equipment of cold storage room kits intended to be used to store unpackaged food or feed, should be accessible for the necessary cleaning and maintenance.
Evaporator coils, refrigerant tubing and alike should not be in direct contact with food contact surfaces and should be installed so that condensate, if any, does not contact food or insulation.

7.1.2.3.5 Food safe equipment mounting

Floor mounted equipment of cold storage room kits intended to be used to store unpackaged food or feed, should be:
- Portable; or
- Mobile; or
- Designed to be sealed to the floor; or
- Elevated on legs that provide a sufficient clearance beneath the equipment to facilitate cleaning.

Equipment intended to be sealed to the floor should not create inaccessible cavities or areas that may be subject to soiling or vermin harbourage.

7.1.2.3.6 Food safe temperature controls

Cold storage room kits intended to be used to store packaged and/or unpackaged food or feed, shall have automatic controls capable of maintaining temperatures in accordance with the relevant performance requirements.

7.1.2.3.7 Food safe temperature indicating devices

Each cold storage room kit compartment intended to be used to store packaged and/or unpackaged food or feed, should at least have one securely mounted temperature indicating device that clearly displays the air temperature in the compartment, which should be visible immediately upon opening a door or gate to the cold storage compartment or from outside.
The sensing element of the device should be easily cleanable. The temperature indicating devices should be removable.

7.1.2.3.8 Food safe kits without floor panels

If a cold storage room kit includes prefabricated floor panels, the corner formed at the floor-wall

intersection shall conform to the minimum radius requirement in §5.1.7.4.1.2.
This requirement also applies if an in-situ applied floor (e.g. concrete, tiles, …) is to be installed on top of the prefabricated panels or if floor panels are not part of the kit. In that case, the required radius should be executed using appropriate site applied materials (concrete, mortar, …).
The kits without floor panels shall be manufactured so that the joints formed between the wall panels and the floor may be closed and sealed upon assembly.

Floor drainage should be foreseen in floors that are being cleaned by flushing water. If this is the case, floors should slope towards the drainage.

7.1.2.4 Equipment and in-service loads

The cold storage room should be designed to ensure that imposed equipment (compressors, condensers, evaporators, refrigerant pumps, incl. pipes and conduits, etc.) and in-service loads (e.g. ice build-up) do not adversely affect the stability of the structure and the integrity of the joints.

When cold storage rooms are intended to be used at low temperatures (below -20°C), attention is drawn to the desirability of employing steel with suitable low temperature ductility, especially for load-bearing parts of the structure, which may be subjected to dynamic loads.

Structural perimeter kerbs or other similar provisions should be foreseen at the base of the cold storage room walls and/or partitions, if it is likely that vehicles (or alike) might accidentally impact with the cold storage room elements.

7.1.2.5 Water vapour barrier

The continuity and integrity of the vapour barrier is essential. This aspect becomes critical when the floor panels are not part of the kit.
When determining the internal cold storage room finishes, the designer has to take into account that "food safe" finishes are impervious. This property has to be taken into consideration, when determining the hygrothermal build-up of the construction.
Designers should be aware that the vapour barrier should usually be situated at the "warmest" side of the construction. In most West-European situations, this is usually the outside of the cold storage room construction, but not necessarily so (i.e. if the exterior temperature is colder than the temperature inside the cold storage room).

7.1.2.6 Provisions limiting energy consumption

Equipment is usually being made available by the ETA-holder to limit air infiltration. Such provisions, e.g. strip curtains or rapid roll fabric doors, may have a substantial influence on energy conservation.

7.2 PACKAGING, TRANSPORT AND STORAGE

The cold storage room kit shall be protected from mechanical damage, bowing, discolouration and excessive exposure to direct sunlight and moisture during transportation and storage. Damaged components shall not be used.

The kits shall be handled and stored with care and be protected from accidental damage.

During transportation and site storage, panels and other kit components, shall be protected against humidity, heat and direct sunlight. In cases where a protective film has been temporarily adhered to composite panel' faces, the expiry date of the film should be clearly indicated.

7.3 EXECUTION OF WORKS

7.3.1 General

Essential conditions for design and execution of the kit into the works shall be taken from the ETA-

holder's installation guide.
The quality and sufficiency of this installation guide shall be assessed, in particular concerning the following check list, which is not exhaustive:

- provisions for installing openings in panels (e.g. for technical equipment)
- type of fixing systems
- tolerances
- provision for thermal expansion or shrinkage
- order of installation of the various components

The installation guide is **not** a part of the ETA. The ETA-holder is responsible for delivering the installation guide to the purchaser.

