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• "NOT MY FAULT" CURRENT ISSUES UNDER THE DESIGN/WORKMANSHIP EXCLUSION SEPTEMBER 2015 (PART 3) •

Gregory J. Tucker
Owen Bird Law Corporation

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When Is Design or Workmanship Faulty? The *State of the Art* Standard

The standard that applies in determining whether design or workmanship is "faulty" underwent a potentially significant change as a result of the decision of the Supreme Court of Canada in *Canadian National Railway Co. v. Royal and Sun Alliance Insurance Co. of Canada* [*CN v. Royal*].[1] In summary, the standard for application of the exclusion was revised from one of *all foreseeable risks* to one of *state of the art*. There was some discussion, after that decision was handed down, to the effect that the new standard might unduly complicate the process of determining when the exclusion applies.[2] The concern was, in part, that application of the *state of the art* standard would turn many cases involving the exclusion into quasi-negligence trials (albeit one involving a *state of the art* standard rather than a *reasonable care* standard).

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Please address all editorial inquiries to:

Boris Roginsky, Journals Editor
LexisNexis Canada Inc.
Tel. (905) 479-2665; Toll-Free Tel. 1-800-668-6481
Fax (905) 479-2826; Toll-Free Fax 1-800-461-3275
E-mail: cjil@lexisnexis.ca

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That does not appear to have occurred, based on experience with the exclusion to date. Only two decisions since *CN v. Royal*, both handed down very recently, have considered the *state of the art* standard: *Verreault Navigation inc. v. Continental Casualty Co.* [*Verreault*][3] and *Acciona Infrastructure Canada Inc. v. Allianz Global Risks US Insurance Co.* [*Acciona*].[4] Both reach unsurprising conclusions concerning application of the *state of the art* standard. It may well turn out that significance of the *state of the art* standard will be restricted to very unusual situations involving complex engineering and design on the frontiers of existing knowledge. Before commenting on the recent cases, it is worth describing both the pre-existing *all foreseeable risks* standard and the new *state of the art* standard.

The Traditional Standard: *All Foreseeable Risks*

Traditionally, the standard applied to determine whether design or workmanship is "faulty" is that of "all foreseeable risks". If the risk was "foreseeable", then design or workmanship that failed to accommodate that risk was "faulty".[5] *Queensland Government Railways and Electrical Power Transmission Property Ltd. v. The Manufacturers Mutual Insurance Ltd.* [*Queensland*][6] involved a bridge designed to ensure that it would survive the highest flood ever recorded on the site at which it was built. A flood higher than that ever recorded occurred, and the bridge failed. The court found that risk of such an extreme flood was not "reasonably foreseeable" in that such a flood was very unlikely. But it was "foreseeable" in that such a flood was possible. Accordingly, on the *foreseeability* standard, design of the bridge was "faulty".

Queensland was followed on this point in a number of Canadian cases involving unusual but

"foreseeable" conditions. Those conditions include very high but foreseeable winds (*Willowbrook Homes (1964) Ltd. v. Simcoe & Erie General Insurance Co.*[7] and very heavy but foreseeable spring break-up of ice (*Collavino Inc. v. Employers' Mutual Liability Insurance Co. of Wisconsin*).[8]

One of the few Canadian cases to have found that a design that failed had nonetheless taken into account all foreseeable risks was *Foundation Co. of Canada Ltd. v. American Home Assurance Co.* [*Foundation*].[9] *Foundation* involved failure of a cofferdam during construction of a bridge. The cofferdam failed because of a rare combination of a pocket of gas and slickenslide (a fractured clay surface). The court made it clear that the standard required a meeting of "extreme, but foreseeable, circumstances". Extensive engineering evidence was called. The court found that, on the basis of that evidence, the combination of factors that caused failure of the cofferdam was so unusual that it was simply not "foreseeable". Thus, despite having failed, the design was not faulty or defective.

