

sites of construction:
connected histories

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Introduction

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Beyond the construction site

Construction history is the history of a complex combination of processes, which the construction historian must disentangle. As Johan Summerson already observed in 1985, the history of construction not only encompasses the history of structural design but also connects with the history of building practice. Building practice includes the recruitment of labour, the selection and transport of materials and equipment, the provision of the supply of drawing materials for the office, methods of payment to builders and architects, and so on.¹ These interrelated practices involve a wide range of actors, underscoring the need to study the “building world and its unique relationship to society”.² Extending the process-based understanding of construction, Antoine Picon has further argued that “construction history offers a unique opportunity to rethink the relations between technology and culture,”³ including their social, economic, political, and environmental implications on society. Following this lead, the field has expanded to encompass new research topics that dovetail with economic, labour, cultural and urban history.⁴ This volume adopts and extends this perspective, broadening the notion of the construction site by considering how different external places and conceptual loci (intellectual fields or realms) sustain, connect to, or shape the construction site.

The construction site has served as a privileged analytical frame for construction historians. Bounded by fences, gates, and schedules, the site appears as a defined location where materials arrive, workers labour, and structures rise. This geographical separation and the site’s distinctiveness provide helpful and natural demarcations in the interpretative analysis of construction historians.⁵ In addition, scholars like Jane Hutton and Kiel Moe have demonstrated the importance of tracing

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- 1 John Summerson, “What Is the History of Construction?,” *Construction History* 1 (1985), 1-2.
 - 2 Ibidem, 2.
 - 3 Antoine Picon, “Construction History. Between Technological and Cultural History,” *Construction History* 21 (2006), 5-19.
 - 4 William Addis and Hermann Schlimme, “Editorial,” *Construction History* 28, no. 2 (2013), i-iii.; James Campbell, “Building a Fortune. The Finances of the Stonemasons,” in: Karl-Eugen Kurrer, Werner Lorenz, and Volker Wetzke (eds.), *Proceedings of the Third International Congress on Construction History* (Berlin: Neunplus1, 2009), 297-304; Linda Clarke, “From Craft to Qualified Building Labour in Britain,” *Labor History* 46, no. 4 (2005), 473-493; Annie Fourcatt and Loïc Vadelorge, “Où en est l’histoire urbaine du contemporain?,” *Histoire urbaine* 32 (2011), 137-157; João Mascarenhas-Mateus and Ana Paula Pires, “Introduction: History of Construction Cultures,” *History of Construction Cultures: Proceedings of the Seventh International Congress on Construction History* (London: Routledge, 2021), xi-xii.
 - 5 Laurence Heindryckx et al., “The Productive Ambivalence of Construction Site Photography as Evidence, Archive, and Positional Prism,” *Aedificare* 18 (2026), 37-56; Valérie Nègre, ed., *L’art du chantier: construire et démolir du XVIe au XXIe siècle* (Gand: Snoeck/Cité de l’architecture et du patrimoine, 2018).

material and energy flows beyond the construction site.⁶ Their work focuses mainly on material ecologies, leaving room for expansion to a more extensive network of sites of construction – some physical, others conceptual – that collectively produce the built environment. This volume therefore examines locations and realms whose influence on building has been overlooked, despite their profound impact on construction processes, labour relations, material flows, and regulatory frameworks.

The established focus on the construction site reflects an empiricist impulse in construction history: the desire to locate agency where it seems most visible. Yet this approach obscures the distributed nature of construction knowledge and the multiple actors whose decisions shape what happens at this site. When nineteenth-century Members of Parliament drafted legislation on safety in construction, when factory owners set processes of scaling and distribution in motion, when labour organisers rallied for higher wages and job security, each of these activities takes place in abstract fields or realms of intersecting ideas, constituting ‘sites of construction’ in their own right. These realms produced outcomes – legal frameworks, material innovations, labour standards – that fundamentally structured what became possible at the construction site itself.