7.3.2 Erection of cold storage rooms

The ETA-holder's installation guide should pay special attention to the following risks:

- When installing cold storage rooms into existing buildings, the existing structure should be designed to support the additional weight. The guide shall show which loads are to be expected.
- If on site cutting of panels is foreseen as part of the ETA-holder's specifications, the installation guide shall provide at least the following guidance:
  - Appropriate method to cut panels on site.
  - Removal of waste material, which should be completely removed from the cut edges of the panels.
  - Appropriate measures, and products, to ensure corrosion resistance of the panels.
  - Provisions to ensure that the panels, and the cold storage room enclosure, meet the requirements to ensure that the assembled kit meets the essential requirements, and especially that they are water vapour tight.
- See also §7.4.4 regarding the walkability of ceilings

7.3.3 Putting into service

Prior to lowering the temperature, a thorough check should be carried out to ensure that the cold storage room has been constructed in accordance with ETA-holder's specification and that especially the stability and the vapour tightness requirements have been met.

When the cold storage room is being put into service, the necessary precautions should be taken when decreasing the temperature first down to 0 °C and secondly to the intended storage temperature.
These precautions should be in accordance with ETA-holder's specification (see 2nd note), but need to address the following:

- the temperature should be decreased during a sufficiently long period
- in most cases, the door or gate is left partly open when decreasing the temperature below 0 °C up to the intended storage temperature.
- in accordance with the ETA-holder's specifications, the door or gate should be shut, when the temperature is near to the intended storage temperature.

Notes:

- Pressure relief devices are usually not designed to compensate pressures at the time of putting into service. This function can only be compensated by the partial opening of the door or gate. Neglecting this measurement can cause collapse of the ceiling.
- Indicatively, the following recommendations are given for large cold storage rooms: the speed of descent of the temperature of the room should be controlled. When reducing the temperature from ambient temperature to 0 °C, the speed of descent should not exceed 15 K per 24 h. When the envisaged operating temperature is lower or equal to 0 °C, an additional stage should be foreseen, when the temperature approaches 0 °C. The duration of this stage depends on the water content of materials and is usually between two and eight days. From 0 °C on, the speed of temperature reduction, should not exceed 5 K per 24 h.
- The speed with which the temperature is allowed to decrease, and the moment upon which the door or gate should be closed, depends on the volume of the cold storage room.

7.4 MAINTENANCE, REPAIR AND CLEANING

The assessment of the fitness for use is based on the assumption that normal maintenance of the cold storage rooms is performed.

This maintenance shall at least include:

- cleaning, as necessary, carried out with appropriate cleaning products. It is a normal assumption that the cold storage rooms shall not be cleaned with cleaning products containing solvents or abrasive or grinding agents.
- early repair or replacement of damaged parts
- joints and vapour seal inspection to detect snow condensation and growth of micro-organisms
- replacement of components with a limited working life (e.g. jointing materials)

7.4.1 Replacing components

The ETA shall indicate whether and how replacing of components is possible.
When replacing components, the materials shall be approved by the ETA-holder and covered by the ETA for the cold storage room kit.

7.4.2 Extending cold storage rooms

The ETA shall indicate whether and how extending existing cold storage rooms is possible.
When adding components, the materials shall be approved by the ETA-holder and covered by the ETA for the cold storage room kit.

7.4.3 Precautions before maintaining, repairing and cleaning

Before maintaining, repairing and/or cleaning in-service cold storage rooms, the temperature of the room should be above 0 °C, and preferably at ambient temperature.
Foodstuff should be evacuated from the room before raising the temperature.

7.4.4 Ceiling access

In case of inaccessible ceilings (kits with ceilings not intended to be accessed, see §2.2.3) it is necessary to provide an external structure with appropriate walkways, completely independent from the ceiling, to allow a safe installation of the panels
Even when the impact resistance and walkability requirements in this ETA-Guideline have been met, most composite ceiling panels deteriorate when subjected to repeated foot traffic.
When regular traffic is to be expected, it is advisable to provide walkways, either secured to the external face of the ceiling panel or even completely independent from the ceiling.

7.4.5 Precautions relating to replacement/retrofit

Where major or minor items have to be replaced all food or feed stuff should be either removed or effectively screened off from the operating area. The removed item(s) should be shrink-wrapped or effectively encapsulated immediately before and during transport and the newly exposed regions immediately treated with a biocide. These precautions are particularly important for dairy products where listeria bacteria can be released.

7.4.6 Precautions after maintaining, repairing and cleaning

After maintaining, repairing and/or cleaning in-service cold storage rooms, the temperature should be brought back to the intended in-service temperature, taking into account the provisions as given in §7.3.3.

Depending on the nature of the maintenance, reparation and cleaning and the materials and/or cleaning agents used, it might be necessary to ventilate the room before putting it into service again.

7.5 Recommendations related to the internal environment of Cold storage rooms[19]

7.5.1. Aggressiveness of internal cold storage room environments

The aggressiveness of internal cold storage room environments depends on the presence of
- acid, basic or saline gases or vapours,
- exposure to disinfectant cleaning and/or
- the presence of micro-organisms.

