

Defects Clauses

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NOT IF, BUT HOW



01

Definitions

02

Defect Clauses
CAR / EAR

03

Summary



Image: Munich Re

01

Definitions

- **Defective material**
materials outside the design criteria,
not fit for the purpose intended
- **Defective manufacturing /
workmanship**
construction and assembly work
incorrectly undertaken either on site or
offsite
- **Defective design, plan or
specification**
consequential damage, if integrity of a
structure has been compromised
or plant/machinery does not operate,
operate outside of spec, suffers
damage

- Most policies cover 'All Risks' causing physical loss or **DAMAGE**.
- Causes may originate from 'inside' the project - from a **DEFECT** - but widespread **DAMAGE** to property may follow
- It is NOT the intention of standard property insurance to cover costs rendered necessary by **DEFECTS**.
- An exclusion of all 'internal causes' leaves the insured with a significant coverage gap.
- The insurer would have to carry the full exposure for faulty design, **DEFECTIVE** material and bad workmanship.
- It can be the intention of insurance to cover (limited) consequential physical **DAMAGE CAUSED BY A DEFECT**.

Important aspects when covering Damage resulting from defects

- a. defect vs. damage
- b. reason for damage
- c. kind of damage
- d. cost of reinstatement

(a) defect vs. damage

defect: *(physical) change from the specified condition (which may be) leading to a (foreseeable or immediate) failure to perform*
commonly used damage definition in All Risks policies:
unforeseen and sudden physical damage from any cause

Defect

Defect is the expression for something that does not perform or do what it is intended to do.

Defect is a state of affairs.

Damage

Physical change or alteration which impairs value or usefulness, which has happened (not: will happen) due to some kind of occurrence; it must be measurable and fortuitous.

(b) reason for damage

“wrong/defective” calculation or material specification or method or design: who determines that?
wrong / defective ✎ *negligent* ✎ *“not state of the art”/“not industrial practice”* (recourse...?)

(c) kind of damage

direct damage to defective part ↔ consequential damage to non-defective parts
where is the borderline? (hard to determine in case of a severe loss...) (and what is “part”?)

(d) cost of reinstatement or rectification

reinstatement: original, defective state of the property

rectification: reinstatement + correction of the original defect

usually both are required/necessary, plus additional costs like dismantling, removal of debris and feedstock, professional fees, expediting expenses, ...

Construction vs Erection

- Construction

In (civil) construction risks, parts/components/units are usually completely fabricated on site

→ direct influence of the insured Contractor on Material and Workmanship.

- Erection

In erection risks, parts and equipment are usually fabricated off-site, only to be shipped for on-site assembly

→ no influence of the contractor on Design, Material, Workmanship.

This is the sole responsibility of the Manufacturer who is not insured under EAR!



Image: Munich Re

02

Defect Clauses

CAR

- Munich Re CAR (+ Endt. 115)
- DE1...DE 5

EAR

- Munich Re EAR (+ Endt. 200)
- LEG1...LEG3

- Munich Re CPI & CEAR



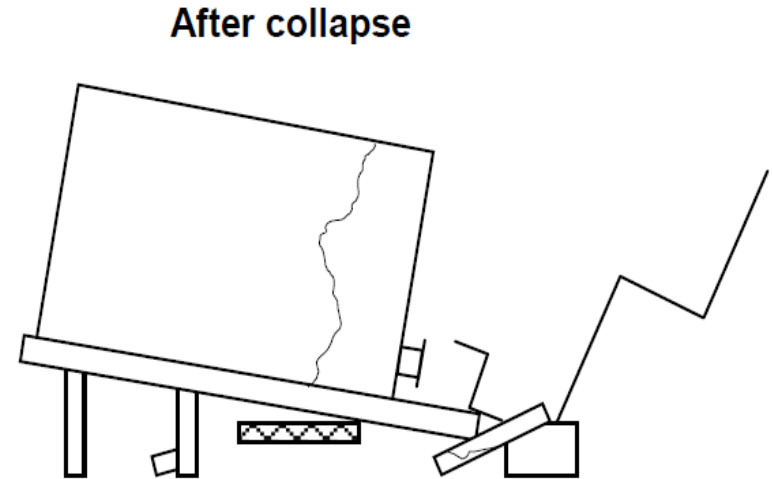
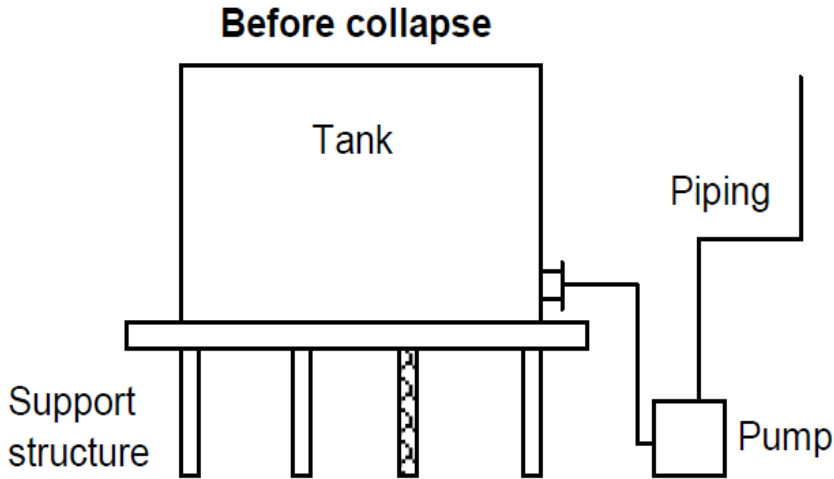
Image: Munich Re

