

## **Acknowledging the Dignity of Architectural Heritage Adding a Fourth Virtue to the Vitruvian Triad**

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*Addressing the complex legacies of the past in architectural education and built constructions, calls for a reconsidering of the principles of architectural design and conservation. The current challenges of housing, sustainable development and heritage adaptation present huge dilemmas for architects. Yet today architects are only by exception trained to detect heritage values prior to drafting their interventions for adaptive reuse or upgrading. To this day, Western architectural thinking is influenced by the Vitruvian triad Firmitas, Utilitas and Venustas, and the truncated maxim ‘Form Follows Function’ as disseminated by the protagonists of the Modern Movement. These established a divide between the design for new-build and the care of already existing buildings. This divide is marked by the two Charters of Athens: the 1931 Carta del Restauro adopted at the First International Congress of Architects and Technicians of Historic Monuments, and La Chartre d’Athènes presented by Le Corbusier as a result of the 4th CIAM Congress on the Functional City (1933). This paper attempts to bridge the identified divide by adding the idea of ‘Dignitas’ (dignity) as an equal virtue to the Vitruvian triad. Though not new for itself, this concept may aid to raise awareness of architectural dignity in extant buildings.*

**Keywords:** *architectural theory, architectural education, conservation theory, Renovation Challenge, Dignitas*

### **Introduction**

Our built environment is changing faster than ever before, due to a variety of reasons including population growth, and a strong ‘desire for the new’, amongst many others. However, in Europe, more than 30% of all construction work is executed on extant buildings and this amount will increase in the immediate future.<sup>1</sup>

The perception of the potential values embodied by our built environment—be they social, cultural, historical or economical to name a few—is highly dependent on the observer. Their role can be as inhabitant, owner, estate developer, banker, political decision-maker, architectural or urban designer, et cetera. Seen in this light, it is remarkable that, particularly since the 1970s, but conceptually already since the 1920s, the majority of architects is mainly educated to design for new-build. Even if they are taught architectural history and may have some

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1. European Construction Industry Federation, *FIEC 2021 Statistical Report, European Union* (European Construction Industry Federation).

consciousness of built heritage as a substantial part of the cultural identity of a place or landscape, they are rarely educated in the thoughtful ‘art of adaptation’ and its related design strategies. The omnipresent promotion of new-build has to be changed in favour of continuity and renovation, not only for cultural historical reasons, but foremost as an ecological urgency.

Despite their good intentions for improving the living and working conditions for all, the adepts of the Modern Movement actively contributed to transfer the throw-away mentality of the consumers society also to the construction world and building culture. During the post-World War 2 decades, when industrialization became widely implemented in construction, the cost ratio between wages and materials as presented for new-build increased manifold. Under the influence of the ‘Form Follows Function’ maxim as a leading concept for transforming the built environment for new needs, many architects and clients now focus on radically new creations, often at the expenses of the extant buildings. New developments in financing and real estate have also led to handle extant buildings as easily replaceable commodities or to accept years long vacancy of office buildings.<sup>2</sup> However, the dominant emphasis on (short-term single) functionality does not guarantee continuity of new-build on mid- or long term. Ongoing construction of new-build does not result in reduced waste and consumption of energy, material resources and space.<sup>3</sup>

To counter this undesirable reality, it is important to acknowledge that the built environment holds complexities of values which must be taken into consideration. Together these present the cultural resilience of a building, neighbourhood or landscape; they showcase the interdependency of matter and meaning, people and places.<sup>4</sup> The 2011 UNESCO Recommendation on the Historic Urban Landscape (HUL) provides helpful guidance to advance a better understanding of these interwoven tangible and intangible values.<sup>5</sup> A wider adoption implies a fundamental reconceptualization of architectural design strategies, doctrines and values, by which adaptation of the existing will be positioned central instead of (replacing) new-build.

### Aim

In our view architectural theory and praxis must shift their focus from new-build to strategies of ‘integrated design’, which is based on thoughtful analysis of the existing buildings and their opportunities for continuity by means of well-considered and respectful interventions.

The aim of this paper is to investigate how such a reconceptualization could be heuristically grounded in the architectural consciousness and be communicated

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2. H. T. Remøy, *Out of office: A study on the cause of office vacancy and transformation as a means to cope and prevent* (Amsterdam: IOS Press, 2010).

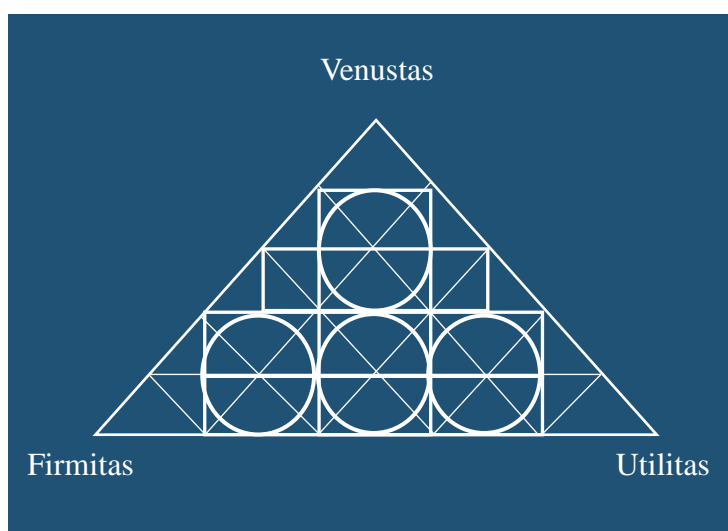
3. CBS, *Meeste afval en hergebruik materialen in bouwsector* (CBS, 2019).

4. N. J. Clarke, M. C. Kuipers, and J. Roos, “Cultural resilience and the Smart and Sustainable City,” *Smart and Sustainable Built Environment* 9, no. 2 (2019): 144-155.

5. UNESCO, *Recommendation on the historic urban landscape* (Paris: UNESCO, 2011).

to raise awareness of the current urgency of the renovation challenge of the extant building stock. The scope is European, including some particular experiences from the Netherlands as examples of professional practice and architectural education.

Western architectural thinking is, to this day, deeply influenced by the triad *Firmitas*, *Utilitas* and *Venustas* of the ancient treatise of the Roman architect Vitruvius (Figure 1). Recent books on architectural theory take it expressly as the starting point for diachronic overviews.<sup>6</sup> Its presence is so pervasive in Western architectural theory that Kenneth Frampton sees no need to introduce either author or premise when referring to Gottfried Semper's "...departure from the Vitruvian triad" in his first essay in *Studies in Tectonic Culture*.<sup>7</sup> The Vitruvian triad forms thus a heuristic base for the architectural profession, while today it is often interpreted mainly in relation to designs for new-build. The research question is if this triad can and should be expanded by a fourth virtue of equal importance to aid a broader values-based approach to a general design process and a foundational principle in all dialogues about the necessary interventions for adaptation of the extant buildings.