The *State of the Art* Standard: *CN v. Royal*

The facts of *CN v. Royal* were unusual. The project was boring of a rail tunnel. Because of the scale of the project the tunnel boring machine had to be designed basically from scratch, specifically for the project. One issue that arose during design was how to deal with the risk of bored material entering the machine's main bearings. The unprecedented size of the machine gave rise to special problems in terms of ensuring that bored material did not enter the bearings due to differential deflection in components of the machine. The matter was addressed during the design phase of the project. Experts were retained, and they carried out sophisticated work to develop a system of seals in order to protect the bearings. The sealing system, which could not be fully tested, failed in operation. Bored material entered the bearings, the bearings seized, and the machine suffered damage.

During the trial,[10] Justice Ground, applying the traditional standard, found that the risk of differential deflection was not "foreseeable" and thus the design was not faulty. The difficulty with that finding, of course, was that the specific problem of differential deflection was not only foreseeable, it was foreseen during the design process. The fact that every reasonable precaution was taken to accommodate this risk was not, on the traditional standard, sufficient to avoid a finding that the design was faulty. The Court of Appeal overturned the trial decision on this basis.[11]

The difficulty with the traditional analysis on the facts in *CN v. Royal* is obvious. A design that did not fully accommodate all foreseeable risks would inevitably be faulty, no matter how difficult, specialized, or unprecedented the issue being faced. The standard is close to perfection.

The Supreme Court of Canada, by a narrow majority, overturned the decision of the Court of Appeal on the basis that pure "foreseeability" should no longer be the standard. Instead, the standard should be "state of the art". Those risks that would be foreseen applying a *state of the art* standard must be dealt with applying "state of the art" engineering and design principles. If those steps are taken, design will not be faulty, even if it fails.

The question then becomes, exactly what does *state of the art* mean? This is discussed by Justice Binnie, for the majority, at para. 55:

> It is quite possible to evaluate the design (as distinguished from the designer) as to whether it met the standard of an

> ordinary, reasonable, cautious and prudent design, having regard to what could be expected in the circumstances. However, a design that survives a negligence test is not, on that account, of a calibre sufficient to deny the insurers the benefit of the exception. The insurers are entitled to the benefit of the exemption unless the design met the very highest of standards of the day and failure occurred simply because engineering knowledge was inadequate to the task at hand.

Accordingly, the *state of the art* standard is higher than a negligence standard but below a standard of perfection.

Cases since *CN v. Royal* Considering the *State of the Art* Standard

The first case to consider the *state of the art* standard was *Verreault.* In *Verreault*, the policies in question were primary and excess marine construction liability policies issued in connection with a project to refurbish a ferry owned by the Government of Canada. The policies covered the contractors' legal liability in connection with the project, but excluding liability arising from faulty design. Part of the contract involved design and installation of a new HVAC system. The HVAC system did not operate to specifications, and, as a result, the Government brought a claim against the contractor.[12] Insurers denied on the basis of the faulty design exclusion. The insured opposed the denial on the basis that the HVAC system was designed to "state of the art", in that it was designed to certain industry codes. The court had no trouble rejecting that argument. The codes on which the insured relied were applicable in connection with buildings. Separate codes governed an HVAC system for use in a vessel. Accordingly, the system clearly was not designed to "state of the art".

There was more detailed consideration of the state of the art standard in *Acciona.* While the real significance of the decision is its treatment of rectification costs, discussed below, the reasoning in connection with the *state of the art* standard is also of interest. *Acciona* involved a project to construct a new hospital wing. Construction utilized cast-in-place reinforced concrete slabs. The concrete slabs, over time, began to exhibit excessive cracking and over-deflection. The slabs were intentionally designed to be high at the centre when initially constructed and then to undergo a certain amount of deflection to become level. However, the deflection did not stop at the intended point. The deflection continued, and the slabs eventually sloped down towards the middle. This raised no structural or safety issues, but, due to the cracking and over-deflection, the slabs did not meet the standards set out in the governing contracts. As a result, substantial remedial work had to be undertaken.