CAR Clauses

Defect Exclusion Clauses

CAR Example

- Construction of the support structure for the water tank
- Collapse of the support structure as a result of defective support beams
- The workers forgot to reinforce the beam properly.



Defect Exclusion Clauses

Munich Re CAR

“Special Exclusions to Section 1”:

c) *loss or damage due to faulty design;*

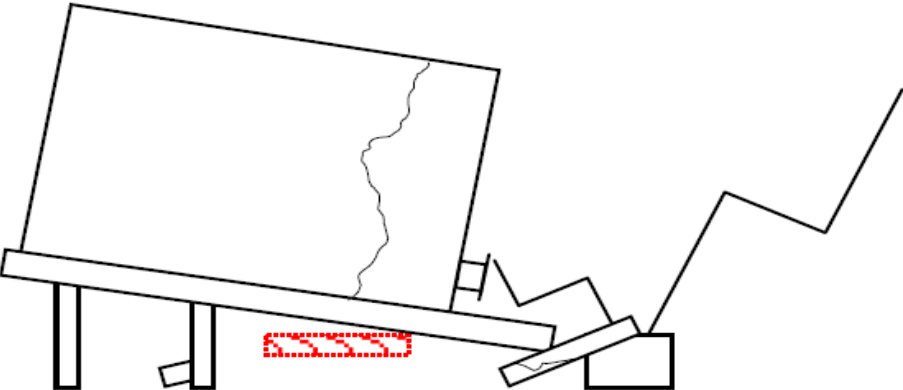
d) *the cost of replacement, repair or rectification of defective material and/or workmanship, but this exclusion shall be limited to the items immediately affected and shall not be deemed to exclude loss of or damage to correctly executed items resulting from an accident due to such defective material and/or workmanship*

Faulty Design	fully excluded	
Defective Material	Defective Part	excluded
	Resulting Damage	included
Bad Workmanship	Defective Part	excluded
	Resulting Damage	included

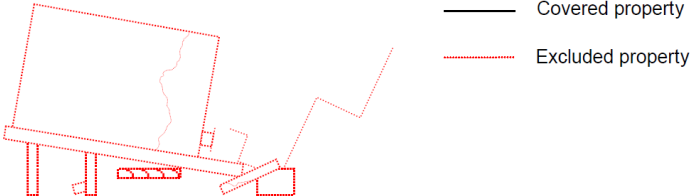
Defect Exclusion Clauses

Munich Re CAR

Faulty Design		fully excluded
Defective Material	Defective Part	excluded
	Resulting Damage	included
Bad Workmanship	Defective Part	excluded
	Resulting Damage	included



———— Covered property
 - - - - - Excluded property



———— Covered property
 - - - - - Excluded property

Defect Exclusion Clauses

Munich Re CAR + Endt. 115 “Designer’s Risk”

by including Endt. 115, “Special Exclusions to Section 1” to read as follows:

~~c) loss or damage due to faulty design;~~

d) *the cost of replacement, repair or rectification of defective material and/or workmanship **and/or faulty design**, but this exclusion shall be limited to the items immediately affected and shall not be deemed to exclude loss of or damage to correctly executed items resulting from an accident due to such defective material and/or workmanship*

Faulty Design, Defective Material and/or Bad Workmanship

Defective Part **excluded**

Resulting Damage **included**

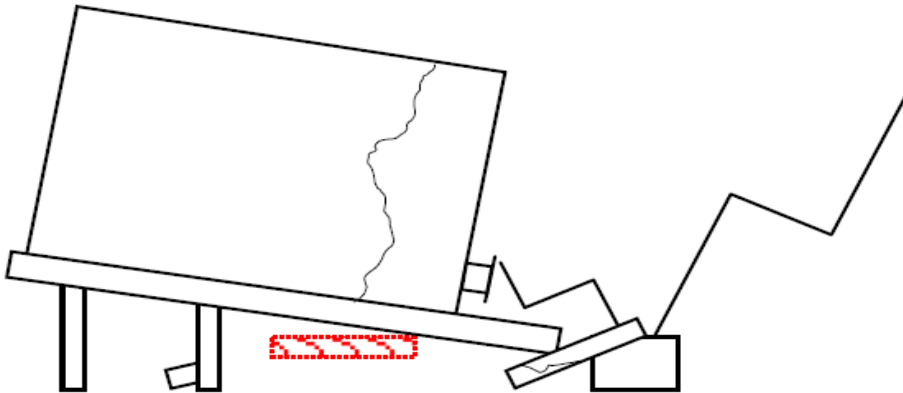
Defect Exclusion Clauses

Munich Re CAR + Endt. 115 “Designer’s Risk”