The following categories have been defined:

Table 7.1: Definition of use categories for aggressiveness

Type	Description
Not aggressive	Absence of corrosive chemicals and/or micro-organisms
Reasonably aggressive	Not aggressive environment, but walls and floors might come into contact with lightly aggressive liquids.
Aggressive	Environments where acid fluids, gases or vapours, alkali(-s), salts and/or micro-organisms and/or disinfectants are present.
Very aggressive	Environments where walls and floors might regularly come into contact with acid fluids, gases or vapours, alkali(-s), salts and/or micro-organisms and/or aggressive disinfectants.

7.5.2. Internal humidity exposure types for cold storage rooms:

7.5.2.1 Definition of hygrometry conditions

Table 7.2: Definition of hygrometry conditions

Hygrometry exposure	***W/n*** **- Ratio of the quantity of water vapour produced (g/h) and the ventilation ratio (m^3/h)**
Low hygrometry exposure	$\leq 2,5$
medium hygrometry exposure	$2,5 < x \leq 5$
high hygrometry exposure	$5 < x \leq 7,5$
very high hygrometry exposure	$> 7,5$
Note: The term "hygrometry" is defined as the ratio of the quantity of water vapour produced (g/h) and the ventilation ratio (m^3/h)	

7.5.2.2 Room humidity

The room humidity (W_i) depends on the humidity conditions (W*/n* - see above), exterior conditions (W_e), room temperature and the ventilation: $W_i = W_e + W/n$

Rooms are classified as follows:
- Low humidity
- Medium humidity
- High humidity
- Humid environment, while hygrometry is very high, with intermittent condensation on walls
- Very humid environment, while hygrometry is very high, with frequent condensation on walls
- Saturated environment, while hygrometry is very high, with permanent condensation on walls

7.5.3. Cleaning methods and agents

The use categories for cleaning methods and agents, differentiates:
- aggressiveness of the cleaning agent (pH-value)

[19] These use categories have been derived from the French standard XP P 34-301:2002, adapted for use in this ETA-Guideline. The standard XP P34-301:2002 is largely based on ENV 10169-2 and EN 10169-3.

- temperature of the cleaning agent (°C)
- pressure for pressure cleaning (MPa)

Table 7.3: Definition of cleaning methods

Cleaning category	pH value	Temperature	Pressure[20]
Ordinary cleaning	Regular cleaning, not using aggressive cleaning agents, nor high pressure cleaning		
Not intensive cleaning	Neutral	< 30°C	< 0,3 MPa
Intensive cleaning	4 < pH < 9	< 40°C	< 3,5 MPa
Very intensive cleaning	pH ≤ 4 or pH ≥ 9	< 50°C	< 5 MPa

7.5.4. Summary table - Internal environment categories

In table 7.4, the worst criterion (aggressiveness, cleaning agents or humidity) that might lead to deterioration indicates the internal environment.
Kit components should be suitable for the environment that the kit is intended for.

Example: If the environment aggressiveness is "reasonably aggressive", the cleaning agent is "ordinary" and the humidity is "medium hygrometry", then the internal environment should be classified as "IE4" and products should be used in accordance with the requirements for that Internal Environment type.

Table 7.4: Determination of Internal Environment

Internal Environment	Environment aggressiveness	Cleaning	Room humidity
IE1	Not aggressive	Ordinary	Low
IE2	Not aggressive	Ordinary	Medium
IE3	Not aggressive	Not intensive	High
IE4	Reasonably aggressive	Not intensive	High humidity, combined with intermittent condensation
IE5	Aggressive	Intensive	High humidity, combined with frequent condensation
IE6	Very aggressive	Very intensive	High humidity, combined with permanent condensation

7.5.5. Classification of paints and coatings for internal environment categories

Having performed the assessment on the basis of the verification methods as specified in §5.2.7.1.3 and §5.2.7.2.2.3, and the corresponding classification in accordance with §6.2.7.1.3 and §6.2.7.2.2.3, the coatings can be classified in accordance with table 7.5.

[20] Pressure at the nozzle.

Table 7.5: Classification of coatings and paints

Internal Environment	Minimum required protection type	Example of representative storage circumstances
IE1	I	Storage of packaged dry goods Storage of frozen goods, with the exception of unpackaged fish
IE2	II	Cold storage Storage of dairy products and packaged meat
IE3	IIIa	Storage in humid conditions (e.g. salad, flowers, fruit) Cold storage of meat
IE4	IVb	Storage rooms for chicory, wine Storage of butter
IE5	Vc	Storage of mushrooms (cultures) Ageing of cheese Fermentation rooms Smoking and drying room Storage, freezing of unpackaged fish
IE6	-	

Section Three:
ATTESTATION OF CONFORMITY

8. ATTESTATION OF CONFORMITY

8.1 EC DECISION

The systems of attestation of conformity, specified by the Commission decision 2003/728/EC , is system 1 as described in Council Directive (89/106/EEC) Annex III, and is detailed as follows:

System 1 for any intended uses.

Tasks for the ETA-holder:
- factory production control
- further testing of samples taken at the factory by the ETA-holder in accordance with a test plan.

Tasks for the approved body:
- initial type testing of the product
- initial inspection of the factory and of factory production control
- continuous surveillance, assessment and approval of factory production control.