The builders' risk policy issued in connection with the project contained a design and workmanship exclusion on LEG 2 wording (set out below). Insurers denied the claim on the basis of the exclusion. Several issues were raised, including the question of whether there was any defect in design or construction of the slabs. The insured argued that there was no defective design or workmanship within the meaning of the exclusion, as the slabs had been constructed to the "state of the art". Both the insured and insurers called expert evidence concerning the specific cause of the cracking and over-deflection. The evidence accepted by Justice Skolrood was to the effect that the construction involved slabs that were thinner than would generally be the case. That would be acceptable so long as certain specific procedures were followed in connection with formwork and reshoring of the concrete during construction. Those procedures were not followed. The court accepted expert evidence that the analysis undertaken in connection with the formwork/reshoring procedures was

"inadequate". In those circumstances Skolrood J. had little difficulty in concluding that the contractor's work did not meet the *state of the art* standard. Accordingly, there were defects in workmanship within the meaning of the exclusion.

It appears that, at least to this point, the change in standard does not appear to have given rise to real difficulty. That may well continue to be the case. *CN v. Royal* may turn out to be the rare case, based on its unusual facts, in which there is a difference between a *design or workmanship* that accommodates all "foreseeable" risks and a *design or workmanship* that is "state of the art".

[*Editor's note*: These materials were prepared by Gregory J. Tucker of Owen Bird Law Corporation, Vancouver, B.C., for the Continuing Legal Education Society of British Columbia, September 2015.

Gregory J. Tucker is with Owen Bird LC in Vancouver. Mr. Tucker has a commercial litigation practice, with a focus on insurance and related matters.]

1 [2008] S.C.J. No. 67, 2008 SCC 66, [2008] 3 S.C.R. 453.

2 *See*, for example, Miller, "*Canadian National Railway v. Royal and SunAlliance*, New Certainty for Faulty Design", Insurance Law Conference–2009.

3 [2014] J.Q. no 6078, 2014 QCCS 2879 (in French).

4 [2014] B.C.J. No. 2137, 2014 BCSC 1568.

5 There has been *obiter* comment in some cases that while the standard in connection with design was "foreseeability", the standard in connection with workmanship was "reasonable foreseeability" so that workmanship would be "faulty" only where there was negligence. Cases that raised this possibility, based on certain comments by one member of the court in *Queensland*, include the decision of the B.C. Court of Appeal in *B.C. Rail Ltd. v. American Home Assurance Co.*, [1991] B.C.J. No. 697, 79 D.L.R. (4th) 729. The notion of such a distinction has been rejected in other cases, including *Foundation*, and in texts, including Brown and Menezes, *Insurance Law in Canada* (p. 20.34). Any debate on this point has likely been ended by the decision in *CN v. Royal* and in *Acciona*, in which the court concluded that the *state of the art* standard should apply to workmanship as well as design.

6 [1969] 1 Lloyds Rep.214 (Aust. H.C.).

7 [1980] A.J. No. 855, [1980] I.L.R. 876 (C.A.).

8 [1984] O.J. No. 1011, 5 C.C.L.I. 94 (H.C.J.), aff'd [1985] O.J. No. 227 (C.A.).

9 [1995] O.J. No. 2164, 25 O.R. (3d) 36 (Gen. Div.), aff'd [1997] O.J. No. 2332 (C.A.).

10 [2004] O.J. No. 4086, [2004] O.T.C. 851 (Ont. Sup. Ct. J.).

11 [2007] O.J. No. 1077, 2007 ONCA 209.

12 Interestingly, the coverage provision under which the claim was made did not include any requirement that the claim be as a result of property damage. Accordingly, cover was triggered, subject to the design exclusion, as a result of the Government of Canada's claim that the system was defective.

• DEFLECTING BLAME: *ACCIONA INFRASTRUCTURE CANADA INC. v. ALLIANZ GLOBAL RISK US INSURANCE COMPANY* •

Krista Prockiw, *Legal Counsel*, ICBC
Neo Tuytel, *Senior Partner*, Fraser Litigation Group

In a recently released decision of *Acciona Infrastructure Canada Inc. v. Allianz Global Risk US Insurance Company*,[1] the British Columbia Court of Appeal addressed the application of the now common *defects in workmanship* exclusion.