Faulty Design, Defective Material and/or Bad Workmanship

Defective Part excluded

Resulting Damage included



———— Covered property

----- Excluded property



Image: Munich Re

EAR Clauses

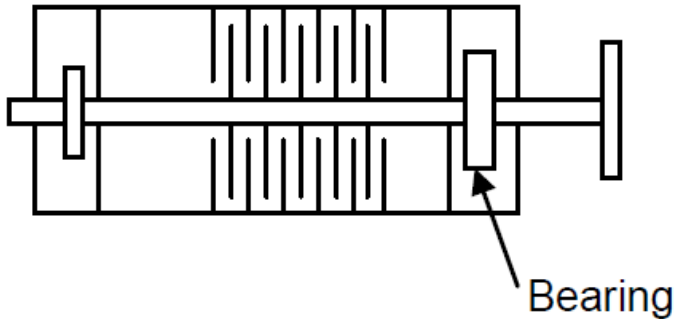
Defect Exclusion Clauses

EAR Example

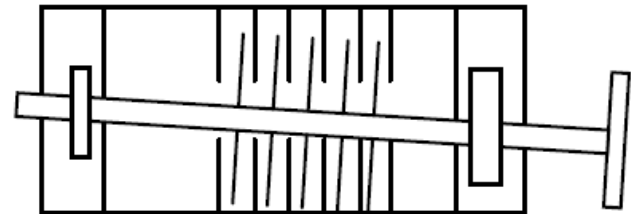
Damage to compressor

During assembly in the manufacturer's workshop (not located on site), the wrong type of bearing was installed. In the course of a test run on site, the bearing couldn't withstand the stress, leading to a subsequent damage to the rotor and compressor casing.

Before breakdown



After breakdown



Defect Exclusion Clauses

LEG clauses

In 1996, the London Engineering Group (LEG) created Defect Exclusion Clauses specifically for assembly/erection projects covered by EAR policies.

The LEG concept appreciates the fact that Property Insured is composed of

individual items/units/components/parts of Property Insured

which individually may be defective, but which are typically

highly interconnected and interdependent

rendering the whole Property Insured not fit for the intended purpose.

The LEG3/96 Clause was slightly amended in 2006 after a court case, resulting in a clearer wording. It was renamed LEG3/06.

LEG1/96 and LEG2/96 remain unchanged.

→ use LEG3/06 clause!

Defect Exclusion Clauses

LEG clauses

In erection risks, the defective part is typically

- not easy to identify (especially after a loss),
- not easily accessible, and
- may be of minor value only, compared to the overall cost of the unit and to the cost for its (regular) repair.

→ Limits of DE concept which focusses mainly on the defective part / property.



picture source: Alexander Schröder, Munich Re



Defects Exclusion Clauses

LEG Clauses

LEG principle, following a general principle of insurance:

Put the insured back in the same position he was in immediately before the loss.

→ Regular repair (*upkeep?*) immediately before the loss happens → *contractor! (manufacturer)*

→ Sudden, unforeseen, fortuitous ... accident/occurrence → *insurance!*

This common-sense approach is easy to understand and acceptable to insureds.

Defects Exclusion Clauses

LEG 1/96

'OUTRIGHT' DEFECTS EXCLUSION LEG1/96

“The Insurer(s) shall not be liable for Loss or Damage due to defects of material, workmanship, design, plan or specification.”

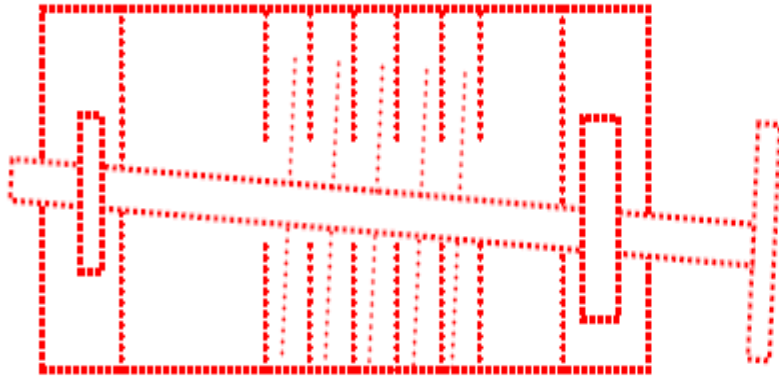
Faulty Design, Defective Material and/or Bad Workmanship **fully excluded**