Conceptual frameworks for engaging with interacting realms and with the actors operating in such realms have been developed and tested in adjacent disciplines, offering productive entry points for approaching this diversity. Bruno Latour’s actor-network theory (ANT) provides a particularly useful lens for understanding these relationships.⁷ Rather than privileging the construction site as the locus of building activity, Latour used the metaphor of construction to illuminate the “social construction of science and technology” as a process involving heterogeneous actors, collaborations of many trades and skills, not just the various materials of which buildings are made. For Latour, construction carries the “metaphoric weight of building, builders, workers, architects, masons, cranes and concrete poured into forms held by scaffolds.”⁸ What is at stake is not the solidity of the finished structure, but the long process, multiplicity of trades, and subtle coordination required to achieve it. ANT therefore encourages us to follow the actors: the teacher whose

vocational curriculum shapes workers’ technical competencies, the developer whose lobbying activities influence legislative reform, the colonial labour recruiter whose misinterpretation of recruitment shortfalls exposes the reliance on forced labour and coercive recruitment practices in colonial infrastructure projects. These figures, typically peripheral to construction history narratives, emerge as nodes in networks that extend far beyond any single building project. The construction site becomes not an origin point but a temporary convergence – a moment when dispersed actors, fields of ideas, and material flows briefly align to produce built form.

This distributed understanding resonates with Gilles Deleuze and Félix Guattari’s concept of assemblage, which rejects hierarchical models in favour of heterogeneous multiplicities.⁹ As Albena Yaneva and Bruno Latour already argued, we need to abandon the static view of buildings as fixed objects but apprehend them (through a theoretical equivalent of Marey’s photographic gun) as flows of transformations encompassing social, material, cultural, and temporal dimensions.¹⁰ The construction assemblage thus includes not only bricks and beams but also distribution logistics, apprenticeship programmes, safety protocols, and wage negotiations. These elements connect through relations of exteriority. Each maintains its own trajectory and logic while temporarily configuring with others. A strike for better working conditions, seemingly remote from technical building concerns, reconfigures the assemblage by altering labour availability, cost structures, and scheduling assumptions. The distribution logics expressed in the distribution centre of the GB supermarket chain reconfigure construction practice by aligning urban planning insight, infrastructural capacity, legal and market constraints, distribution knowledge, and consumerist strategy within the building process itself. The legal shift from jurisprudence to regulation in the nineteenth century transformed construction by imposing standardised specifications and inspection regimes, juridifying relationships that had operated through informal practice.

If assemblage theory helps us recognise construction’s heterogeneity, Rauhut and Heine’s notions of bricolage and non-simultaneity illuminate how diverse realities combine in practice on the site.¹¹ As a concept, ‘bricolage’ aptly captures what

6 Kiel Moe, *Empire, State & Building* (New York, Barcelona: Actar, 2017); Kiel Moe, *Unless: The Seagram Building Construction Ecology* (New York: Actar, 2021); Jane Hutton, *Reciprocal Landscapes: Stories in Material Movement* (Abingdon: Routledge, 2019).

7 Bruno Latour, “The promises of constructivism,” in Don Ihde (ed.), *Chasing Technology: Matrix of Materiality* (Indiana: Indiana University Press, 2003), 27–46.

8 Ibidem, 29.

9 G. Deleuze, F. Guattari, and B. Massumi, *A thousand plateaus: capitalism and schizophrenia*, Repr. ed., Bloomsbury revelations (London: Bloomsbury, 2021).

10 Albena Yaneva and Bruno Latour, “Give me a gun and I will make all buildings move: An ANT’s view of architecture,” in Reto Geiser (ed.), *Explorations in Architecture: Teaching, Design, Research* (Basel: Birkhäuser, 2008).

11 Eike-Christian Heine and Christoph Rauhut, *Producing non-simultaneity: construction sites as places of progressiveness and continuity* (Abingdon: Routledge, 2018).

happens in the muddy pit of the construction site, where design and theory intersect with practical knowledge. Contractors and builders integrate knowledge of materials, pragmatic assessment of the terrain, and available labour force when implementing architectural plans. The construction site thus functions as a prime space of non-simultaneity where technological innovation such as reinforced concrete continues to go hand in hand with persistent forms of traditional building. Far from being isolated, the construction site becomes a stage for bricolage not despite but because of its embeddedness in extended networks: the builder assembles from a repertoire constituted by actors and sites far removed from the immediate work. In this regard, the concepts mentioned above resonate with Sérgio Ferro's "muck down below", which draws attention to the "under-layer" of labour within the building assemblage.¹²

Indeed, beyond specific locations – the training school, the distribution centre, the courtroom – lie broader realms that structure construction without necessarily occupying distinct geographical spaces. The social realm manifests in labour movements that reshape hiring practices and wage structures. The paradigm of safety emerged over the course of the 19th century in multiple industries, eventually crystallising in regulatory requirements and inspection routines for the building sector. Similarly, paradigms of urbanisation and production influence the construction site. When looking at building as a practice of planning or colonisation, we start to understand not only the various ways in which the (colonial) city is being constructed, but also how the conditions within which construction takes place, such as the availability of common materials, labour, and distribution systems, determine the kind of construction that is possible. The realms mentioned functioned according to mechanisms that impacted construction sites, even though they were not always connected to the construction sector. Each of these realms follows rules of its own and generates a specific logic, expertise, and institutional forms, which then intersect with and reconfigure construction practice.

