Future Construction

Structure/ Overview of Brief Report

Title

Title long form:

Parameters for quality assurance of barrier-reduced construction in existing residential contexts for the Development Loan Corporation (KfW) subsidy program Elderly-Appropriate Reconstruction (“Altersgerecht Umbauen”), basis for “generation-appropriate new construction” and development of educational modules for architects and engineers

Reason/ Initial Situation

Short description of the issue and solution
max. 450 characters (including spaces)

The Development Loan Corporation subsidy program Elderly-Appropriate Reconstruction paves the way for sustainable activation of the contruction industry in existing contexts.

With design aids, the planning blocks of the program are explained and the goals clarified. Furthermore, educational modules were developed for the continuing training of architects and engineers, so that the process of residential adaptation is supported sustainably.

Subject of research intention

Description of the work process and solution
max. 4.300 characters (including spaces)

The proposition aims at all planners, consultants and executors in the construction industry. It seeks to establish quality standards for elderly-appropriate reconstruction from project conception, planning, and execution to evaluation.

In this way, ergonomic requirements will be depicted, that make adequate solutions possible through adaptation of the existing context. Specifics of building in existing contexts will be described, as well as ergonomic and ergometeric requirements, in order to demonstrate how necessity-tailored residential spaces can be made more “use oriented”, that remain nevertheless affordable.

The research project is therefore situated between barrier-free design and use orientation, as a consideration of weighing options for the optimal solution most suitable in the individual case. So the goal is not to achieve complete barrier-freedom, but rather to reflect on how a context can be established for the elderly to be able to lead self-determined sunset years in their accustomed surroundings. Furthermore, ways of preparing buildings for the future will be explored, so that they

are designed to be attractive for all generations—as a holistic approach including sustainability and the instrinsic value of the real estate.

A use oriented apartment is not only important from a social perspective as a wish for the majority of the older people, but also the basis for ambulant care. In this sense, the research project focuses on the immanent potential of the theme AAL (Ambient Assisted Living) as ensuring care and independence of the target audience over the long term.

The research project discusses broadly to which degree barrier-freedom according to DIN 18040-2 can be dampened in consideration of use orientation, so that the needs of the elderly are best fulfilled. It views not only the requirements of German norms, but also the perspectives of—preferably—neighboring European countries and reflects on the continuingly broadening approach there of adaptive building. This will form the foundation for generalised residential construction. Certainly the idea of barrier-free construction is becoming increasingly more important for the building code of the states. However, it is also becoming clear that many notions cannot unfortunately be sufficiently and broadly implemented because of the strictness of the requirements and the related high effort, as can be seen with the introduction of the new DIN 18040-2.

One must consider what is the best way forward: the “perfect solution” or a more universal approach that takes into account the pressing social and demographic questions while looking at the given building restrictions which cannot be ignored. An important challenge of our built environment is the post-war residential construction—both in the former East as well as the West—which now needs to be renovated. Furthermore, these apartments have aged with their inhabitants and present an important sphere of activity. Therefore the focus of the project lies in examining the effects of the formerly valid norms DIN 18011 and DIN 18022 on the existing residential context and how these apartments can be respectively modified step by step. This potential has been systemically exemplified.

Educational groundwork was developed in the form of curricula and working instruments for the holistic training of experts in the area of “renovations tailored for the elderly.” A consistent and standardised program established in time—at the beginning—for a new construction task helps to gurantee quality on a broad and generally recognised level, and to avoid heterogeneity and arbitrariness.

Conclusion

Description of the planned goals and achieved results
max. 700 characters (including spaces)

The large potential for giving post-war residential construction a barrier-reduced use has been proven. Furthermore, the very differentiated and individual approaches required to achieve the level of highest individual utility have been described. Already minimal improvements—without modifying the building structure—enable the elderly to live safely and in self-determination in their accustomed surroundings. For example compensatory and ergonomically optimised situations need to be emphasised, through the overlapping of use and circulation areas, and user specific finishings and construction techniques in order to reduce restrictions.

Basic data

Short title: Quality assurance for the Development Loan Corporation (KfW) subsidy program Elderly-Appropriate Reconstruction ("Altersgerecht Umbauen")

Researcher / project leader: Prof. Dr.-Ing. Gerhard Loeschcke, Freier Architekt BDA

Total costs: 71.880,00

Amount of subsidy: 41.880,00

Project duration: 12 Monate

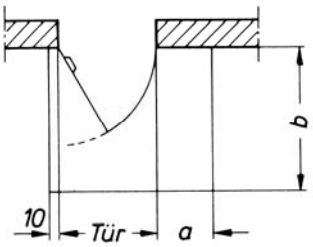
Images/ figures:

5 - 7 printable images as **separate files** (*.tif, *.bmp, ...) with a minimal resolution of 300 dpi in the illustration size (e.g. 10-20 cm). Images are unencumbered with third-party copyright.