**Figure 1.** Representation of the Vitruvian Triad with *Firmitas*, *Utilitas* and *Venustas* as the Main Virtues

Although various proposals have been made in the past to expand the Vitruvian triad, there is still a need to look for a concept that overarches the qualities of the extant buildings as a polyvalent given, both in material and immaterial sense. For instance, the German architects Johannes Cramer and Stefan

6. B. Evers and C. Thoenes, *Architectural theory: From the renaissance to the present* (Cologne: Taschen, 2015); H.-W. Krufft, R. Taylor, E. Callander, E. and A. Wood, *A history of architectural theory: From Vitruvius to the present* (New York: Princeton Architectural Press, 1994); H. F. Mallgrave (Ed.), *Architectural Theory: Volume I: An Anthology from Vitruvius to 1870* (Malden, MA: Blackwell Publishing, 2006); K. Smith and Guitart, M. (Eds.), *Introducing Architectural Theory: Debating a Discipline* (New York; London: Routledge, 2012), 4.

7. K. Frampton, *Studies in tectonic culture: The poetics of construction in nineteenth and twentieth century architecture* (Chicago: Graham Foundation for Advanced Studies in the Fine Arts, 2001), 4.

Breitling provide an instructive overview of insights and design strategies for appropriate design in existing fabric, but they do not refer to the triad and mainly discuss the planning process, preparatory investigations and case-based design strategies, often applied to designated heritage buildings.<sup>8</sup> As another example, the continuities and discontinuities in vernacular architecture were analysed in-depth by the Greek academic-architect Maria Philokyprou and while we agree that this is "...a living organism that (...) cannot be put in ice during conservation", we are of the opinion that this statement goes for all buildings.<sup>9</sup>

How can we then, conceptually, advance an approach that results in continuity in all kinds of architecture, be it grown over time or the result of a carefully executed design by a renowned architect, and that acknowledges or even strengthens the embodied values?

It is clear that a clean break with current thinking is not possible or even desirable, but it is necessary to shift the focus towards the extant environment. In this search for a means to augment current architectural consciousness, we will, after a short introduction of the urgency of the current renovation challenge and its consequences for the architectural practice, discuss the prevailing doctrines for architecture and conservation, which have led to the establishment of a great divide. Following sections will deal with the method and positioning of this essay, a discussion of the urgency for a reconceptualization of architectural design strategies, current architectural design education in general based in part on short interviews and in the design education approach of the specific track of the Section for Heritage & Architecture at the Delft University of Technology (TUDelft). These sections will be followed by the presentation of our proposal for expanding the Vitruvian triad and our conclusions.

### Method and Literature Review

In order to achieve the noted required reconceptualization, a literature review (embedded in the narrative of this essay) is undertaken to augment the already available findings of the PhD research *How Heritage Learns* in which both co-authors were involved.<sup>10</sup> It is further informed by reflection on architectural education practice, already published by the co-authors and their colleagues at the Section for Heritage and Architecture at the TUDelft (H&A). The H&A section was originally founded as the R-MIT (Research, Modification, Intervention and Transformation) department under leadership of former Dutch State Architect, Jo Coenen, based on his realisation that the challenge for the future lay in modulating the existing.<sup>11</sup> Therefore, Coenen transformed the pre-existing section for restoration

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8. J. Cramer, and S. Breitling, *Architecture in Existing Fabric: Planning Design Building* (Basel: Birkhäuser, 2007).

9. M. Philokyprou, "Continuities and Discontinuities in the Vernacular Architecture," *Athens ATINER'S Conference Paper Series*, no. ARC2014-1311, 2014: 13.

10. N. J. Clarke, *How Heritage Learns: Dutch Public Housing Heritage Evolution in Ecosystemic Perspective* (Delft: TUDelft, 2021).

11. N. Clarke, H. Zijlstra, and W. de Jonge, "Education for Adaptive Reuse: The TU Delft Heritage and Architecture Experience," *Docomomo Journal* 61, no. 3 (2019): 67-75; N. Clarke, M.

into the re-use focussed R-MIT. To further substantiate our research, semi-structured interviews were conducted with two Dutch architects who have been awarded for their adaptive reuse projects.<sup>12</sup>

Many books are now available on ‘adaptive reuse’ and ‘re-architecture’ but the fundamental issue remains how architects can best be guided to expand their theoretical frame of references for the ‘art of adaptation’.<sup>13</sup> Alkemade *et al.* present “10+1 Actions” for dealing with the existing, but they only provide executed responses in built form, no guidance for analysis.<sup>14</sup>

The conclusions to this paper research are the result of a critical reflection on education experience and design practices as well as a process of continuous debate between the two researchers/co-authors and their colleagues.

### Urgency: The Renovation Challenge

Political awareness has recently grown globally, and particularly in Europe, that our built environment is urgently in need of adaptation to reduce energy consumption. Built environment professionals are also realising that the life-cycle environmental cost of construction can be reduced by re-use.<sup>15</sup> The option of demolition for new-build is becoming less and less viable due to the high environmental costs that this replacement brings and the waste of embodied carbon in the process.

The 2015 *Paris Accord* includes the ambition to limit global temperature increase brought about by human activity to 1.5°C above pre-industrial levels.<sup>16</sup> Globally roughly 17,5% of all greenhouse gas emission is related to the operation of the built environment, and in Europe buildings are responsible for no less than

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Kuipers, and S. Stroux, “Embedding built heritage values in architectural design education”. *International Journal of Technology and Design Education* 30, no. 5 (2020): 867-883; N. Clarke and M. Kuipers, “Introducing the Heritage Value Matrix: Connecting Matter and Meaning in Built Heritage,” in *Proceedings IMArTe2017- Intangibility Matters - International Conference on the Values of Tangible Heritage* (eds.), M. Menezes, D. Costa and J. Rodrigues, 207-216. Lisboa: LNEC, 2017; M. Kuipers and W. de Jonge, *Designing from heritage: Strategies for conservation and conversion* (Delft: TU Delft, 2017); J. Coenen, *The art of blending* (Delft: R-MIT, 2006).

12. Interviews conducted via the Zoom platform on 13 June 2022. Both interviewees were forwarded a list of five questions for consideration in advance of their interview. The interview took the form of a semi-structured dialogue and was recorded with the permission of the interviewees for further reference/transcription. This paper was shared with the interviewees before submission to get their consent.

13. A. Tostões, and Z. Ferreira (Eds.), *Adaptive reuse: The Modern Movement towards the future* (Lisbon: Docomomo International, Casa da Arquitectura, 2016); S. Cantacuzino, *Re-architecture: Old buildings/new uses* (New York: Abbeville Press, 1989); C. Bloszies and H. Hardy, *Old buildings, new designs: Architectural transformations* (New York: Princeton Architectural Press, 2014); F. Scott, *On altering architecture* (London: Routledge, 2008).

14. M. van Iersel, “Heavy World,” in *Rewriting architecture: 10+1 actions: Tabula Scripta* (eds.) F. M. Alkemade, M. van Iersel, M., Minkjan and J. Oudenburg (Amsterdam: Valiz, 2020), 30.

15. See for instance Preservation Green Lab, *The Greenest building: Quantifying the environmental Value of building reuse* (National Trust for Historic Preservation, 2012).