Bringing these realms into meaningful connection with construction history demands genuinely interdisciplinary research. Legal historians illuminate how regulatory frameworks emerged and evolved; labour historians trace practices of organisation and struggles in the workplace; historians of science and technology reveal how material knowledge circulated between laboratories, factories, and

construction sites; urban historians analyse how construction intersected with processes of urbanisation and governance; historians of education document shifting models of vocational training; colonial historians analyse how construction mediated imperial power and local adaptation. Each discipline offers methodologies and archives with specific challenges which construction historians are starting to engage with and are essential for understanding how buildings actually came to be built.

The interdisciplinary heterogeneity of construction history

Construction history has been defined as an "*objet de frontière*" (a boundary-spanning subject),¹³ "*une discipline carrefour*" (a crossroads discipline),¹⁴ or a "technical anthropology".¹⁵ The identity of the disciplinary field of construction history is a topic of debate because it is situated between the engineering sciences, the humanities, and the social sciences.¹⁶ This heterogeneity has often resulted in fragmented and unilateral approaches, with exchanges between construction history and adjacent disciplines remaining limited in scope.¹⁷ However, others have identified this disciplinary heterogeneity as a key asset, enabling the discipline to address the complexity of construction as a historical phenomenon.¹⁸ In response to repeated calls for more coordinated and mutually informed exchanges across disciplinary boundaries, this volume seeks to further develop and articulate the interdisciplinary potential of construction history.

¹² Silke Knapp and Mariana Moura (eds.), *Sérgio Ferro. Architecture from Below: An Anthology* (London: Mack, 2024).

¹³ Antonio Becchi, Robert Carvais, and Joël Sakarovitch, *L'Histoire de la construction/Construction History*, vol. 2 (Paris: Classiques Garnier, 2018), 74.

¹⁴ Robert Carvais et al., *Edifice & Artifice: Histoires constructives* (Paris: Picard, 2010), 5.

¹⁵ Werner Lorenz, "From Stories to History, from History to Histories. What can construction history do?," *Construction History* 21 (2005-2006), 31-42.

¹⁶ Robert Carvais et al. (eds.), *Nuts & Bolts of Construction History. Culture, Technology & Society*, vol. 1 (Paris: Picard, 2014).

¹⁷ Eberhard Pelke et al., "What is Construction History and why is it significant for structural engineers?," in: Eberhard Pelke and Eugen Brühwiler (eds.), *Engineering History and Heritage Structures* (Zurich: International Association for Bridge and Structural Engineering, 2017), 7-20.

¹⁸ William Addis and Nick Bullock, "Editorial," *Construction History* 27 (2012), i-ii; Antonio Becchi and Robert Carvais, "Histoire de Construction. Un chantier européen, in: Antonio Becchi et al. (eds.), *L'Histoire de la construction/Construction History*, 13-26; Santiago Huerta and Ignacio Javier Gil-Crespo, "Construction History in Spain. The Discipline's Foundation," in: Antonio Becchi et al. (eds.), *L'Histoire de la construction/Construction History*, 387-424; Werner Lorenz, "From Stories to History, from History to Histories. What can construction history do?," (2005-2006).

Labour-focused perspectives, both implicitly and explicitly referring to the social sciences, have become more prominent in construction history over the past years, notably in the work of Linda Clarke and Christine Wall, the *Who Builds Your Architecture?* project, and in the recent Cornell AAP's *Labor Un:Imagined* symposium initiated by María González Pendás.¹⁹ The recent work of Will Thomson, Katie Lloyd Thomas, and João Marcos de Almeida Lopes has traced some of these broader trajectories in practice and established what might be termed “production studies” for architecture – a field that refuses the disciplinary separation of design from construction and insists on understanding the built environment through its material making.²⁰

The collaborative engagement of these scholars with Brazilian architect and theorist Sérgio Ferro, particularly through the *Translating Ferro/Transforming Knowledge* project, has illuminated how architectural discourse systematically obscures the labour and processes of construction.²¹ As Katie Lloyd Thomas demonstrates in her examination of architectural specifications, materials exist prior to their constitution through processes of procurement, manufacture, and regulation.²² Specifications reveal how materials are actively constructed through practices that extend far beyond the construction site, in testing laboratories, standards committees, trade associations, and contractual frameworks.