8.2 RESPONSIBILITIES

8.2.1 Tasks for the ETA-holder

8.2.1.1 Factory production control (FPC)

8.2.1.1.1 General

The ETA-holder shall exercise permanent internal control of the production. All the elements, requirements and provisions adopted by the ETA-holder shall be documented in a systematic manner in the form of written policies and procedures. This factory production control system shall ensure that cold storage room kits are in conformity with the European Technical Approval (ETA).

The personnel involved in the production process shall be identified, sufficiently qualified and trained to operate and maintain the production equipment. Machinery equipment shall be regularly maintained and this shall be documented. All processes and procedures of production shall be recorded at regular intervals.

The ETA-holder shall maintain a traceable documentation of the production process from purchasing or delivery of raw or basic raw materials up to the storage and delivery of finished products.

The factory production control system for the cold storage room kits shall normally include relevant design specifications, including adequate drawings and written instructions and at least the following items:
- type and quality of all materials and components incorporated in the cold storage room kits
- positions of components in the cold storage room kits
- overall dimensions of cold storage room kits
- installation of components and ancillary components
- markings for correct position and installation in the works, and special handling devices, when relevant

- packaging and transport protection
- checks that the relevant design specifications for the production do exist, e.g. structural designs, construction details and manuals for installation as mentioned in chapter 7.

The production control system shall specify how the control measures are carried out, and at which frequencies.

ETA-holders which have an FPC system that complies with EN ISO 9001 and that addresses the requirements of the ETA are recognised as satisfying the FPC requirements of the Directive.

Products that do not comply with requirements as specified in the ETA shall be separated from the conforming products and marked as such. The ETA-holder shall register non-compliant production and action(-s) taken to prevent further non-conformities. External complaints shall also be documented, as well as actions taken.

8.2.1.1.2 Incoming material/products

8.2.1.1.2.1 General

Cold storage room kits may consist of one or more of the following possibilities:
- components produced by the ETA-holder
- components produced by an independent manufacturer (supplier)
- components purchased by the ETA-holder on the open market

In any case, sufficient proof shall be established to show that permanent internal control takes place.

When materials/products are delivered for incorporation into the production process, verification of conformity with specifications in the ETA shall take place, with special attention for the following aspects:
- the coils are in conformity with relevant European product standards (e.g. EN 485-1, -2, -3 and -4, EN 573-3, EN 1172, EN 1396, EN 10326, EN 10327, EN 10088-1)
- the wood-based panels are in conformity with EN 13986
- other face materials, such as GRP-panels and PVC-panels are in conformity with ETA-holder's specifications
- it is essential that the manufacturing process ensures that the surfaces of all interfaces are not contaminated, which might adversely affect bonding.
- the insulation material is in conformity with the relevant European product standard (EN 13162, EN 13163, EN 13164, EN 13165, EN 13166 and EN 13167).
- the adhesives, where relevant, are in conformity with ETA-holder's specification and the ETA's specification. The ETA-holder shall check the expiry date (shelf life) and the density (see EN 542) or viscosity (see EN 12092) at every supply.

8.2.1.1.2.2 Documentation

In any case, documented verification of incoming material/products is considered good practice. A corresponding test plan should be agreed between notified body and ETA-holder.
Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, or where the ETA-holder purchases materials/components on the open market, then where appropriate, they shall be subject to suitable documented checks/tests by the ETA-holder before acceptance.

The characteristics of incoming material and components, for which the supplier demonstrates documented compliance with a product specification, for an intended use that is appropriate for its use as a part of a cold storage room kit, shall be considered satisfactory and need, except in justified doubt, no further checking, unless the test plan (see §8.3) specifies differently.

For cold storage room kits, the following components are regarded important for the kit to meet the essential requirements, and should therefore also be attested with the corresponding A/C procedures that apply for the whole kit:
- composite panels
- doors, gates and windows (if any)

For CE Marked components, the declaration of conformity and CE Certificates of conformity (where applicable) shall be verified by the ETA-holder at each delivery.
Likewise, relevant other conformity certificates or declarations (e.g. manufacturer's declaration of conformity, inspection certificates in accordance with EN 10204, or Qualicoat approved certificates), shall be checked regularly.

It is irrelevant where incoming materials and components are produced, as long as the requirements in this chapter are met. It is also irrelevant whether or not a 3rd party was involved in attesting conformity with the technical product specification, as long as the documented evidence and their origin is acceptable for the notified body involved in attesting conformity of the ETA-holder's kit with the issued ETA, unless this chapter specifies requirements that are over and above those foreseen in the technical specifications referred to.

8.2.1.2 Testing of samples taken at the factory

8.2.1.2.1 General

Both large and small companies produce these products and there is a wide variation in the materials used. Therefore a precise test plan (see §8.3) can only be set up on a case-by-case basis.

In general, it is not necessary to conduct tests on complete cold storage room kits. Tests on kit components, in some cases by indirect methods, are normally sufficient.