16. United Nations, *Paris Agreement* (Paris, 2015), Article 2, 1(a).

36% of all greenhouse gas emissions from energy.<sup>17</sup> Reducing both energy use and the associated environmental damage of operating our buildings is therefore essential to reaching set climate goals, but so far the practical consequences for our building and design strategies have hardly been investigated.

The 2019 *European Green Deal* aims to make Europe the first climate-neutral continent on the planet and has far-reaching consequences for all facets of life as we know it, also for the built environment. The European Commission's *Renovation Wave Strategy*, conceived to improve energy performance in buildings, was launched in October 2020. This programme has the ambition to at least double the rate of building renovations, to achieve energy renovation of 35 million buildings in Europe within 10 years. Its authors believe that it: "...can trigger a large-scale transformation of our cities and built environment. It can be an opportunity to start a forward-looking process to: ...*match sustainability with style* [italics by the authors]."<sup>18</sup>

The current EU Energy Performance of Buildings Directive makes an exception for buildings with historical value; Member States have the option not to apply European minimum standards in renovation in (a) building(s) that are officially protected as part of a designated environment or because of their special architectural or historical merit, in so far as compliance with certain minimum energy performance requirements would unacceptably alter their character or appearance.<sup>19</sup> However, seeing the urgency and existential nature of the climate crisis, it is inconceivable that any in-use building, no matter its heritage status, will not be affected by physical interventions – whether this is by other forms of energy production (photovoltaic and solar hot water), insulation, or adaptation to new use.

Renovation and adaptive re-use will thus become the main task for professional practice in the built environment in the immediate future. We must now consider the built environment as a whole, as a cultural product being of great value. All built fabric holds ecological value and could potentially also hold social meaning and/or cultural and historical value.

Acknowledging that a large portion of the extant built stock will remain with us and require careful adaptation, we need, according to the chairman of the United Kingdom's Climate Change Committee, Lord Deben: "...to think differently. It's not acceptable to pull buildings down like this. We have to learn to make do and mend."<sup>20</sup> The question is how will we learn and educate, specifically architects and builders, and address issues of ethics and aesthetics in relation to adaptation and architectural design in order to 'match sustainability with style'.

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17. I. Ghosh, *A Global Breakdown of Greenhouse Gas Emissions by Sector* (Visual Capitalist, 2020).

18. European Commission, *New European Bauhaus: Commission launches design phase*.

19. European Union, "Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the Energy Performance of Buildings (Recast), EPDB 2010/31 EU) [2002 Recast]," *Official Journal of the European Union* (2010): L 153/13-35.

20. R. Harrabin, *Building strategy to look at embodied carbon, says government* (BBC News, 2022).

## Diverging Doctrines

The American ecologists Sissel Waage and Robert Adams state that designers have historically not given much thought to the ripple effects of their decisions, but in view of the pressing renovation challenge, architects must now seriously rethink their position towards the extant buildings and their responsibility for a lasting availability of material resources and more.<sup>21</sup> Such an ecological responsibility stretches beyond the already existing obligation to take care of the cultural resources as are embodied by the built heritage. It demands a fundamental paradigm shift in architectural thinking and design education as well as in construction industry and policy.

Alongside the Vitruvian triad another strong influence in Western architecture is the maxim ‘Form Follows Function’, originally coined by Louis Sullivan but widely disseminated by the protagonists of the Modern Movement.<sup>22</sup> These have prioritized the function of their new buildings, based on detailed analyses of—often single—uses and supposed needs of the occupants in relation to space.

As for *form*, Le Corbusier’s famous essay on Five Points of Architecture, included in his polemic publication *Vers une Architecture* [Towards an Architecture, 1923], advanced a fundamentally new direction that broke ostentatiously with the stylistic idioms of the past.<sup>23</sup> His plea for a radically modern design approach, though informed by a personal understanding of ancient buildings of various civilisations, paved the way for a *tabula rasa* attitude towards architecture, as if there were no pre-existing or neighbouring buildings to relate to. It relied fully on the seemingly abundant availability of new construction materials, such as reinforced concrete, steel and large glass panes. By promoting the totally new, instead of adapting or maintaining the old, Corbu’s plea reinforced the brutal transformations of the rural landscapes and urban fabric of old cities that came along with the Industrial Revolution and were further affected by the large-scale war-time destructions and slum clearances.

These sweeping changes were in part responded to by the heritage movement, which introduced the theory and practice of architectural and urban conservation as necessary counter-acts to the vandalism of historic buildings and sites. The ‘proper’ way to best conserve immovable heritage, as landmarks from the past, was a topic of fierce debate in many Western countries from the late 19C. onwards. A defining moment came when, under the aegis of the League of Nations, the First International Congress of Architects and Technicians of Historic Monuments was held in 1931 in Athens to formulate common principles and doctrines related to conservation. The resulting Charter of Athens, also known as *Carta del Restauro*, “...recognised that each case needed to be treated individually” and recommended “...that the historic and artistic work of the past should be respected, without excluding the style of any given period.” In addition, it not only

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21. S. Waage and R. Adams, *Adapting architecture and design for a resource-constrained world* (The Guardian, 2014).

22. H.-J. Henket and H. Heynen (Eds.), *Back from utopia: The challenge of the modern movement* (Rotterdam: 010 Publishers, 2002).

23. Le Corbusier and J. Giraudoux, *La Chartre d’Athènes* (Paris: Les Editions de Minuit, 1957).

recommended "...that the occupation of buildings, which ensures the continuity of their life, should be maintained but that they should be used for a purpose which respects their historic or artistic character.' It also proposed "...that educators should urge children and young people to abstain from disfiguring monuments of every description and that they should teach them to take a greater and more general interest in the protection of these concrete testimonies of all ages of civilisation." It is surprising, but also alarming, that by then already, "...the Conference noted that, in the conditions of present-day life, monuments throughout the world were being threatened to an ever-increasing degree by atmospheric agents".<sup>24</sup>

No indications were provided how *architects* should be educated for the complex task of *respecting* the historic monuments when interventions for repair or adaptation to new needs were required. Just one pragmatic conclusion stated that: "...modern techniques and materials may be used in restoration work". In other words, the firmness of the monument could be enhanced by applying modern means while the two other Vitruvian virtues were only implicitly addressed in relation to form or function. The overarching principle was that there would be a clear distinction visible between the old fabric (as historically reliable evidence of material authenticity) and the inevitable new additions for the continuity of the monument as a 'living' building to be passed on to community and future generations. The clear distinction was desired to avoid fake and false imitations, considered as 'lies to history', but the difficulty remained how new additions were to be designed and materialised in a contemporary yet respectful manner with regard to the historic monument.