Thomson, meanwhile, argues that design and construction are mutually constitutive on the construction site, as design is a relational practice embedded in production.²³ His ethnographic research on Chinese migrant construction labour similarly shows how the construction site operates as a node where global labour flows, migration policies, educational systems, and capital accumulation strategies converge.²⁴ The site becomes legible only when understood as embedded in these

broader networks. De Almeida Lopes's work with grass-roots building movements in Brazil engages with alternative construction practices where the separation between design and making breaks down entirely, revealing how conventional architectural practice depends on maintaining precisely this division.²⁵

The present volume contributes to these approaches by way of its systematic attention to sites and realms that have remained peripheral even within this production studies framework. While recent scholarship has focused productively on the heterogeneity within the construction site – the multiplicity of trades, the complexity of material transformations, the contested nature of labour relations – less attention has been directed to how the site itself is constituted by actors and processes operating elsewhere. The courtroom, the stockpile depot, the vocational school, the business lunch, the distribution centre, the protest-filled streets, the passenger warehouse temporarily housing colonial labourers: these locations have their own logics, temporalities, and fields of knowledge, yet their influence on construction has been insufficiently theorised. By bringing these locations and the realms they represent into dialogue with construction history, this volume aims to further develop the project of diverting attention away from the construction site as sole location of construction while revealing the distributed nature of construction knowledge and practice.

What history can do for Construction History

This volume is the result of the research project “Above and Beyond Construction History. What History Can Do for Construction History”. This Belgian project was an Excellence of Science project (EOS) funded by both the Flemish and Walloon research funding agency (FWO and FNRS, respectively). EOS projects are intended to analyse topics of fundamental research and aim to bring together research of different scientific communities and disciplines. The project “Above and Beyond Construction History” set up dialogues between the central discipline of

19 Linda Clarke, “From Craft to Qualified Building Labour in Britain,” *Labor History* 46, no. 4 (2005); Christine Wall, “Recording the ‘building world’: how oral history transforms construction history,” in: James Campbell et al. (eds.), *Proceedings of the First Construction History Society Conference* (Cambridge: CHS, 2014), 435–443; María González Pendás, “Labor Unimagined,” *Journal of the Society of Architectural Historians* (2022). For *Who Builds Your Architecture?*, see <http://whobuilds.org/about/> (last consulted 11 February 2025).

20 Matt Davies et al. (eds.), *Building Sites: Architecture, Labour, and Production Studies* (Abingdon: Routledge, 2025).

21 *Translating Ferro/Transforming Knowledge*, see <https://tftk.iau.usp.br/en/> (last consulted 30 December 2025).

22 Katie Lloyd Thomas, *Material matters: architecture and material practice* (Abingdon: Routledge, 2007); K. L. Thomas, T. Amhoff, and N. Beech (eds.), *Industries of Architecture* (Abingdon: Routledge, 2016).

23 William Thomson, “Challenging Design Ideology. Reframing Architectural Production and the Design-Labour Relation,” in: Matt Davies et al. (eds.), *Building Sites: Architecture, Labour, and Production Studies* (Abingdon: Routledge, 2025).

24 William Thomson, “Encounters with labour: migrant workers, architects, and building sites in China,” *Architectural Research Quarterly* 21, no. 3 (2017).

25 João Marcos de Almeida Lopes, “Architecture as ensemble – a matter of method,” in: Katie Lloyd Thomas, T. Amhoff, and N. Beech (eds.), *Industries of Architecture*, 106–113; Raissa Pereira Cintra de Oliveira et al., “Modern Architecture, the Construction Site, and the Inconvenient Truth of Materials,” *Architectural Research Quarterly* 29, no. 1 (2025), 21–29.

construction history, and three other disciplines, namely legal history, colonial history, and planning history, each constituting a track or cluster within the EOS project. The project's programme was to explore mutually uncharted territories and knowledge gaps in these disciplines through joint themes, actors, and sources. The goal of the project was not only to contribute to these distinct fields but also to gauge the potential of thematic and methodological cross-overs for construction history. The project analysed the discipline from the angles of juridification, urbanisation, and colonisation.