Picture credits:

Fugure 1: Dateiname.xxx

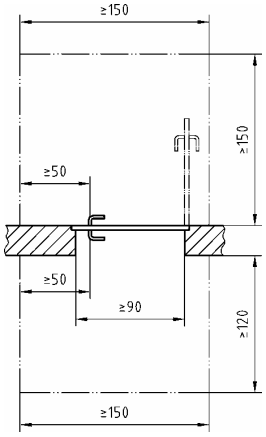
Title:



a	b
25	170
35	160
45	150
55	140
Interim values are interpolated	

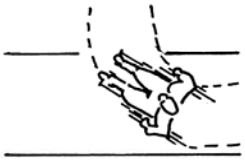
Movment areas for opening doors according to DIN 18025-1 [1].
((datei: bild_1.jpg))

1 Illustration from DIN 18025-1:1972-01, Apartments for severly disabled people - planning guidelines - apartments for wheelchair users. Point 6.6

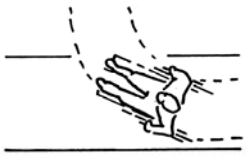


Movement areas according to DIN 18040
((bild_2.jpg))

Passage with wall opening/ hall width ratio:
90 cm/ 110 cm

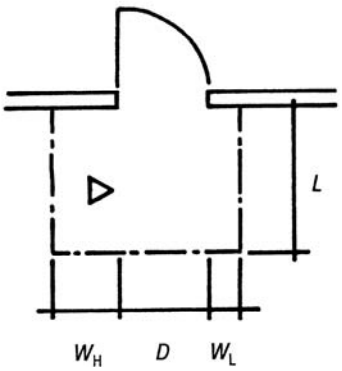


Passage with wall opening/ hall width ratio:
90 cm/ 110 cm



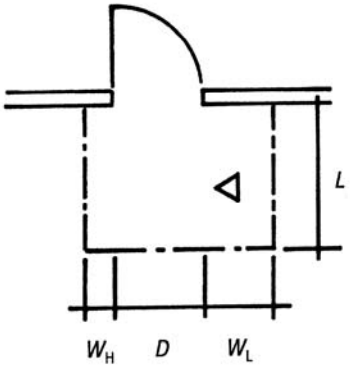
Passage with wall opening/ hall width ratio:
100 cm/ 100 cm

Movement studies - hall/ passage width
((bild_3.jpg))



Movement areas opposite to hinge edge

D [mm]	K [mm]	W_H [mm]	W_L [mm]
800	1160	610	220
850	1120	610	190
900	1085	610	165
950	1060	610	145
1000	1040	610	145

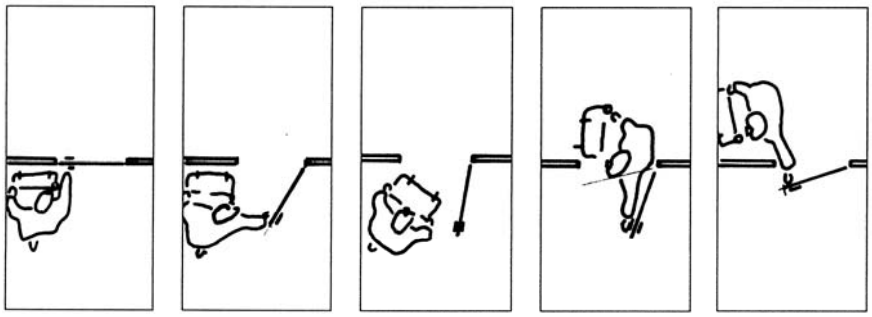


Movement areas opposite to the swing edge

D [mm]	L [mm]	W_H [mm]	W_L [mm]
800	1200	200	610
850	1140	95	610
900	1110	50	610
950	1075	0	610
1000	1055	0	610

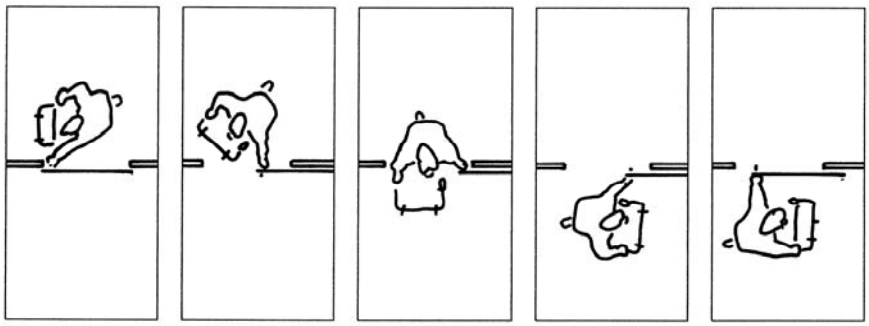
Movement areas in front of doors depending on the arrival direction according to ISO

((bild_4.jpg))



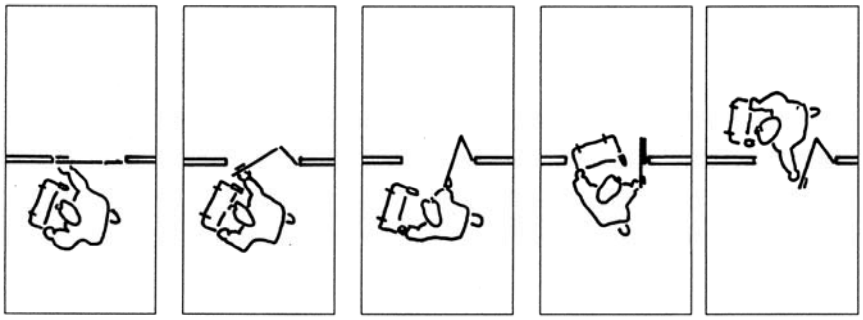
((bild_6.jpg))

Movement studies for operating hinged doors



((bild_5.jpg))

Movement studies for operating sliding doors



Depiction of a door opening with a walking frame aid, swinging edge side ((bild_7.jpg))

Movement studies for operating folding doors