The following minimum information shall be recorded:
- date and time of manufacture
- type of product produced
- material specification
- all results of the verifications performed within the agreed upon test plan

8.2.1.2.2 Maintenance, checking and calibration of equipment

All testing equipment shall be maintained, calibrated and/or checked against equipment or test specimens traceable to relevant international or nationally recognised reference test specimens (standards). In case no such reference test specimens exist, the basis used for internal checks and calibration shall be documented.
The ETA-holder shall ensure that handling, preservation and storage of test equipment is such that its accuracy and fitness for purpose is maintained
When production is intermittent, the ETA-holder shall ensure that any test equipment which may be affected by the interruption is suitably checked and/or calibrated before use. The calibration of all test equipment shall be repeated if any repair or failure occurs which could upset the calibration of the test equipment.

8.2.1.3 Declaration of conformity

When all the criteria of the conformity attestation are satisfied the ETA-holder shall make a declaration of conformity. The declaration of conformity shall also contain the CE Marking (see §8.4). Duplication of information between CE Marking and declaration should be prevented.

With each cold storage room kit put on the market in the EEA, the ETA-holder shall provide to the purchaser a declaration of conformity. A copy shall be retained by the ETA-holder. Each declaration has a unique number.

Notes:
- Most cold storage premises kit ETAs will cover kits that offer a range of solutions (e.g. different types of doors, windows, different thicknesses of insulation, with or without any number of ancillary components, …) and therefore both the EC Declaration of conformity and CE Marking would be very extensive and very detailed documents in many cases. Therefore, it has been agreed that the EC Declaration of conformity and CE Marking will be combined in one document (preventing duplication), as each kit put on the market is potentially, not necessarily, different, and so would the CE Marking and EC Declaration of conformity. In accordance with the CPD, the CE Marking must accompany the product and therefore the purchaser receives a copy of the EC

Declaration/CE Marking when the kit is placed on the market and the original is to be retained by the party signing the EC Declaration of conformity, allowing the NB to verify whether CE Marking is performed as required. Each declaration is uniquely numbered to allow traceability.

- An example declaration of conformity is presented in Annex N of this ETA-Guideline.

8.2.2 Tasks for the ETA-holder or the approved body

Initial Type Testing

The approval tests will have been conducted by the approval body or under its responsibility (which may include a proportion conducted by an independent laboratory or by the ETA-applicant, witnessed by the approval body) in accordance with chapter 5 of this ETA-Guideline. The approval body will have assessed the results of these tests in accordance with chapter 6 of this ETA-Guideline, as part of the ETA issuing procedure.

These tests shall be used for the purposes of Initial Type Testing and this work shall be validated by the approved body for Certificate of Conformity purposes.

8.2.3 Tasks for the approved body

8.2.3.1 Assessment of the factory production control system - initial inspection and continuous surveillance

Assessment of the factory production control system is the responsibility of the approved body.

An assessment shall be carried out of each production unit or line (if one unit consists of more than one line) to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment shall be based on an initial inspection of the factory. The relevant production units or lines shall be specified in the ETA.

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA. It is recommended that Surveillance inspections are to be conducted at least twice a year.

During surveillance of factory production control, the issued EC Declarations of conformity shall be checked.

Note: Annex J contains a recommended checklist for initial inspection and continuous surveillance of the FPC system.

8.2.3.2 Certification

The approved body shall issue certification of conformity of the cold storage room kits.
One certificate shall be issued for each ETA, demonstrating conformity of production with the ETA.

Note: An example CE Certificate is presented in Annex M of this ETA-Guideline.

8.3 DOCUMENTATION

In order to help the approved body make an evaluation of conformity the approval body issuing the ETA shall supply the information detailed below. This information, together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the approved body.

This information shall initially be prepared or collected by the approval body and shall be agreed with the ETA-holder. The following gives guidance on the type of information required:

(1) The ETA

See section 4 of this Guideline. The nature of any additional (confidential) information shall be

declared in the ETA.

(2) Basic manufacturing process

The basic manufacturing process shall be described in sufficient detail to support the proposed factory production control methods.
Components for cold storage room kits are usually manufactured using conventional techniques. Any critical process or treatment of the components affecting performance shall be highlighted.

(3) Product and materials specifications

- Detailed drawings (including manufacturing tolerances and drawings).
- Incoming (raw) materials specifications and declarations (see §8.2.1.1.2.2)
- References to European and/or international standards or appropriate specifications.
- ETA-holder's (or suppliers') datasheets.

(4) Test plan

The ETA-holder and the approval body issuing the ETA shall agree an FPC test plan. An agreed test plan is necessary as current standards relating to quality management systems (Guidance Paper B, EN ISO 9001, etc), do not ensure that the product specification remains unchanged, and they cannot address the technical validity of the type or frequency of checks / tests.