The legal track explored the intersections between law, expertise, and the construction site. The divisions between expertise and law were often blurred in building, and the various actors involved had to acquire insight into both the law and building practices. In the period between c. 1880 and c. 1970, the processes of juridification and professionalisation of the building industry coincided. More rules were imposed on building professions (contractors, architects, engineers), as well as with regard to safety during the building process. The formation of these rules reflects interactions between different fields. Economic and social processes intersected with developments in the legal sphere. Moreover, the processes of juridification and professionalisation mentioned were concerned with the combination of practice, custom, and legislation. Changes in building processes interacted dynamically with legal developments.

Within the colonial cluster, the role of construction within the *mise-en-valeur* or economic exploitation of the Central African territory under Belgian colonial rule (1885-1960) was studied. The (infra)structures of colonialism and, along with it, colonialism itself depended on the successful implementation of a 'modern' Congolese building industry, requiring the recruitment and training of construction workers, the extraction and production of building materials, as well as the development of specific constructive know-how. Through microhistorical studies of construction sites, the track critically reassessed this apparent 'success', highlighting its complexities and contradictions. Research on postwar housing for Africans, for instance, showed its reliance not only on metropolitan contractors but also on so-called *artisans libres*, while studies of major infrastructure projects revealed the persistence of practices of covert forced labour. Further work demonstrated how vocational training was shaped by political debates linked to the Belgian educational conflict, and how timber production contributed to large-scale deforestation. The research also extended into the early post-independence period (to c. 1975) to trace both continuities and transformations in building practices.

The planning track considered the city as a collective edifice in constant transformation. Cities depend for their development on the construction industries that can build them. As cities develop, they select what kind of construction processes can thrive and persist. This track studied the relation between urban development and construction through an urbanisation perspective, examining the reciprocal relationship between dynamics of urbanisation and the changing assemblage of landscapes of construction. This analysis looks, among other things, at the availability of resources, the enabling landscapes supporting their processing and distribution, the vocational training of construction labour, and the circulation of ideas and imaginaries that co-define the 'appropriate' use of materials and technologies.

The project involved a total of 13 scholars. It included six lead researchers: three construction history experts (Rika Devos, Stephanie Van de Voorde, and Ine Wouters) and three experts from legal history (Dave De ruyscher), colonial history (Johan Lagae), and planning history (Michiel Dehaene). In addition, it engaged four post-doctoral researchers (Tom Broes, Simon De Nys-Ketels, Robby Fivez, and Laurence Heindryckx) and three PhD researchers (Igor Bloch, Louis Debersaques, and Mirte Wambacq).²⁶

This volume is composed of two main parts. Part 1, "Sites of construction", examines construction through a series of geographically grounded case studies. It focuses on locations beyond the construction site that nonetheless inform its processes and practices and is based on research conducted by the project's full-time (junior) researchers. Part 2, "Connected histories", contains contributions that engage with conceptual and methodological issues encountered in the course of the project. These contributions start with position papers that were initiated by four of the project's lead researchers, from within their respective cluster, and developed in dialogue with other team members. External scholars whose work resonates with the approaches and questions in the position texts were invited to add reflections to the latter.

26 <https://www.above-and-beyond-construction-history.be/> (last consulted 30 December 2025).

Part 1: Sites of Construction

The contributions in Part 1 of the book engage with locations beyond the construction site that matter for the processes and practices that apply in the latter. The following sites are addressed: the stockpile depot, the vocational school, the chambers of the investigating judge, the passenger warehouse, the business lunch, the distribution centre, and the streets. These seven sites are not a comprehensive representation of all potential locations associated with construction sites. Rather, they reflect a selection of interdisciplinary case studies, research trajectories, and actors identified and examined by the full-time researchers involved in the EOS project.

Construction history research still largely focuses on the design and construction of the built artefact, even though its scope has broadened following Summerson's definition. As a result, the roles of architects, engineers, and contractors remain central, and commonly used sources continue to revolve around design and building processes (such as architectural drawings, engineering specifications, estimates, and construction site photographs). This emphasis often overlooks how projects are shaped by actors external to daily construction activities, diverse fields of knowledge, and the wider building culture.

Moving away from this consolidated core, we discern several important knowledge gaps in the field of construction history concerning the range of actors, sources, and types of knowledge that shape construction processes and practices.