Such questions had been addressed before; for instance, in the Netherlands where the Dutch Archaeological Association had issued general principles and guidelines for the conservation and extension of ancient buildings in 1917, and in 1922 during the tenth international congress of architects held in Brussels, but the Athens *Carta del Restauero* was the first international attempt to codify a common doctrine on the conservation of heritage.<sup>25</sup> This implied the predominance of preservation over renewal, for which it was tacitly agreed that (aesthetically) 'harmonious solutions' were to be designed in case of irreplaceable losses and new additions, similarly to the prescriptions of in the Dutch guidelines. This challenge was more than a matter of style or individual expression, it was also a test case of creativity and understanding the historic values. As example of the thinking of that time, Michel de Klerk's characteristic expressionist design for the upper part of the original Renaissance church tower in IJsselstein, which was lost in a fire in 1911. De Klerk's design was seen in the 1920s as an exceptional approach of the

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24. International Congress of Architects and Technicians of Historic Monuments, *The Athens Charter for the Restoration of Historic Monuments, 1931*. ICOMOS.

25. J. Kalf and Nederlandse Oudheidkundige Bond, *Grondbeginselen en voorschriften voor het behoud, de herstelling en de uitbreiding van oude bouwwerken* (Leiden: G.F. Théonville, 1917); F. Choay (Ed.), *La Conférence d'Athènes sur la conservation artistique et historique des monuments (1931)* (Paris: Les Éditions de l'Imprimeur, 2002).



'restoration' assignment, acceptable to both conservation and contemporary architecture proponents only by virtue of its artistic merit (Figure 2).<sup>26</sup>



**Figure 2.** *IJsselstein, the Renaissance Tower of the Dutch Reformed or Old Saint Nicholas Church, Designed by A. Pasqualini (1532-35) with Expressionist Spire by Michel de Klerk as Post-Fire Restoration (1921-23) in 1962*

Source: G.Th. Delamarre, Cultural Heritage Agency of the Netherlands.

Meanwhile, design practice became overshadowed by the sharp conflicts among modernists and traditionalists about the right direction for contemporary architecture and urbanism against the backdrop of rising nationalism and economic decline.

Avant-gardists often opposed conservationists, claiming that in the case of historic city centres, the old had to make place for the new for the sake of progress.<sup>27</sup> The analytical functionalist approach of urban planning was collectively embraced and extensively discussed by the participants of the fourth international Congresses of Modern Architecture (CIAM, 1933), which took place far away from any built environment: on a cruise ship voyage in the Mediterranean *en route* to Athens. The outcomes, or rather his personal views, were later published by Le Corbusier as *La Chartre d'Athènes* in 1941-1942 and 1957, containing no less than 24 points of doctrine concerning the 'functional city'.<sup>28</sup> This charter, supported by Lluís Sert's provocative book *Can our Cities Survive?* (1942), was eagerly embraced by many architects and urban planners who were involved in the post-war rebuilding of the war-time devastated cities, such as Coventry, Le Havre,

26. J. A. C. Tillema, *Geschiedenis van de monumentenzorg in Nederland* (The Hague: Staatsuitgeverij, 1975), 146-150.

27. J. B. Van Loghem, *Bouwen bauen bâtir building. Holland...built to live in vers une architecture réelle neues bauen nieuwe zakelijkheid* (Amsterdam: Kosmos, 1932).

28. Le Corbusier and J. Giraudoux, *La Chartre d'Athènes* (Paris: Les Editions de Minuit, 1957).

Rotterdam.<sup>29</sup> They focused entirely on new-build designs for the distinguished main four urban functions—living, working, recreation and circulation—but mostly ignored the a fifth, culture, which would result in a call for the selective conservation of built heritage. In other cities, such as Middelburg, a mixed approach was adopted, sometimes rebuilding the pre-existing to its more or less historic forms (Figure 3).<sup>30</sup>



**Figure 3.** (Left) Rotterdam, View of the rebuilt Hoogstraat, with Modernist Galerij Modernes Department Store (1954-57, Van den Broek and Bakema) and Restored Tower of the Laurens Church in 1975); (Right) Middelburg, View of Post-War Rebuilt Bachtensteene Street and Ancient Abbey Tower ('Lange Jan') with Reconstructed Top to the Design of Jan de Meijer, Shortly After Completion in 1955.

Source: (Left) Gerard Dukker, Dutch Cultural Heritage Agency; (Right) Dutch Cultural Heritage Agency.

The dynamic interaction between the 'stories' that are communicated to construct the heritage significance and the 'stones' that are the material embodiment of the built heritage over time has today become a field of study in its own right, but the challenge remains how the valourised buildings can remain in use and passed on to future generations.<sup>31</sup>

29. J. L. Sert, *Can our cities survive?* (Cambridge, Mass: Harvard University Press, 1947); J. Düwel, and N. Gutschow (Eds.), *A blessing in disguise: War and town planning in Europe 1940-1945* (Berlin DOM, 2013).

30. J. M. Diefendorf, *Rebuilding Europe's Bombed Cities* (London: Palgrave Macmillan UK, 1990); J. Bold, P. J. Larkham, and R. D. Pickard (Eds.), *Authentic reconstruction: Authenticity, architecture and the built heritage* (London: Bloomsbury Visual Arts, 2020).

31. D. Lowenthal, *The heritage crusade and the spoils of history* (New York: Cambridge University Press, 1998); N. J. Clarke, *How Heritage Learns: Dutch Public Housing Heritage Evolution in Ecosystemic Perspective*. (Delft: TUDelft, 2021).

Effectively, the two Charters of Athens established a great divide between the design for new-build and the care of extant buildings. Sharing a strong belief in the separation and clear expression of new and old architecture, the doctrines encouraged a further divergence between conservation, which became more and more a specialised discipline, and the creation of contemporary architecture.<sup>32</sup> Time has come to bridge the gap and to search for a more holistic approach to adapt the current building stock to new needs of sustainability, safety and continuity of life.

### Architectural Design Education

During the post-war decades the divide between modernist architectural thinking and doctrinal conservation theories become increasingly deep, particularly after the adoption of the Charter of Venice (1964) and the subsequent rise of architects like Norman Foster and Rem Koolhaas. The divide was further expanded by continuous developments in education, economy and policy. Today a persistent ‘cult of newness’ prevails at the expenses of the recent heritage and the material resources.<sup>33</sup> As a result of frequent renewal in architectural education and the continuous promotion of modernity, the longing for newness has become dominant whereas the knowledge of historical construction methods and materials is only transferred, and applied, by a handful of specialists.

The rich handbook *Constructing architecture*, compiled for architectural education in 2005, builds on another triad in an analogy with language stating that architecture has: ‘...material vocabulary (modules), a constructive grammar (elements) and a structural syntax (structures)’.<sup>34</sup> It also refers to Kenneth Frampton’s distinction of the “...constantly evolving interplay of three converging vectors, the topos, the typos, and the tectonic”.<sup>35</sup> Although the Vitruvian triad is not mentioned explicitly in this handbook, the cited triads may be interpreted as relevant reverberations of the same observation that a sensible composition of architecture is always the result of a complex interaction of three different factors.

The Belgian academic-architect, engineer and poet Richard Foqué utilises the Vitruvian Triad as basis for his conceptual model for architectural research in which he equates *Firmitas* to *Science and the Mind*, *Venustas* to *Art and the Soul* and *Utilitas* to *Design and the Body*. He presents another triad in the form of a triple helix, representing the domains of *form*, *context* and *function*; a

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32. M. Glendinning, *The Conservation movement: A history of architectural preservation: antiquity to modernity* (London: Routledge, Taylor & Francis Group, 2013), 200.