The validity of the type and frequency of checks/tests conducted during production and on the final product shall be considered. This shall include the checks conducted during manufacture on properties that cannot be inspected at a later stage, and for checks on the final product.
The following tables 8.1 and 8.2 show properties that should be controlled and minimum frequencies of control, but, for the purposes of FPC, the ETA-holder may adopt alternative test methods, provided that they give sufficient assurance of the property controlled.

The tables below show the characteristics that need checking during FPC (as far as relevant). The results of these checks shall be registered by the ETA-holder. The test methods should correspond to those included in the technical specification, but different equipment may be used, as long as correlation can be established. The ETA-holder may also use external laboratories for these tests.

The tables below foresee minimum requirements. In many cases, constituent materials (e.g. insulating core, adhesives) or components (e.g. building hardware, profiles) will be supplied by other manufacturers to the ETA-holder. In those cases, it is very likely that the supplier performs FPC on those constituent materials or components. If that is the case, those suppliers should submit the relevant records to the ETA-holder.
Depending on the nature of the constituent material or component (significant influence on health and safety of the kit or not) and the evidence provided (e.g. supported by a third party certificate of conformity), the Approval body (and the Notified Body) will, in most cases, accept the evidence provided, although alternative verifications on the incoming products may then still be required (e.g. one verification per delivery). If no such evidence is available, the ETA-holder's FPC will be required to (at least) comply with the tables below. Approval bodies should refer to prEN 14509 for guidance as far as the composite panels are concerned.

Table 8.1: Properties and minimum frequencies of control – Composite panels

Property	Indicative test method[21]	Threshold value (if any)	Minimum number of Samples	Minimum number of Tests
Properties of the core material				
Density	§5.2.7.3	Conformity with ETA specification	3	1 every shift
Properties of the face material				
Thickness	§5.2.7.3	Conformity with ETA specification	3	Every delivery[22]
Tensile strength	§5.2.7.2			
Properties of the adhesives*				
Coverage (spread)	-	ETA-Holder's declaration	-	Continuously
Density or viscosity	EN 542 or EN 12092	ETA-Holder's declaration	-	1 every shift
Setting time, maximum open time or working life (pot life)	ISO 10364 EN 1364	Supplier's declaration	-	1 every shift
Properties of the panels				
Dimensions	§5.2.7.3	Conformity with ETA specification	1	1 every shift
Compressive and tensile strength	§5.2.4.2		3	1 every 5 shifts[23]
Shear strength	§5.2.7.2		1	1 every 10 shifts
Thermal performance	EN 12664, EN 12667 or EN 12939		1	1 every 5 shifts
Panel lock system**	***	ETA-Holder's declaration	1	Every delivery

* Only if an adhesive is used in manufacturing the composite panel
** Only if a panel lock system is part of the ETA-applicant's kit
*** The panel lock system shall be tested in accordance with the following provisions: A sample, (250 ± 5) x (250 ± 5) mm², made up of equal parts of two adjacent panel sections, incorporating a lock and receiver, shall be locked together and then pulled apart by applying a gradually increasing force. The force, necessary to achieve separation shall be measured and recorded.

The ETA-holder and the notified body shall agree on which cold storage doors (or door assemblies) and gates the tests as given in table 8.2 should be conducted (as far as relevant).

[21] The ETA-holder may adopt alternative test methods
[22] Or Certificate of supplier
[23] Where production volumes are below 2000 m² per shift, the ETA-holder shall test every 2000 m² or at least every three months.

Table 8.2: Properties and minimum frequencies of control – Doors, gates, windows and panels with transparent surfaces*

Characteristic	Minimum frequency of testing for manufacturers of Cold storage room kits**
ER2 - Reaction to fire	-
ER2 – Resistance to fire	-
ER3 - Food safety (only design aspects)	Every door and gate
ER3 – Food safety (food contact material aspects)	-
ER3 - Release of Dangerous substances	-
ER3 - Water tightness	-
ER4 - Automatic devices	-
ER4 – Impact resistance	1 every year
ER4 - Load-bearing capacity of safety devices	1 every year
ER4 - Mechanical resistance	1 every year
ER4 - Power operation	1 every year
ER4 - Resistance to wind (caused by air pressure)	1 every year
ER4 - Safe opening	1 every year
ER5 - Acoustic performance	-
ER6 - Air permeability	3 every year
ER6 - Radiation properties	-
ER6 - Thermal resistance	-
Durability - Materials	-
Durability - Mechanical resistance	-
Durability - Performance characteristics of non-pedestrian doors and gates	-
Durability - Resistance to specific environments	-
Serviceability - Automatic opening and / or closing devices	-
Serviceability - Mechanical durability	-
Serviceability - Operating forces	-
Serviceability - Behaviour between different climates	-
Serviceability - Defrost provisions	-
Identification	Every door and gate
* Only if doors are part of the ETA-applicant's kit ** As a minimum, these verifications should only be performed on the most onerous door type (or door assembly), i.e. the door type (or door assembly) that is expected to perform worst when tested. Manufacturers will normally perform a range of indirect in-process verifications and verifications on the finished products and they should be encouraged to maintain those.	