Firstly, this volume extends the range of actors. Actors can be involved in processes of manufacturing that produce materials applied at a site of construction. The underlying dynamics of production processes can occur both at the construction site and beyond. In his contribution on the brick industry, Tom Broes argues that the exploitation of clay reserves and the use of permanent kilns created a brick supply that had to be met by sufficient demand. This incentivised the creation of federations for the allocation of excess materials. At the same time, social reorganisation did not merely involve the construction industry but was happening around the sites of brick production as well. In addition, Igor Bloch analyses the curriculum of *écoles professionnelles officielles* in the Belgian colony of Congo in his chapter on vocational schools in the 1950s. He argues that the training of skilled Congolese construction workers was part of a scheme that targeted economic development of the colony while also serving as instrument of social mobility. In both contributions, the actors described are not tied to the site of construction but rather

adjacent to it. They bring with them a language, knowledge, and assumptions that have an imprint on the practices and processes present at construction sites. As these actors seldom set foot on the actual construction site and are only involved with the act of construction indirectly or from a distance, they are rarely identified as actors within construction history and even less an object of study, leaving their contributions poorly understood. Studying their actions on different 'sites of construction' in this volume demonstrates beyond doubt their relevant roles as 'builders' and opens up new opportunities for construction history.

Secondly, this range of actors leads to unexplored types and interpretations of sources and vice versa. Broadening the range of sources – for example, through company archives, contractors' correspondence, parliamentary minutes, and labour recruitment reports – can redirect construction history narratives by mapping the agencies of these 'other' crucial yet underrated actors, as well as investigating the (implicit and explicit) processes and mechanisms that define building practice.²⁷ This expansion must be paired with new interpretative approaches applicable to both established and alternative sources, opening new avenues of research and ways to reconstruct the 'assemblages' particular to construction history. Even the most common and factual documents, like building permits, site diaries, and quotes, can yield richer insights when read between the lines and against the grain, especially since they are often produced by actors with knowledge and/or profiles other than those who later interpret them, resulting in a potential additional layer of meaning. In his chapter, Louis Debersaques demonstrates how court files, which eventually ended up in the Belgian State Archives, are especially interesting due to their 'self-contained' nature, by which the historian can, to a certain extent, contextualise and validate builders' testimonies as given to the investigating judge. Examining how workplace accidents triggered a "translocation" from the construction site to the chambers of the investigating judge unveils informal processes like professional delineation and the organisation of safety. In his contribution, Robby Fizez demonstrates that the *Office du Travail de Léopoldville* was an institution that existed alongside the Belgian colonial administration in Congo. This parallelism allowed for policies of forced labour, even though they went against the official policy of Belgium. Yet the sources produced by the *Office du Travail* also show

27 Jeffrey L. Beard, "Contracting blunders and innovative regulations of US military construction 1861 to 1918" (paper presented at the Building Knowledge, Constructing Histories conference, Brussels, 2018); Sandra M. G. Pinto, "Behaviours and procedures used by construction agents of ordinary buildings in Portugal during the Late Middle Ages and Early Modern period: rules, regulations and controls," *Construction History* 33, no. 1 (2018); Cécile Sabathier, "La figure d'entrepreneur du bâtiment au prisme des comptabilités des chantiers urbains," *Aedificare* 1, no. 5 (2019).

the strategies of resistance from the part of the workers, and they shed a light on the interactions between colonial policy and infrastructure planning.

Thirdly, (re)interpreting (alternative) sources allows for tracing and highlighting many alternative types of knowledge, such as tacit knowledge, practical knowledge, or situated knowledge, which have so far been largely overlooked or unrealised in construction history scholarship.²⁸ Tapping into implicit or unwritten cognitive principles, rules, procedures, associations, and habits is crucial for uncovering the culture of building and its importance for day-to-day building practice, still too often a missing ingredient in many construction history studies. In her contribution, Laurence Heindryckx focuses on business lunches at which captains of industry, politicians, and union leaders met. These lunches served as a unique platform for cooperation and lobbying, because they allowed attendants to relate developments across different domains. Their situated knowledge was broadened with input about what happened in other realms of society. Mirte Wambacq, in her chapter on the distribution centre, points to technological innovations triggered by the creation of a new type of distribution centre for *Grand Bazar Antwerpen* (GBA) and the centralisation of building knowledge in the chain. In his chapter, Simon De Nys-Ketels uses alternative sources and oral history to trace how construction workers' unions deployed the streets as a site of social protest in ambiguous ways. While labour movements made active use of their situated knowledge to pressure for social reform, thus improving working conditions, safety, and wages, such shifts in social legislation also served to defend the interests of the predominantly local union members, while often excluding migrant workers, undoubtedly one of the most 'muted' actors of construction history.