33. M. C. Kuipers, “Leege en overvloed: De nieuwheidscultus in de naoorlogse architectuur van Nederland,” in *Gered, gesloopt, bedreigd, omgaan met naoorlogs erfgoed* (eds.) A. de Back, J. Coenen, M. C. Kuipers, and W. Röling. (Rotterdam: Episode, 2004), 18-25.

34. A. Deplazes, “Preface,” in *Constructing architecture: Materials, processes, structures: a handbook* (ed.) A. Deplazes (Basel: Birkhäuser, 2018), 10.

35. C. Elsener, “How to use this book,” in *Constructing architecture: Materials, processes, structures: a handbook* (ed.) A. Deplazes (Basel: Birkhäuser, 2018), 11.

reinterpretation of the Vitruvian triad.<sup>36</sup> His use of the double-helix is an analogy between buildings and DNA and organisms and this may be useful for establishing another attitude towards the extant built environment by including associations with life, presence and continuity.

By placing a selection of the inherited building stock as designated monuments/historic buildings under statutory protection, they are, according to many contemporary architects, set apart from daily life. Such designation is seen to limit architect's creative powers when designs for adaptive reuse or technological upgrades are required. These architects, rarely taught to look further than the Vitruvian triad *Firmitas*, *Utilitas* and *Venustas* and the slogan 'Form Follows Function', often see listed monuments as a hindrance. This, when dealing with the existing, creates a prejudice against the potential for functional matches and assumed cost-effectiveness is the prevalent consideration when deciding on reuse or demolition.

Departing from the triad and critically reflecting on the results of the fast processes of (functional) ageing and the dogmatic attitude of the modernists towards built heritage, Dutch architect Hubert-Jan Henket, co-founder of DOCOMOMO, introduces 'performance management' and 'life cycle conscious thinking' as essential concepts to get grip on the undesirable process of 'throw away' building.<sup>37</sup> The English architect John Allan, specialist in the conservation of modernist heritage, underpins also that: "the green agenda and sustainability issues are suggesting larger arguments for thinking carefully about the embodied value of previous investment before scrapping it in favour of redevelopment."<sup>38</sup>

Yet the problem remains that most lessons for architectural students are still directed at the creation of entirely new buildings. Many designers of today lack an appropriate training in dealing with the existing built environment. So, they seek wilful contrasts to make their interventions clearly contemporary – often under the pretext of 'reversibility', implying that the new additions and infills can be made undone and that the previous situation could then be restored without harm. However, when seen in longer chronology this feigned reversibility is an act of self-harm: a waste of financial, material and environmental investments. At the same time, various specialised heritage architects in conservation do not always look for creative solutions for the necessary interventions to allow new functions or to upgrade the functionality of a built heritage site. Some do, however, like the well-known Dutch renovation architects, Annette Marx and Job Roos.

For this paper we interviewed both about their design attitude when dealing with built heritage for adaptive reuse.<sup>39</sup> We asked specifically if they were familiar with the Vitruvian triad and, if they had, if it had guided them in their work. While the Irish academic-architects Brophy & Lewis (2011) state in the Preface of their *A*

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36. N. J. Clarke, *How Heritage Learns: Dutch Public Housing Heritage Evolution in Ecosystemic Perspective* (Delft: TUDelft, 2021), 53.

37. H.-J. Henket, (*Waar oud en nieuw elkaar raken. Een pleidooi voor houdbare moderniteit in de architectuur* (Eindhoven: Lecturis, 2013), 301-326.

38. J. Allan, "Points of balance: Patterns of practice in the conservation of modern architecture," *Journal of Architectural Conservation* 13, no. 2 (2007): 44.

39. The following sections summarise the interview with Annette Marx and Job Roos by the authors, 13 June 2022.

*Green Vitruvius* handbook that the “ten books on architecture...” are: “...still referred to in every European architect's education”, Marx, trained at the TU Eindhoven during the 1980s, recalled only to have learnt about the triad after her studies. She however did note the lessons on the relevance of context, in which ‘history’ was, at the time, deemed a ‘dirty word’.

By contrast, Roos, whose training at TU Delft in the 1970s included also elective courses in conservation, recalled being taught about the triad and considers it an anchor for his architectural thinking today. He stated that the ‘delivered buildings’ awaiting adaptation for new use are often mishmashes of styles, materials and forms. Therefore, additional aspects deserve attention, such as ‘complexity’, ‘imperfection’ and ‘time’, which enable him to search for hybrid solutions for the problems of adapting the building to new needs.

Marx responded that she applies the triad unconsciously during the iterative design processes and remarked that ‘circularity’ is also important to her, as is the environment. In her designs, she further seeks to bring human-focused assets into harmony with building focused demands. She sees her interventions as a new layer, which also has to be useful for future additions, to ensure a continuum in time for the building.

Roos emphasised the need of a broad approach based on a deep awareness of time and the sustainability of ideas over a period of 20 to 30 years. When he was tasked in 2008 with the reuse as new home for the Faculty of Architecture of a building completed in 1924 as chemistry lab, he made use of Steward Brand's (1994) *Shearing Layers* model for a critical analysis of the inherent opportunities for adaptive reuse.<sup>40</sup> After the removal of various provisional partition walls to create an internal street, he chose to embrace the laboratory character of the building, leaving the interior ‘naked’, and to showcase the high quality of the original exterior walls in the interior by enclosing originally outdoor courtyards with glazed façades. These courtyards now form ‘squares’ to the network of ‘streets’ (Figure 4).

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40. S. Brand, *How Buildings Learn: What Happens after they are Built* (New York: Viking, 1994).



**Figure 4.** Delft, Model Hall for Architectural Students in Newly Added Glass Cube, Part of the Adaptation to BK-City as Designed by Job Roos (Braaksma & Roos) and Octacube

Source: Braaksma & Roos.

Marx applied a similar strategy when adapting a listed school building (dating from 1903) for new use as a higher education institute in Amsterdam for which two courtyards were covered by a glazed shed construction. She aims to ‘...let the human story (the narrative) speak’ and to facilitate the interactivity of the people who use the building.

Roos recalls the awareness of *time*: buildings get a personality, they become part of the city. In his experience, admitting the force of *relativity* creates space for the unexpected during the design process.

Both architects agree that the Vitruvian triad is still useful but they also underline that it must be enlarged for the complex task of ‘adaptation’ to new needs. This may deal with more types of interventions than ‘adaptive re-use’ alone, while also intervening for the continuation of the existing use (such as housing, a museum or an office), or *doorbestemming* in Dutch, require skilful design solutions for an updated *Utilitas*, *Firmitas* and *Venustas* in relation to safety, security, routing and reduction of energy consumption et cetera. The *Form Follows Function* assumption provides a much too small base for such a complex assignment of ‘integrated design’.