Defect Exclusion Clauses

LEG 1/96

Outright Defects Exclusion (LEG1)

Outright defects exclusion



- Covered property
- ⋯ Excluded property

‘CONSEQUENCES’ DEFECTS EXCLUSION LEG2/96

*“The Insurer(s) shall not be liable for all costs rendered necessary by defects of material, workmanship, design, plan or specification and should **damage** occur to any portion of the Insured Property containing any of the said defects the cost of replacement or rectification which is hereby excluded is that*

cost which would have been incurred if replacement or rectification of the Insured Property had been put in hand immediately prior to the said damage.

Faulty Design, Defective Material and/or Bad Workmanship	
Defective Part and cost for its regular repair	excluded
Resulting Damage	included

'CONSEQUENCES' DEFECTS EXCLUSION LEG2/96

*"The Insurer(s) shall not be liable for all costs rendered necessary by defects of material, workmanship, design, plan or specification and should **damage** occur to any portion of the Insured Property containing any of the said defects ~~the cost of replacement or rectification which is hereby excluded is that~~*

cost which would have been incurred if replacement or rectification of the Insured Property had been put in hand immediately prior to the said damage. "as-if cost"

Faulty Design, Defective Material and/or Bad Workmanship
Defective Part and cost for its regular repair
Resulting Damage

"as-if cost"

**excluded
included**

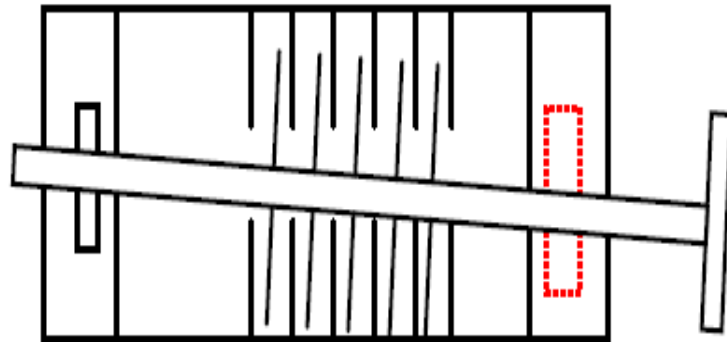
"as-if cost" / "LEG2 subtraction cost"

- what is "immediately prior"?
- when does defect end and damage start?
(manifestation cases!)
- where is this cost determined?
(in the workshop, during construction, in situ?)
- can it be determined at all, and by whom?

Defect Exclusion Clauses

LEG 2/96

Faulty Design, Defective Material and/or Bad Workmanship
Defective Part and cost for its regular repair **excluded**
Resulting Damage **included**



— Covered property
- - - Excluded property

'IMPROVEMENTS' DEFECTS EXCLUSION LEG3/06

*"The Insurer(s) shall not be liable for all costs rendered necessary by defects of material, workmanship, design, plan or specification and should **damage***

(which for the purposes of this exclusion shall include any patent detrimental change in the physical condition of the Insured Property)

occur to any portion of the Insured Property containing any of the said defects
*the cost of replacement or rectification which is hereby excluded is that **cost incurred to improve the original material workmanship, design, plan or specification.** (...) " (...) see page 43*

this important clarification was added in 2006:
*Manifestation Cases are considered **damage!***
→ wider → borderline to Manufacturers' obligations?!?

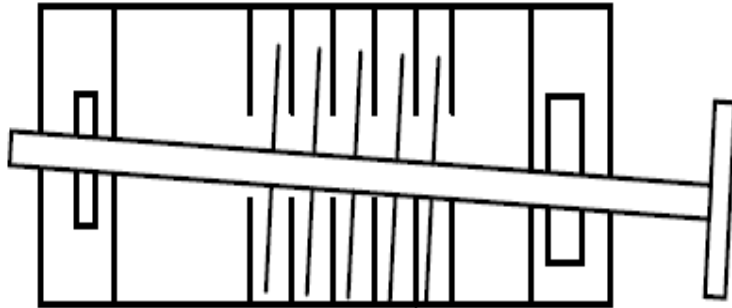
Faulty Design, Defective Material and/or Bad Workmanship

only betterment excluded

Defect Exclusion Clauses

LEG 3/96

Improvement / betterment costs are excluded



Covered property



Excluded property

Defect Exclusion Clauses

Munich Re EAR

“Special Exclusions to Section I”:

- c) *loss or damage due to faulty design, defective material or casting, bad workmanship other than faults in erection*