There, Acciona Infrastructure Canada Inc. (the "Insured") sought recovery of $14,952,439 under a Course of Construction Policy (the "Policy") issued by Allianz Global Risk US Insurance Company (the "Insurer") for damage to concrete slabs utilized in the construction of a new patient care facility at the Royal Jubilee Hospital in Victoria, British Columbia.

Certain concrete slabs developed over-deflection, resulting in concave recessions in the centre as well as bending and cracking of the slabs.

Engineering tests confirmed that the slabs as designed and constructed met applicable standards and design load requirements and were accordingly safe. However, they were deficient from a functional standpoint, as the uneven floors were unacceptable to the hospital and were not in accordance with the underlying design/build contract. As a result, the slabs were ground down to make them flat, a process that involved considerable cost.

It was held by the trial judge that the over-deflection and cracking of the slabs was not caused by defective design but by defective formwork and re-shoring procedures during construction. This finding was not challenged on appeal.

The trial judge held that the direct costs incurred to remedy the damage to the concrete slabs fell within the grant of coverage under the Policy and that while there was an exclusion for defects in design and workmanship, such exclusion only operated to exclude costs that would have been incurred to remedy any defects prior to damage occurring, which costs were minimal. The trial judge denied recovery for certain indirect costs paid to third parties and additional overhead costs and reduced the insured's recoverable profit margin for a total award of $8,514,931.

On appeal, the Insurer argued that the trial judge erred in finding that the damage to the concrete slabs came within the grant of coverage by constituting "direct physical loss of or damage to the property insured" and further erred in holding that the damage was not excluded by virtue of the defective workmanship exclusion.

Scope of Coverage

The grant of coverage contained in the Policy provided coverage against "ALL RISKS of direct physical loss of or damage to the property insured (including general average and salvage charges) and further provided that

> 1. PROPERTY INSURED:
>
> This Policy insures:
>
> (a) property in course of construction, installation, erection, start up, testing and commissioning, reconstruction or repair whilst at the risk of the Insured and whilst at the location of the said construction, installation, erection, reconstruction or repair operations (hereinafter called the "Construction Operations");
>
> (b) property of every kind and description (including but not limited to materials and supplies, valuable papers or records, scale models of construction or work insured hereunder) used or to be used in a part of, or incidental to, the construction operations wherever the said property may be located within the Continental United States of America, and Canada, and whilst in transit or storage within and between Canada and the Continental United States of America on or over land or inland waters.

The Policy defined *occurrence* as

> For the purposes of the insurance under this Policy, an occurrence shall be defined as a loss or a series of losses which are attributable to one disaster or cause. All such losses shall be added together and the total amount of such losses shall be treated as one loss.

On appeal, the Insured argued that the slabs met applicable standards and design load requirements and were accordingly safe and further that the fact that they were not up to the serviceability standard does not mean they had suffered physical loss or damage. They argued that the building merely became less useful and that the Insured suffered an economic loss but no property damage.

The Court of Appeal distinguished the English and Australian authority cited by the Insurers and upheld the trial judge's reasons, holding that in this case there was more than a mere "functional inutility"[2] and that "(t)he slabs suffered 'physical

loss' and 'damage' within the ordinary meaning of those words, read in the context of the Policy as a whole".[3]

Exclusion

The Policy contained a Defects Exclusion, which excluded from coverage the following:

> (b) 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.
>
> For the purpose of this policy and not merely this exclusion it is understood and agreed that any portion of the Insured Property shall not be regarded as damaged solely by virtue of the existence of any defect of material workmanship, design, plan or specification.