### Education Experiences in the TUDelft Heritage & Architecture Design Studios

The Section for Heritage and Architecture (H&A) at the TUDelft focusses on the architectural adaptation of the existing built environment to new (and future)

needs. All design studios take the building, its context and cultural and social values as a point of departure in successive steps. The aim of the ‘integrated design’ is always to explore and develop coherent and significant re-use or adaptation options of both valourised and unvalourised built inheritance, for instance, the vacant department stores in Dutch historic city centres.<sup>41</sup> Other typologies and built heritage from other periods or foreign countries, have also served for case-studies in the H&A studios. The studios provide important lessons for students in real-life situations with complexity during their field explorations and speak with owners, heritage officials and other stakeholders before they start to work on their design strategies.

The strategy entails close on-site observations, deep investigations into the history and evolution of a building, ensemble or neighbourhood from drawing board to decommissioning, context and relationships, sources of decay and societal needs. The investigation process is marked by three milestones, so-called Chrono-mapping, composing the Heritage Value Matrix and a Transformation Framework.<sup>42</sup> More recently, and aligned with the intention of the 2005 Council of Europe *Convention on the Value of Cultural Heritage for Society* (Faro Convention), investigations also often include in-depth stakeholder engagement.

Chrono-mapping attempts to teach students to understand buildings as being composed of layers, formed over time, very much in the way that Job Roos approaches them, and to present these in timelines, commented sections and plans.<sup>43</sup> The method stimulates to apply more visual representation skills than are usually practiced by specialised building archaeologists in their coloured schemes based on historic plan drawings. The specially developed Heritage Value Matrix is a structured tool to analyse and visualise the attributes that convey value and link these to specific layers in a building on two axes (Figure 5).<sup>44</sup> Buildings are analysed in their status quo using the *Shearing Layers* model of Stewart Brand (1994), augmented by two layers, ‘Surrounding/Setting’ and ‘Spirit of Place’ as layers ‘0’ and ‘8’ respectively to include context and intangible values on one axis. These layers can be loaded, or not, with differentiated heritage values on the other axis by means of visualisations (drawings, photos) and/or words. They follow the dialectic values as presented by Alois Riegl in his 1903 essay *Der moderne Denkmalkultus, sein Wesen und seine Entstehung*, augmented by the newly defined ‘conflict value’ and ‘nostalgia value’.<sup>45</sup> The dialectic values set highlights

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41. L. Fischer, V. Versluijs, I. Jansen and H. Zijlstra (Eds.), *Spatial Building Typology: Vacant Heritage: Department stores, V&D's* (Delft: Heritage & Architecture TU Delft, 2021).

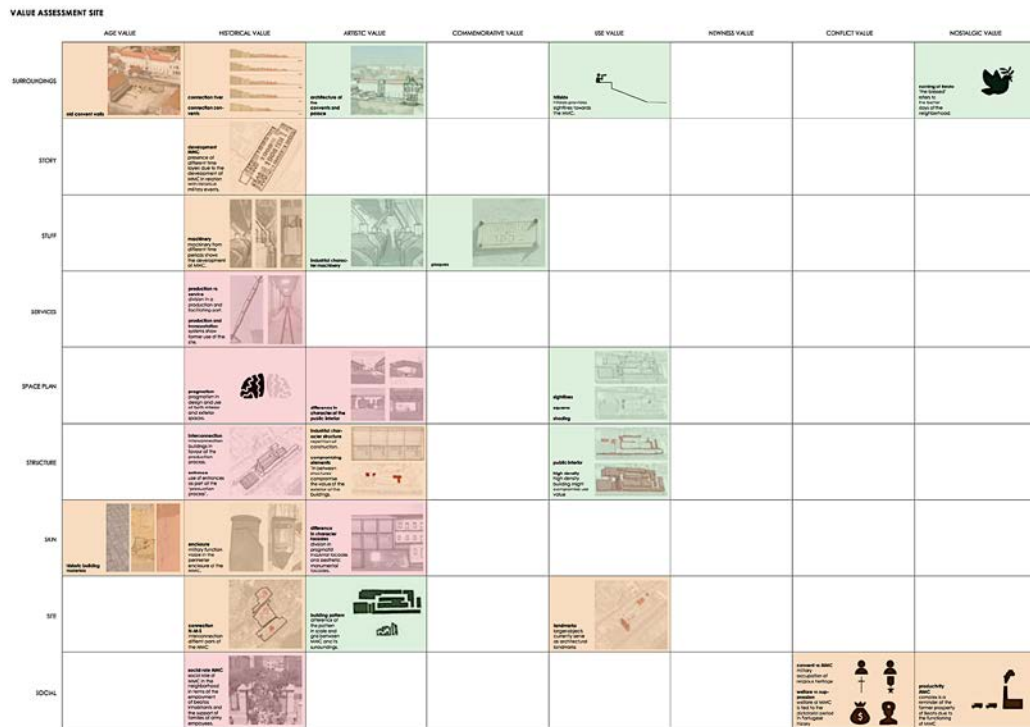
42. See: N. Clarke, H. Zijlstra, & W. de Jonge, “Education for Adaptive Reuse: The TU Delft Heritage and Architecture Experience,” *Docomomo Journal* 61, no. 3 (2019): 70.

43. M. Kuipers, “A Primer of observation” (see M. Kuipers and W. de Jonge, *Designing from heritage: Strategies for conservation and conversion* (Delft: TU Delft, 2017), 31-64).

44. Developed by Clarke & Kuipers, with input from Hielkje Zijlstra and Sara Stroux (see N. Clarke, and M. Kuipers, “Introducing the Heritage Value Matrix: Connecting Matter and Meaning in Built Heritage,” in *Proceedings IMAATe2017- Intangibility Matters - International Conference on the Values of Tangible Heritage* (Eds.) M. Menezes, D. Costa and J. Rodrigues (Lisboa: LNEC, 2017), 207-216).

45. M. Halbertsma and M. Kuipers, *Het erfgoeduniversum: Een inleiding in de theorie en praktijk van cultureel erfgoed* (Bussum: Coutinho, 2014), 55-76.

the inherent conflicts between commemorative (heritage) values and contemporary ‘use values’ in adaptation that lie at the heart of any re-use project.<sup>46</sup>



**Figure 5.** *The Heritage Value Matrix Applied on the Multi-Layered Military Maintenance Complex in Lisbon, Differentiated According to Relevance along Building Layer, Value and Theme*

Source: Sophie Lok, Heritage & Architecture master student, TUDelft, 2016.

From the clear understanding of these two steps, a framework for transformation can be developed that outlines opportunities, obligations and, importantly, dilemmas for the architectural student engaged in design for adaptation. Although each student is obliged to make his or her individual design in a later phase, the studio process purposefully also includes (sub) group presentations and discussions about findings, interpretations, dilemmas and possible design directions. Experience of the H&A education has shown that such interactive exchanges are as instructive and informative as the individual investigations.

The H&A education at the TUDelft is elective and only a portion of graduates in the architecture track of the faculty will be taught these importation skills with which to deal with the existing built environment. This makes it even more pressing to ensure that a broad appreciation of all extant buildings (not just the designated monuments) is included in the heuristic forming of all architects.