Faulty Design, Defective Material and/or Bad Workmanship **fully excluded**

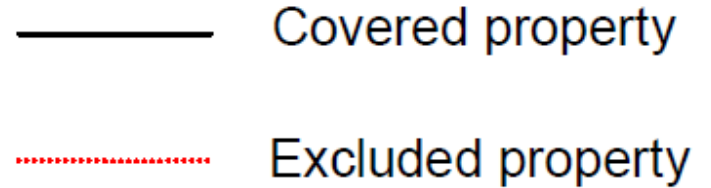
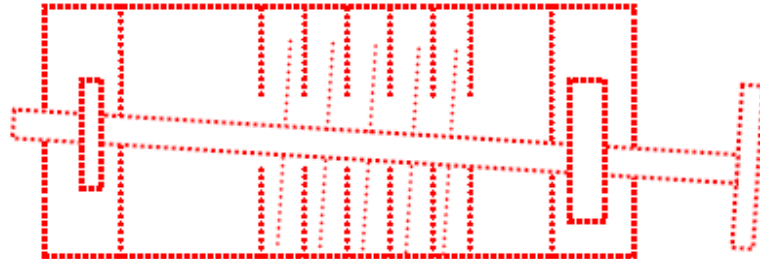
→ *faults in erection taking place on site are fully covered!
(since this is what the EAR cover is all about...!)*

Defect Exclusion Clauses

Munich Re EAR

Faulty design/defective material/bad workmanship
Faults in erection

fully excluded
covered



Defect Exclusion Clauses

Munich Re EAR + Endt. 200 “Cover of Manufacturer’s Risk”

by including Endt. 200, “Special Exclusions to Section I” to read as follows:

- ~~c) loss or damage due to faulty design, defective material or casting, bad workmanship other than faults in erection~~
- c) **all costs related to repair and/or replacement of parts and/or items directly affected by faulty design, defective material or casting, bad workmanship other than faults in erection, which the Insured would have incurred for rectifying the original fault had such fault been discovered before the loss occurred.**

This Endorsement does, however, not apply to parts and items of civil engineering sections.

Faulty Design, Defective Material and/or Bad Workmanship

Defective Part and cost for its regular repair **excluded**

Resulting Damage **included**

Defect Exclusion Clauses

Munich Re EAR + Endt. 200 “Cover of Manufacturer’s Risk”

by including Endt. 200, “Special Exclusions to Section I” to read as follows:

~~c) loss or damage due to faulty design, defective material or casting, bad workmanship other than faults in erection~~

c) **all costs related to repair and/or replacement of parts and/or items directly affected by faulty design, defective material or casting, bad workmanship other than faults in erection, which the Insured would have incurred for rectifying the original fault had such fault been discovered before the loss occurred.**

“as-if cost”

This Endorsement does, however, not apply to parts and items of civil engineering sections.

Faulty Design, Defective Material and/or Bad Workmanship

Defective Part and cost for its regular repair **excluded** “as-if cost”

Resulting Damage **included**

Defect Exclusion Clauses

Munich Re EAR + Endt. 200 “Cover of Manufacturer’s Risk”

The combination of MR EAR and MR endorsement 200 leads to coverage comparable to Leg 2/96

- Endorsement 200 contains the exclusion of civil parts or items while Leg 2/96 does not differentiate.
- **“as if” repair costs are excluded**





03

Summary

Defect Exclusion Clauses

Cross Reference Table

	CAR			Endt. 115	
EAR			Endt. 200		
Endt. 1239	Endt. 1240		CPI	Endt. 1241	Endt. 1249
DE1		DE2	DE3	DE4	DE5
LEG1/96			LEG2/96		LEG3/06

Design	Defective Part	excl	excl	excl	excl	excl	incl
	Resulting Damage	excl	excl	incl ²	incl	incl	incl
Material	Defective Part	excl	excl	excl	excl	excl	incl
	Resulting Damage	excl	incl	incl ²	incl	incl	incl
Workmanship	Defective Part	excl	excl	excl	excl	excl	incl
	Resulting Damage	excl ¹	incl	incl ²	incl	incl	incl
Betterment		excl	excl	excl	excl	excl	excl

reference to defective "part"

¹ MR EAR: damage resulting from faulty workmanship during erection is included

² Property which relies for its support or stability on property in defective condition is excluded

- Assuming liability for consequential loss, taking over cost for the repair of defective items and correcting faulty design forms part of contractor's contractual obligation (entrepreneurial risk is included in the contract price...)
- Relieving contractor from entrepreneurial risk → moral hazard!
- Difficulties involved with DE5/LEG3:
 - ✘ substantially higher loss potential since “as-if cost” are also covered!
“as-if cost”: hypothetical cost which would have been incurred for regular repair including shutdown, disassembly, travel cost, working time, re-assembly, re-commissioning, start-up, ...
 - ✘ this particularly applies for unproven technology!