28 William Addis and Hermann Schlimme, "Editorial," (2013); Christine Wall, "Recording the 'building world'"; Robert Carvais, "Plaidoyer pour une histoire humaine et sociale de la construction," in: Robert Carvais et al. (eds.), *Edifice & Artifice: Histoires constructives*; Andrew Rabeneck, "The Place of Knowledge in Construction," in: James Campbell et al. (eds.), *Further Studies in the History of Construction: Proceedings of the Third Annual Conference of the Construction History Society* (Cambridge: CHS, 2016), 3-11; Cíao Rodrigues de Castro and Amílcar Gil Pires, "From regulation to everyday construction practice: The Lisbon building codes between 1864 and 1930," in: João Mascarenhas-Mateus and Ana Paula Pires (eds.), *History of Construction Cultures: Proceedings of the Seventh International Congress on Construction History* (Lisbon: CRC Press, 2021), 465-472.

Part 2: Connected Histories

While the first part of the book focuses on case-based research, the second part analyses conceptual and methodological issues encountered over the course of the project. It contains four cluster-oriented chapters. These chapters start with a position paper that was written by the project's lead researchers and members of their cluster teams. External scholars were invited to write comments on the position texts, drawing on their own expertise. As a result, the cluster-oriented contributions in Part 2 expand the dialogue between construction history and the fields of legal, medical, media, architectural, colonial, and planning history. Building on historiographical perspectives that were developed and mobilised during the research project, these contributions explore how these approaches can connect and interact. In this manner, Part 2 foregrounds the exploratory and interdisciplinary nature of the project.

Accordingly, the cluster-oriented chapters reflect the diverse interdisciplinary exchange promoted by the EOS project over the past four years and demonstrate the sustained continuity of such exchange, as several external contributors have remained engaged with the project over an extended period during collective workshops and individual research meetings. Fostering dialogue and interaction, both within the EOS research team as well as with prominent scholars working on new ways of understanding the making and transformation of the built environment, has been a central choice from the outset. It reflects a key methodological premise of the project, namely that the complexity of construction history and the breadth of its disciplinary entanglements resist reduction to a single interpretative framework or disciplinary voice.

The first chapter, "Activities, Actors, Archives and Positionality of the In-Between", consists of a position paper written by Rika Devos and Simon De Nys-Ketels, discussing what the project found in between the different disciplinary research fields (construction, legal, colonial, planning) and how to assess these findings. Central to this reflection is the question of what emerges in the spaces between disciplines and how this object of study can be critically evaluated, a concern that has informed the project throughout, albeit often implicitly. This chapter puts forward productive ways of reflecting on activities, actors, and archives in this "in-between" space, which is each time complemented with responses by Réjean Legault (Université du Québec à Montréal), Christine Wall (University of Westminster), and Martin

Kohlrausch (KULeuven). These authors have each in their own terms engaged with similar historiographical issues in their own work.

“Enabling Conditions of Industrialised Construction”, the second chapter, is introduced by Michiel Dehaene and Tom Broes, who examine ‘building as a practice of urbanisation’, addressing not only the multiple ways in which the city is constructed, but also the conditions under which construction takes place, in particular the factors that co-determine the forms of industrial construction that become possible. The chapter connects the history of labour, distribution, and terraforming to the history of the industrialisation of urban construction in Belgium in the second half of the twentieth century. Linda Clarke (University of Westminster), Lionel Devlieger (Ghent University), and Carl H. Nightingale (SUNY, University at Buffalo), whose work inspired the reflection in the planning history track of the EOS project, were invited to respond to ideas forwarded from this ‘building as a practice of urbanisation’ perspective.

While ‘expertise’ is a central notion in the disciplinary field of construction history, the contribution “The Expert’s Not-knowing: Authority as art” questions an uncritical acceptance of it, by arguing that not-knowing can be considered an equally significant part of expertise. Its authors, Dave De ruysscher and Louis Debersaques, together with external respondent Tijn Vanneste (Universidade Nova de Lisboa), connect not-knowing to the notion of ‘art’ and link it to theoretical conceptions of ‘practical wisdom’. In doing so, they refer to historical examples, showing that flaws and mistakes could be redressed by the ‘expert’ who had caused them. In a broader sense, the chapter analyses what philosophical and scientific historical approaches (position paper), as well as medical and trade history (respondent), contribute to the analysis of notions of expertise and authorship, and how these notions resonate with recurring themes in construction history.