8.4 CE-MARKING AND INFORMATION

8.4.1 General

The ETA shall indicate the information to accompany the CE-marking.
In accordance with EC Guidance Paper D, the required information to accompany the symbol "CE" is:

a) identification number of the notified body
b) name / address of the ETA-holder for the kit
c) date of the marking
d) number of the EC Certificate of Conformity
e) number of ETA
f) reference to this ETA-Guideline
g) indication to clarify the intended use
h) designation code for relevant performance characteristics, as far as they are not specified in the ETA

Note: g) and h) will not necessarily be given in the marking itself, but on the declaration.

8.4.2 Example of CE-Marking

8.4.2.1 For cold storage room kits

CE xxxx	**"CE"-symbol** Number of Notified Body
Any Company Rue du Producteur, 50 Country xx xxxx-CPD-xxxx	Name and address of the ETA-holder or his representative established in the EEA and of the plant where the product was manufactured Two last digits of year of affixing CE Marking Number of EC certificate of conformity
ETA N° XX/XXXX ETAG XXX cold storage room kit Type ... **NF/F/PF**	ETA Number ETAG Reference Relevant performance characteristics and/or designation code*

8.4.2.2 For extension or replacement components of cold storage room kits

For components put on the market separately for incorporation into an existing assembled (previously put onto the market) cold storage room, i.e. for extension or repair of an existing cold storage room (remedial or refurbishment), the CE Marking of the component shall be as follows:

CE xxxx	**"CE"-symbol** Number of Notified Body
Any Company Rue du Producteur, 50 Country xx xxxx-CPD-xxxx	Name and address of the ETA-holder or his representative established in the EEA and of the plant where the product was manufactured Two last digits of year of affixing CE Marking Number of EC certificate of conformity
ETA N° XX/XXXX ETAG XXX Extension/replacement component of a cold storage room kit Type ... **NF/F/PF**	ETA Number ETAG Reference Relevant performance characteristics and/or designation code*

*Notes:

- If the ETA provides all the information regarding the performance characteristics, then reference to the ETA is sufficient.
- If the ETA covers more than one type of cold storage room kit, and the type designation provides all the information regarding the performance characteristics, then reference to the ETA and the relevant type is sufficient.
- Only when the above two options do not provide all the necessary information regarding the mandated performance characteristics (table 4.1), then additional information regarding the performance characteristics needs to accompany the CE Marking.

- The CE Marking shall always provide information related to the Foodstuff Directive (See §2.2.4).

8.4.3 Location of CE-Marking

The CE-Marking shall be affixed on the accompanying EC Declaration of conformity.

Section Four:
ETA CONTENT

9 THE ETA-CONTENT

9.1 THE ETA CONTENT

9.1.1 Model ETA

The format of the ETA shall be based on the Commission Decision of 1997-07-22, EC Official Journal L236 of 1997-08-27.

In section II.2 “characteristics of products and methods of verification“ the ETA shall include the following note:
“In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.”

"The ETA is issued for the product/kit on the basis of agreed data/information, deposited with {the Approval Body name}, which identifies the product/kit that has been assessed and judged. Changes to the product/production process/kit, which could result in this deposited data/information being incorrect, should be notified to the {the Approval Body name} before the changes are introduced. The {Approval body name} will decide whether or not such changes affect the ETA and if so whether further assessment/alterations to the ETA, shall be necessary."

9.1.2 Checklist for the issuing body

In general, the ETA shall be made in accordance with the example as included in Annex L of this ETA-Guideline. ETA paragraph numbering should be logical.

When considering performance characteristics where extended application rules have been used, the ETA shall present the test result(-s) started from and the extended application based on those rules.

The ETA should not present the explanation of types, levels and classes. Reference to the relevant reference document should be made (in most cases the ETA-Guideline).

To facilitate referencing between ETA, CE Marking and EC Declaration of conformity, the use of designation codes is highly recommended.

9.1.2.1 Scope

Scope of the ETA, composition of the kit(-s) for prefabricated cold storage rooms, the composing components and the ancillary components, and the intended use.

The scope shall also clearly exclude products, which might generally be expected to be part of the kit, but which are not (e.g. technical equipment and floor panels – should that be the case).
Construction products that may be delivered together with the cold storage room kits, but which have not been assessed by the approval body (ancillary components), shall be clearly separated from the kit components that are covered by the ETA.

The scope shall show in tabular form which performance characteristics have been assessed in the

framework of the ETA issuing process, and which have not by completing the table with references to the relevant ETA paragraph.
It should also explain the design system briefly (e.g. is the kit relocatable, is on-site cutting part allowed, …).

9.1.2.2 Working life

Indication of the assumed working life

9.1.2.3 Identification of components

The ETA shall contain information and/or references allowing for, where there is a need e.g. attestation of conformity (see Chapter 8, §8.2.3.3 certification), market surveillance, complaints or accidents, to determine that the products on the market, or intended to be put on the market are in compliance with the approved product as described in the ETA.