- Difficulties involved with DE5/LEG3 (cont'd):

- ✗ to obtain maximum indemnity, the insured may rather let damage happen than rectify defect / take preventive measures

possible pragmatic solution: indemnify cost for repair of damage discovered on “Day 1”

(which may be only a fraction of the overall potential damage)

but the responsibility to rectify the underlying defect rests with the insured (or contractor/manufacturer)

- ✗ very difficult to define “betterment” when adjusting a loss

“put insured back in the same situation as immediately before the loss” neither desirable nor feasible;

possible pragmatic solution:

“the cost excluded is the add'l cost of changes if they had been implemented in the design stage”

→ determine cost for “correct execution” of works

(e.g. cost for correct design implemented in the very beginning: USD 1.5m)

and subtract cost for “defective execution”

(e.g. cost for defective design solution which was chosen, USD 1m)

→ “betterment cost” = USD 1.5m – USD 1m = USD 0.5m → “betterment” worth USD 0.5m is excluded!

- In case of a loss, covering damage resulting from defects may turn out to be costly and highly disputed (definitions, cost assessment, responsibility...)
- Wide range of Defects Exclusions on the market with important variations in scope of cover
- Different jurisdictions
- Be prudent when covering damage resulting from defects, charge extra premium!
- Know your Defects Exclusion(s), read carefully and word by word!
- Choose the right approach:
 - MR EAR – or MR EAR & Endt. 200 – or LEG?
 - MR CAR – or MR CAR & Endt. 115 – or DE?
 - MR CPI – or MR CPI & 1239/1240/1241/1249?
 - MR CEAR – or MR CEAR & 14014/14016/14115?
- Stick to proven concepts like MR, DE, LEG, no “home-grown” amendments!

Thank you for your attention!

Falko Schwaetter

NOT IF, BUT HOW



Defects Exclusion Clauses

DE (1995) Clauses

In 1985, the DE concept was created by the UK CAR Group and is generally more suitable for (civil) construction works = CAR policies.

The DE concept appreciates the fact that Property Insured is composed of

individual and distinctive units of Property Insured

which may result to be defective since they are built up of individual and distinctive components and parts

which individually may be defective.

However, there is no definition of “part”!

← *weak point of DE concept*

The DE Clauses were substantially amended in 1995, resulting in clearer wordings.

→ *use / refer to DE (1995) clauses!*

Defects Exclusion Clauses

DE1 (1995)

OUTRIGHT DEFECT EXCLUSION DE1 (1995)

*“This Policy **excludes** loss of or damage to the Property Insured due to defective design plan specification materials or workmanship.”*

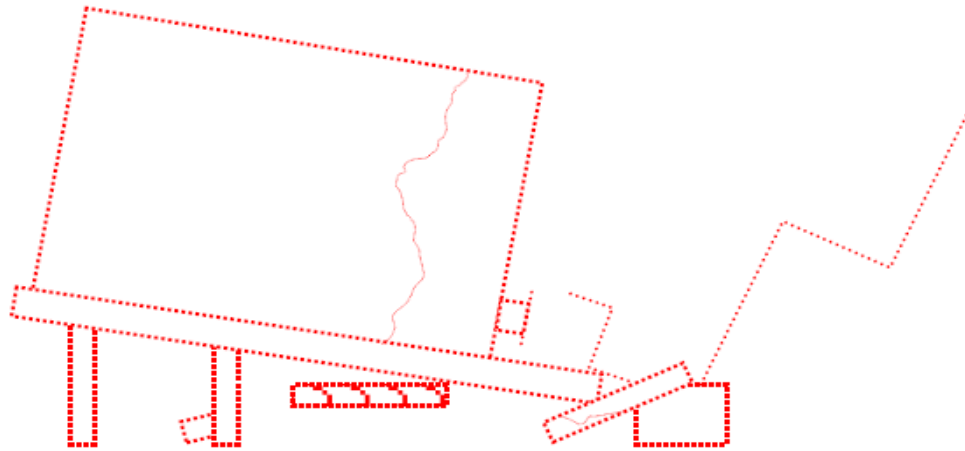
Faulty Design, Defective Material and/or Bad Workmanship **fully excluded**

CAR - Construction Wordings

DE 1

Outright Defect Exclusion (DE1)

- Outright exclusion of defects and resultant damage



- Covered property
- ⋯ Excluded property

EXTENDED DEFECTIVE CONDITION EXCLUSION DE2 (1995)

“This Policy excludes loss of or damage to and the cost necessary to replace, repair or rectify:

- (a) **Property Insured which is in a defective condition** due to a defect in design plan specification materials or workmanship of such Property Insured or any part thereof.*
- (b) **Property Insured which relies for its support or stability on (a)** above.*
- (c) **Property Insured lost or damaged to enable the replacement repair or rectification of Property Insured excluded by (a) and (b)** above.*

*Exclusion (a) and (b) above **shall not apply to other Property Insured which is free of the defective condition but is damaged in consequence thereof. (...)**“*