The trial judge had interpreted this exclusion to exclude only "those costs that would have remedied or rectified the defect immediately before any consequential or resulting damage occurred, but the exclusion does not extend to exclude the cost of rectifying or replacing the damaged property itself; the excluded costs crystallize immediately prior to the damage occurring and are thus limited to those costs that would have prevented the damage from happening".[4] As such the trial judged held that "the excluded costs are those that would have remedied or rectified the defect before the cracking and over deflections <u>occurred i.e the costs of implementing proper formwork and shoring/reshoring procedures or incorporating additional camber into the formwork</u> [emphasis in original]".[5]

The Court of Appeal found no error in the trial judge's reasons holding as follows:

> [61] I discern no error in the trial judge's reasoning. The trial judge interpreted the Defects Exclusion to exclude from coverage the costs that would have been necessary to rectify a defect in workmanship immediately before that defect caused damage to the insured property. His critical finding that defects in the framing and shoring workmanship resulted in damage to the slabs was not challenged on appeal. Given that finding, the floor slabs cannot be considered to be a "portion of the insured property containing any of the said defects" within the meaning of the Defects Exclusion.
>
> [62] In other words, there was no defect <u>in the slabs</u> that could have been rectified in order to prevent the over-deflection, bending and cracking. The defect was <u>in the workmanship</u>. The judge found that if the defect in the workmanship had been identified early enough, there would have been no material additional costs to implementing appropriate workmanship. There was no evidence of such costs. It was a coincidence, in this case, that the necessary rectification costs were equivalent to the avoidance costs—but this does not mean the judge misinterpreted the Defects Exclusion to generally exclude only avoidance costs [emphasis in original].

Claim for Subcontractor Costs

The Insured cross-appealed the trial judge's finding that $4,050,949 of increased subcontractor costs were not covered by the Policy.

The Policy contained a Limit of Liability Clause which stated that "(i)n the event that any of the property insured be lost or damaged by the perils insured against, the Insurer will indemnity the Insured against the direct loss so caused". The Insured argued that the trial judge failed to appropriately consider this clause and that once it has been determined that the property had been damaged by an insured peril, all proximate losses are covered and that such proximate losses include both costs incurred to remediate the damage and economic losses suffered to mitigate further loss to the insured property proximately caused by the insured peril.

The Court of Appeal agreed with the trial judge's assessment that the Policy covered only direct losses to the property insured and that the additional subcontractor costs were of a different nature and did not arise out of the damage to the

slabs but rather arose out of the Insured's contractual obligations thus falling outside the scope of coverage.

Appellate Inconsistency?

In *Ledcor Construction Limited v. Northbridge Indemnity Insurance Company* [*Ledcor*],[6] the Alberta Court of Appeal considered a faulty workmanship exclusion, which excluded from coverage

> [t]he cost of making good faulty workmanship, construction materials or design unless physical damage not otherwise excluded by this policy results, in which event this policy shall insure such resulting damage.[7]

In *Ledcor*, the Alberta Court of Appeal held that under the above exclusion the presumptive test is that damage, which is physically or systemically connected to the very work being carried on, is not covered. Whether coverage is nevertheless extended as being resultant damage depended upon a number of factors including (1) the extent or degree to which the damage was to a portion of the project actually being worked on at the time, or was collateral damage to other areas; (2) the nature of the work being done, the relation of the damage to the way that work is normally done, and the extent to which the damage is a natural or foreseeable consequence of the work itself; and (3) whether the damage was within the purview of normal risks of poor workmanship or was unexpected and fortuitous.

These factors were not considered in *Acciona*, and it may be that the apparent inconsistency of these decision can be explained by the differences in policy wording for each of the faulty workmanship/defects exclusions and is thus not of import. However, such inconsistency may pave the way for an appeal of the *Acciona* decision to the Supreme Court of Canada.

[*Editor's note*: **Krista Prockiw** is the associate editor of *Canadian Journal of Insurance Law* and has practiced in the area of insurance defence since her call to the bar in 1999.

Neo Tuytel is a founding partner of Fraser Batkin Hanson Tribe Tuytel LLP, a commercial litigation boutique. He was called to the bar in 1985 and most frequently represents insureds regarding enforcement of coverage.]

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1 [2015] B.C.J. No. 1672, 2015 BCCA 347.

2 *Ibid*., para. 53.

3 *Ibid*., para. 38.

4 *Ibid*., para. 59.

5 *Ibid*.

6 [2015] A.J. No. 338, 2015 ABCA 121.

7 *Ibid*., para. 4.