When such information/references are of a confidential nature it/they shall exist on the ETA file managed by the Approval body and as necessary on the relevant file of any notified body involved.

This/these information/references shall also be of assistance in any renewal of the ETA.

The type, scale, range of information shall be based on the identification paragraphs in Chapter 5 of the ETA-Guideline.

9.1.2.4 Performance

The technical part of the ETA shall contain information on the following items, in the order and with reference to the relevant Essential Requirements.

For each of the listed items, the ETA shall either give the mentioned indication / classification / statement / description or state that the verification / assessment of this item has not been carried out.

The items given with reference to the relevant paragraph of this guideline are presented in table 9.1.

9.1.2.5 Drawings

The ETA shall include section drawings of the kit(-s) for prefabricated cold storage rooms, including all necessary dimensions and tolerances.

The purpose of the drawings is to illustrate the general build-up of the kit; i.e.
- general composition of the assembled cold storage room
- detailed drawings of the following details:
  - ceiling support systems (internal/external)
  - corners and wall intersections with partitions
  - panel joint and panel lock system
  - wall/ceiling and partition/ceiling intersection
  - wall/floor intersection(-s)
- section of the composite panels, including all core and face layers
- section of door and gate types, part of the kit(-s)
- details of other components, if relevant

Material specifications may also be shown directly in these drawings of the kit.

If required by the ETA-holder some design details may be kept confidential by using neutral parts in the drawings, provided that the approval body does not find this in contradiction to necessary information related to the correct application of the kit and the evaluation of conformity performed by the approved body.

9.1.2.6 Installation

The ETA shall also contain details of the installation which the approval body considers worthy to note, as described in Chapter 7 of this Guideline, details of the maximum acceptable deflection in the supporting structure and details of any particular risks identified during the assessment.

These may be requirements related to the substructure, mounting of the elements, joints on site, including fixing to the substructure, anchoring, etc., see also §7.3. The latter could include such aspects as the need to avoid contact with other materials.

9.1.2.7 Maintenance and repair

Basic maintenance and repair of the kit(-s) which is necessary to obtain the minimum estimated working life shall be specified, see also §7.4.

9.2 ADDITIONAL INFORMATION

It shall be stated in the ETA whether or not any additional (possibly confidential) information shall be supplied to the approved body for the evaluation of conformity purposes.

Table 9.1: Overview of performance characteristics covered by the ETA. This table shall be copied into the ETA, indicating which ETA paragraph covers which characteristic. Shaded cells are not relevant.

Performance characteristic	For the kit as a whole	For the following kit components						
		Composite panels	Doors and gates	windows	Fixing systems	Sealants	Gaskets	Building hardware
Classification with respect to reaction to fire, including test method used								
Classification with respect to fire resistance, including test method used								
Statement on the presence and concentration / emission rate / etc. of dangerous substances or statement of the absence of dangerous materials								
Declared value of the water vapour permeability, including verification method used								
Statement on the moisture resistance of the kit and its components.								
Statement/classification on the fitness for contact with food and feedstuffs								
Use category related to impact resistance								
Declared value of the fixing resistance								
Declared values of the mechanical resistance of wall, ceiling and floor panels								
Declared values of the mechanical resistance of cold storage rooms								
Use category related to resistance to eccentric loads								
Declared values of the slipperiness of floor surfaces								
Statement about the safety against personal injuries by contact								
Statement on the safety against entrapment								
Statement on the safety against collapse								
Declared values of the thermal performance								
Declared values of the air permeability								
Durability – Statement about the compatibility of components used								
Durability – Statement about influences from stored products								
Durability – Statement about the general durability of components								
Serviceability – Provisions related to the kit as a whole – Use category and statement related to rigidity and robustness								
Serviceability – Provisions related to the components of the kits – Statement related to general serviceability aspects of composite panel finishes								
Serviceability – Provisions related to the components of the kits – Performance characteristics of finishes								
Serviceability – Provisions related to the components of the kits – Floor finishes								

Performance characteristic	For the kit as a whole	For the following kit components						
		Composite panels	Doors and gates	windows	Fixing systems	Sealants	Gaskets	Building hardware
Serviceability – Provisions related to the components of the kits – Statement related to the behaviour of doors, gates and windows between two different environments								
Serviceability – Provisions related to the components of the kits – Statement related to the behaviour of doors and gates under repeated opening and closing								
Serviceability – Provisions related to the components of the kits – Statement related to doors, gates and windows under operating forces								
Serviceability – Provisions related to the components of the kits – Statement related to behaviour of doors and gates under loads								
Serviceability – Provisions related to the components of the kits – Statement related to the presence of defrost provisions for doors and gates								
Serviceability – Provisions related to the components of the kits – Declaration of the light transmittance								
Serviceability – Provisions related to the components of the kits – Statement related to general serviceability of fixing systems, sealants, gaskets and building hardware								
Serviceability – Provisions related to ancillary components of the kits – Statement related to general serviceability of ancillary components								
Identification – Overview of identification properties								