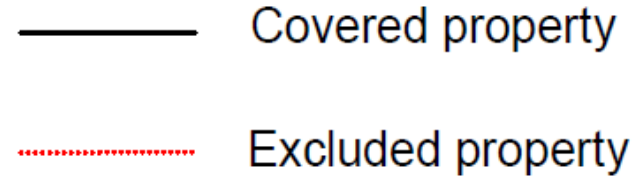
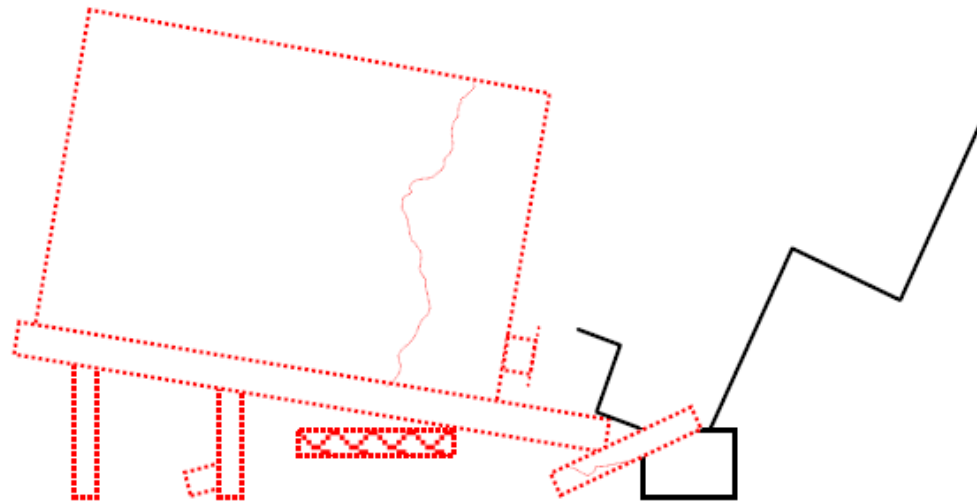
(...) see page 32

CAR - Construction Wordings

DE 2

Extended Defective Condition Exclusion (DE2)

- Defective property
- Property insured which relies for its support or stability on defective Property
- Cost to replace/repair/rectify



Defects Exclusion Clauses

DE3 (1995)

LIMITED DEFECTIVE CONDITION EXCLUSION DE3 (1995)

“This Policy excludes loss of or damage to and the cost necessary to replace, repair or rectify:

(a) Property Insured which is in a defective condition due to a defect in design plan specification materials or workmanship of such Property Insured or any part thereof.

~~*(b) Property Insured which relies for its support or stability on (a) above.*~~

(b) Property Insured lost or damaged to enable the replacement, repair or rectification of Property Insured excluded by (a) above.

Exclusion (a) above shall not apply to other Property Insured which is free of the defective condition is damaged in consequence thereof. (...)“

(...) see page 32

Faulty Design, Defective Material and/or Bad Workmanship

(DE2 ≈ DE3)

Defective Property Insured

excluded

Resulting Damage

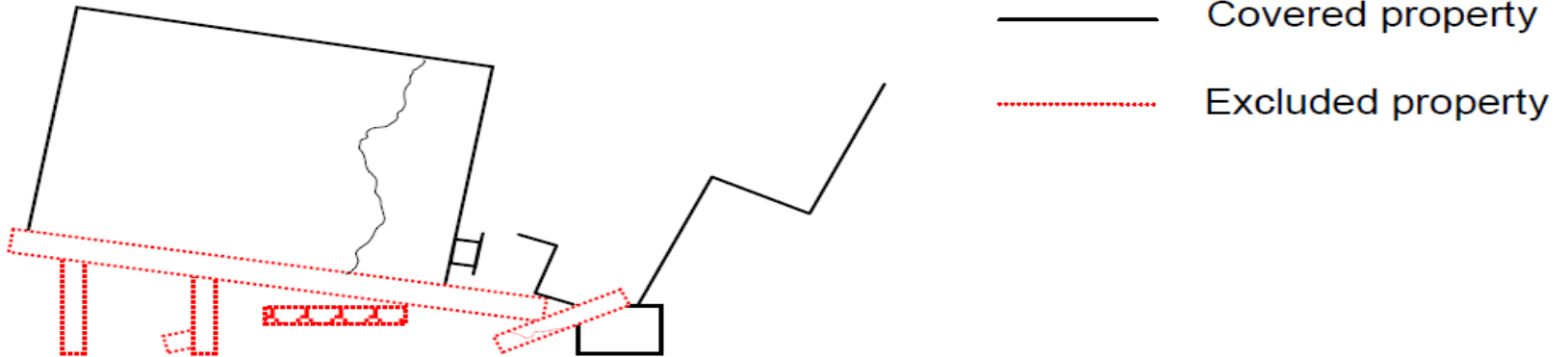
included

CAR - Construction Wordings

DE 3

Limited Defective Condition Exclusion (DE3)

- Exclusion limited to **defective property** and cost to replace/repair/rectify property



Defects Exclusion Clauses

DE4 (1995)

DEFECTIVE **PART** EXCLUSION DE4 (1995)

“This Policy excludes loss of damage to and the cost necessary to replace, repair or rectify

*(a) **Any component, part or individual item** of the Property Insured which is defective in design plan ^{definition?} specification materials or workmanship.*

(b) Property Insured lost or damaged to enable the replacement repair or rectification of Property Insured excluded by (a) above.