46. N. Clarke, M. Kuipers, and S. Stroux, “Embedding built heritage values in architectural design education,” *International Journal of Technology and Design Education* 30, no. 5 (2020): 867-883.



### Expanding the Vitruvian Triad: Adding *Dignitas* as Fourth Virtue

Taking up Deben's appeal to think differently, we must rethink both architectural theory, education and conservation and look for opportunities to bridge the identified divide between radical new-build or re-architecture on the one side, and the conservation of historic forms and substance on the other. Just as the conservation doctrines call on conservationists, to take an ethical position towards respecting the authenticity of heritage, so an ethical position is required to respect the inherent qualities of the already existing built environment for architectural design principles. Architects have a wider responsibility than producing designs for single- and often short term uses for new-build.<sup>47</sup> The same applies for their clients.

In view of the current *Renovation Challenge* it has become inevitable to turn the focus from entirely new-build to thoughtful adaptation of the extant building(s), while keeping also future life-cycles in mind. The noted urgency to start a 'forward-looking process to match sustainability with style' implies much more than merely aiming at reduction of energy consumption or focusing on aesthetics. It means a fundamental shift of paradigms in relation to architectural design, material and cultural resources. As a consequence, the idea of 'reversibility', stemming from the conservation theory and the 1983 ICOMOS *Appleton Charter for the Protection and Enhancement of the Built Environment*, may be as critically interrogated as the promise of new-build to solve the problems of an unhealthy habitat.<sup>48</sup> Our environment can no longer be treated as a blank canvas but has to be approached as a *tabula plena* where careful adaptation is the norm for architects and builders. Revising general architectural education is essential. Buildings are to be considered metaphorically as living organisms that deserve careful treatment. To enable and stimulate such a sensitive approach a broad accessible portmanteau must be introduced in architectural thinking; a single but fluid term that allows for wide interpretation on the base of responsibility and respect.

In noticing that the three virtues of the Vitruvian triad are still widely disseminated in architectural theory and practice, we conclude that this must be augmented with a fourth virtue – one that is of a similar importance as *Firmitas*, *Utilitas* and *Venustas* and can be related to both material and immaterial qualities and the dimension of time. This virtue must immediately trigger relevant decisionmakers to investigate the polyvalent qualities of the extant buildings and sites in a systematic way of observation and valuation prior to the process of (re-)design for adaptation to new needs.<sup>49</sup> In searching for an appealing concept that touches upon aspects of value, integrity and esteem in the built environment, and that can be applied in our 21<sup>st</sup> century society, we consider *Dignitas* (dignity)

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47. W. Röling, *De kunst van de ingenieur & De verantwoordelijkheid van de architect, met daartussen Een gezicht op Delft* (Amsterdam: Amsterdam University Press Salomé, 2002).

48. W. J. Quist, "Kernbegrippen in de restauratie," in *Culturele draagkracht: Op zoek naar de tolerantie voor verandering bij gebouwd erfgoed* (eds.) M. C. Kuipers and W. J. Quist (Delft: Delftdigitalpress, 2013), 25.

49. M. C. Kuipers, "A primer of Observation," in *Designing from heritage: Strategies for conservation and conversion* (eds.) M. Kuipers and W. de Jonge (Delft: TU Delft, 2017), 31-64.

most appropriate to term the fourth virtue; to be more precise: the inherent dignity of an inherited place, building, ensemble, neighbourhood or landscape.<sup>50</sup> The term *Dignitas*—inherently linked to worthiness, reputation and respect—is wilfully open to multiple interpretations, yet it immediately implies distinction and it forces relevant stakeholders, including architects, to take an ethical position towards the treatment of the built heritage/environment, whether this is listed or not. The concept may be adopted as an umbrella for a wider range of values that deserve acknowledgement when decisions must be made about the future of the extant buildings than usually applied to heritage, architecture and environmental norms. It is meant to aid the design process and the dialogue about the necessary interventions for adaptation.

We are not the first to wish to augment the Vitruvian triad. In *A Green Vitruvius*, Vivienne Brophy and J Owen Lewis (2011) propose the addition of a fourth virtue: “...restitutitas or restitution, restoration, reinstatement: where the act of building enhances its immediate and the global environment in an ecological, as well as visual sense.”<sup>51</sup> But this also fails to acknowledge that a building could contain and present a range of values, what Christopher Alexander refers to as the ‘quality without a name’ beyond those of firmness, use and beauty.<sup>52</sup>

We are likewise not the first to relate the term *Dignitas* to architecture or built heritage. Even Vitruvius himself and his reviver Leon Battista Alberti spoke of dignity in their respective treatises on architecture, both in relation to (noble) men and respectable buildings. Art critic John Ruskin made extensive reference to the dignity of historic buildings; for instance, in his *Seven Lamps of Architecture*, as an essential value to respect.<sup>53</sup> His implicit emphasis on the value of material authenticity became central in the 1931 Athens Charter, and is recast in the 1964 Venice Charter for the Conservation and Restoration of Monuments and Sites, but we like to stress that the concept of ‘dignity’ can be used in a much broader sense and also in the context of adaptation.

In contemporary discourse the term ‘dignity’ often pops up in relation to human beings, especially those who need assistance and care. The parallel between people and buildings to be carefully treated is perhaps no coincidence, it may even underline the dynamic relationship between human beings and their built environment, which is our habitat, and therefore calls for care. A sincere acknowledgement of a building’s *Dignitas* places the building *before* the ambitions of the current owner or architect, extending the timeframes being considered from that of immediate need to long-term maintenance and curation through use. When we told Marx and Roos of our proposal to add the virtue of *Dignitas* to the Vitruvian triad, they responded enthusiastically and indicated their willingness to further explore its potential in their professional practice and architectural

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50. For all clarity, the proposed augmentation of the triad with ‘Dignitas’ is based on present day insights and not a direct application of the term as used in the ancient Roman mindset of authors like Cicero in that historic context for the prestige of male citizens of an acquired standing.

51. V. Brophy, and J Owen Lewis, *A Green Vitruvius: Principles and Practice of Sustainable Architectural Design* (Boca Raton, FL: Routledge, 2012), *Foreword*.

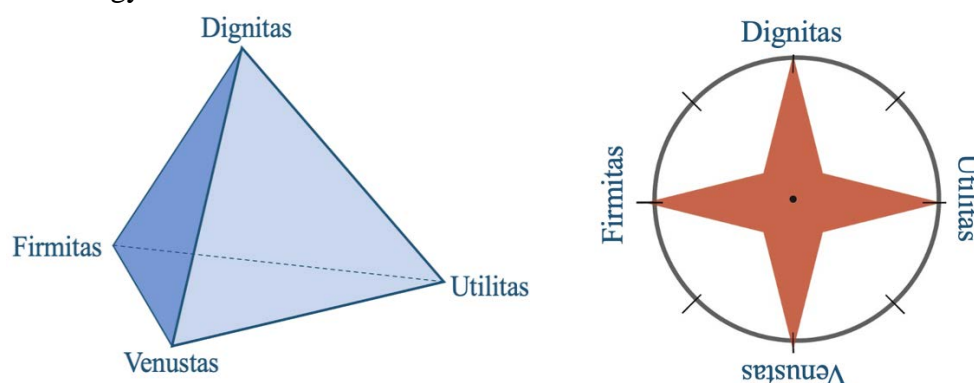
52. C. Alexander, *The timeless way of building* (New York: Oxford Univ. Press, 1980), 9.