*Exclusion (a) above shall not apply to **other parts or items** of Property Insured which are free from defect but are damaged in consequence thereof. (...)*“

(...) see page 32

Faulty Design, Defective Material and/or Bad Workmanship

Defective Part **excluded**

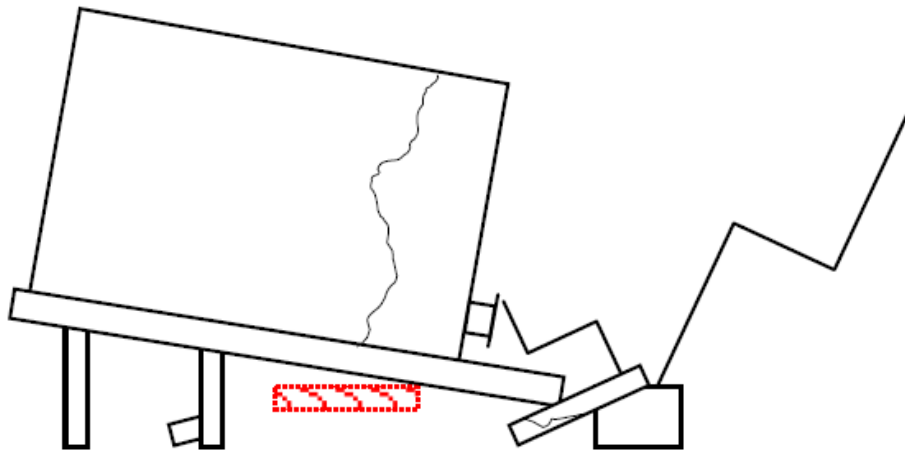
Resulting Damage **included**

CAR - Construction Wordings

DE 4

Defective Part Exclusion (DE4)

- Exclusion limited to **defective part or component** and cost to replace / repair / rectify part



— Covered property
- - - Excluded property

Defects Exclusion Clauses

DE5 (1995)

DESIGN IMPROVEMENT EXCLUSION DE5 (1995)

“This Policy excludes

- (a) The cost necessary to replace repair or rectify any Property Insured which is defective in design plan specification materials or workmanship.*
- (b) Loss or damage to the Property Insured caused to enable replacement repair or rectification of such defective property.*

*But **should damage to the Property Insured** (other than damage as defined in (b) above) **result from such a defect this exclusion shall be limited to the costs of additional work resulting from improvement** to the original design plan specification materials or workmanship.*

(...)“ (...) see page 32

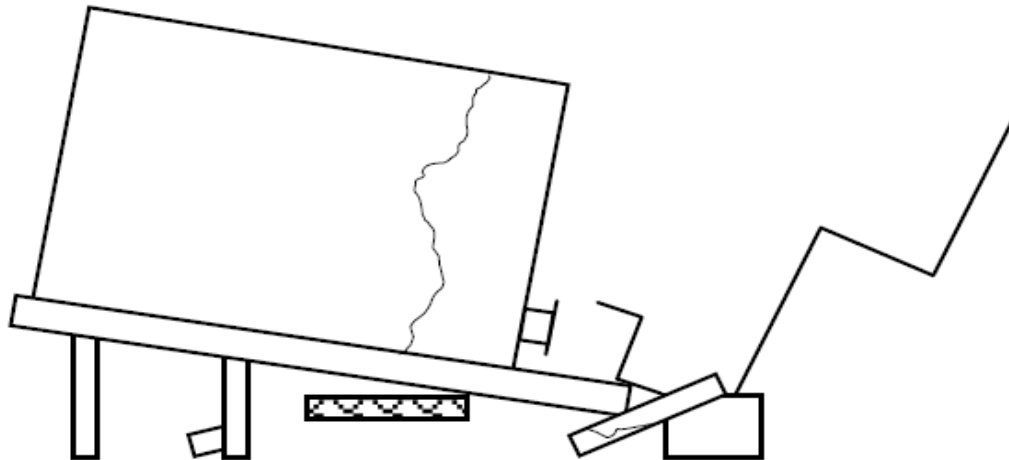
Faulty Design, Defective Material and/or Bad Workmanship only betterment excluded

CAR - Construction Wordings

DE 5

Design Improvement Exclusion (DE5)

- Improvement/betterment costs are excluded.



— Covered
..... Excluded

Thank you for your attention!

NOT IF, BUT HOW