53. J. Ruskin, *The seven lamps of architecture* (Orpington: Allen, 1890), *passim*.

teachings on ‘integrated design’ which is based on thoughtful analysis of the existing buildings and their opportunities for continuity by means of well-considered and respectful interventions. Yet it is important that also other educators will adopt the virtue of *Dignitas* and assess the merit of our proposal.

Interestingly, the presence of *dignity* in a humble building of stone as inspiration for new-build is noted in an essay about massiveness, but it gives no thoughts to the safeguarding of this source.<sup>54</sup> The dignity of an extant construction can lie in its visible traces of ageing, such as patina and cracks, but also in other qualities, both tangible and intangible, including simply its ‘being’. It is up to the curator-architect to investigate what the existing structures can offer for new, other or additional uses of the available spaces, while respecting the *Dignitas* in their integrated design strategies.

While searching for an appropriate visualisation of the equity of the, now *four* virtues, which give sufficient importance of *Dignitas*, we first elaborated on the form of a prism but then found the Greek cross a more appropriate basic form to demonstrate the interrelations and from there it is an obvious step to transform this into a compass, with *Dignitas* as the indicator for the northern direction (Figure 6). The analogy supports also the moral appeal to adopt an ethical attitude towards the built environment and the decreasing availability of space, construction materials and energy.



**Figure 6.** (Left) *The Expanded Vitruvian Virtues Represented as a Pyramid with Dignitas on Top;* (Right) *The Expanded Vitruvian Virtues Represented as a Compass with Dignitas as the Marker for Taking Position*

Source: Nicholas Clarke and Marieke Kuipers, 2022.

Alongside this environmental imperative, the cultural imperative of adaptive reuse or *doorbestemming* calls for a thorough investigation of the ‘cultural carrying capacity’ of extant buildings, neighbourhoods and sites and their tolerance for change. Age-old church buildings, for instance, cannot in all parts be adapted for secular reuses in the same way as abandoned industrial buildings, due to the inherent sacredness that the churches held.<sup>55</sup> Both conservationists, architects and

54. M. Tschanz, “Of heavy mass and apparent heaviness,” in *Constructing architecture: Materials, processes, structures: a handbook* (ed.) A. Deplazes (Basel: Birkhäuser, 2018), 255.

55. M. Kuipers, “Saxa loquuntur? Spankracht en draagkracht van eeuwenoude stadskerken,” *Bulletin KNOB* no. 110 (2011): 174-182.

other stakeholders must learn to deal with the ‘challenge of change’ and to find a common vocabulary for discussion about the ‘do’s and ‘don’ts’.<sup>56</sup> In the end, respecting *Dignitas* in adaptive designs means that all Vitruvian virtues must be matched. This may lead to a broader interpretation of the idea of ‘compatibility’ than mainly historically, materially or functionally. What matters is the will to adapt extant buildings carefully for a new life cycle of some 20 to 30 years by means of sensitive adaptations, balancing between minimal and maximal interventions. Every time a critical assessment must be made of the tangible and intangible values that are embodied in the inherited ‘stones’ and ‘stories’ of the buildings (designated monuments or not) and what must be continued as much as possible.

Remarkably, the Dutch Cultural Heritage Agency proves essentially open to such adaptations to statutory protected monuments, stating that the intended “interventions must relate to the typology and characteristics of the monument in an appropriate manner” and that “they sufficiently support the value of the monument” and that they “through their design quality, can add a new, meaningful layer of time” to the monument.<sup>57</sup> The prerequisite is that every intervention is based on “...knowledge of the monument and its monumental value, of its history of construction and use, of its spatial context and meaning; in short, of the story of the monument and the place.”<sup>58</sup> This brings us back to the need of a fundamental reconceptualization of the architectural education and praxis in which the extant building stock and its inherent qualities will be central: *education permanente* for heritage *and* architecture.

## Conclusion

The main conclusion of our mixed research is not surprising. The Vitruvian triad is still useful for architectural thinking but it should be expanded by a fourth virtue of equal importance to *Firmitas*, *Utilitas* and *Venustas* to shift the focus from designing for new-build to adaptation of the existing. In analogy with the desirable respect for human beings the term *Dignitas* is introduced to advance a respectful attitude towards the extant buildings, the habitats and the planet in general. It is remarkable that several prolific architects who have demonstrated a great affinity with the ideals and aesthetics of the Modern Movement in their work now conclude that the reduced maxim *Form Follows Function*, as proclaimed by the functionalists, is not fit for the great Renovation Challenge of today. They publicly underline the necessity for architects to take their responsibility and to take care of the existing by thoughtful interventions.

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56. M. C. Kuipers, and W. J. Quist (Eds.), *Culturele draagkracht: Op zoek naar de tolerantie voor verandering bij gebouwd erfgoed* (Delft: Delftdigitalpress, 2013); N. J. Clarke, *How Heritage Learns: Dutch Public Housing Heritage Evolution in Ecosystemic Perspective* (Delft: TUDelft, 2021).

57. Rijksdienst voor het Cultureel Erfgoed, *Uitgangspunten en overwegingen advisering gebouwde en groene rijksmonumenten* (Amersfoort: Rijksdienst voor het Cultureel Erfgoed, 2019).

58. *Ibid*, 5.

The divide between the two Charters of Athens must and can be bridged if the architectural thinking will include the concept of *Dignitas* and the world will be seen as *tabula plena*. Rather than to focus on the—material and/or form-focused—conservation of historic buildings and sites it is vital to enhance the continuity of the built inheritance by means of adaptation, just like other creatures do in the natural environment. The expanded Vitruvian triad, actually the architectural compass based on four interplaying virtues, has great potential for advancing a new responsive attitude towards the built environment, close to current trends like ‘upcycling’ and adaptive reuse, not only in education but also in the ongoing dialogue between all kinds of stakeholders involved in the interaction with extant buildings. Additional research and tests may be required to enhance the adoption and applicability of *Dignitas* as the fourth virtue in education, but first this concept must be communicated and discussed in a wider audience of interested architects and conservationists.

We contend that the timely acknowledgement of *Dignitas* is vital to (re)unite the Vitruvian and Functionalist modes with that of careful custodianship of the existing. It is the starting point for a critical analysis of the cultural resilience embedded in the dynamic interaction between the ‘Stories’ and the ‘Stones’ and for justifying new interventions. By expanding the Vitruvian triad with *Dignitas* as fourth virtue, the cultural imperative of architectural conservation and the environmental imperative of maintenance can be foundationally grounded. In so doing both these challenges, which go to the core of current and future challenges, can be better addressed, guiding the increasingly complicated balancing act between change and continuity.

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