Johan Lagae’s chapter “S is for Small” makes a plea for ‘smallness’, albeit seen through a multi-scalar lens, to reflect on what history can do for construction history. Lagae argues that writing from the small and the mundane, rather than the grand and spectacular, can be about the technologically innovative (small engineering) as well as about the quantitatively large (small can be plentiful), while linking local conditions to global ramifications. In this sense, the notion of the ‘small’ is proposed as a productive framework for engaging with otherwise all-encompassing histories, foregrounding empirically grounded, theoretically informed, and methodologically adventurous approaches that challenge canonical narratives.

Jean Souviron (ENSA Paris-Est) and Peter Scriver and Amit Srivastava (University of Adelaide) offer their reactions and reflections on the theme by discussing how the notion of ‘smallness’ plays out in their own work and what it allows to open up in historiographical terms.

The cluster-oriented chapters mentioned demonstrate how the research conducted within the framework of the EOS project, from the angles of architecture, legal, colonial, and planning history, has yielded results that broaden a wide range of perspectives on construction history. In addition, the four contributions in the second part of this volume offer reflections on the historical method and which histories can be told when narrating construction in the past. As a result, this volume is an invitation to further pursue interdisciplinary research on construction-related topics and hopefully inspires similar disciplinary confrontations with other disciplinary fields such as economic or labour history, fields that emerged as relevant during the discussions within the EOS project, but whose potential could not be fully fleshed out. It illustrates how interdisciplinarity not only refers to themes but also to the assumptions and views of different disciplines that underpin their approach to history.

Part 1

**sites of
construction**

Tom Broes

The Stockpile

*Reciprocities between the industrialisation of brick production and
the extended urbanisation of residential landscapes in postwar
Belgium, 1945-1985*



Figure 1. “Huge overstock is paralysing the Boom brick factories in the Rupel Region. Every open space is used to store the excess stock of bricks.” (Belgian State Archives, Depot Landuyt, Beveren, Newspaper Clipping, Monday, 21 June, 1971)

Introduction

In recent years, scholarship in the fields of architectural and construction history has explicitly moved beyond traditional concerns of spatial form and structural design, turning instead to broader questions and interrogations of production studies and labour history.¹ In a context of rising awareness of the construction sector’s planetary impact,² historians have particularly sought to reveal, question, and understand the socioecological externalities of practices of material

1 Matt Davies et al. (eds.), *Building Sites: Architecture, Labour, and Production Studies* (Abingdon: Routledge, 2025); K. L. Thomas, T. Amhoff, and N. Beech (eds.), *Industries of Architecture*. See also the TF/BK project: <https://productionstudies.com> (last consulted 10 February 2026).

2 Matti Kuittinen, “Building within planetary boundaries: moving construction to stewardship,” *Buildings & Cities* 4, no. 1 (2023), 565–574.

extraction, production, circulation, and processing – together with labour aspects embedded in each stage – often through close engagement with specific manufacturers, projects, or places.³ A growing body of research thus reveals how every built project is sustained by reciprocal worlds and forms of labour that remain mostly invisible and too often unacknowledged.⁴ In a related, though much more abstract register, current scholarship in critical urban theory argues that the continued urbanisation of extended urban agglomerations is deeply dependent on what are termed *operational landscapes* – often remote, anonymous zones of extraction, primary production, energy generation and distribution, logistics, and related infrastructures – dispersed across the planet.⁵ Inspired by such framings at the crossroads of discussions on Planetary Urbanisation, the Anthropocene, and Global Urban History, recent work has started to reconceptualise ‘building’ explicitly as a type of ‘terraforming’⁶ – a reconceptualisation of construction at an urban scale that recognises how vast quantities of material are drawn from the Earth’s bio- and geosphere and are subsequently transformed, distributed, and processed through diverse thermochemical operations and labour regimes to meet human purposes.⁷

Within the context of the EOS project “Above and Beyond Construction History”, I have sought to bring these emerging research strands together – expanding the analytical frame beyond individual sites or projects to examine urbanisation at large, while simultaneously attending much more closely to the specific production logics, practices, and actors that terraformed the commodified landscapes of extended urbanisation.⁸ Methodologically, these research trajectories and objectives led me to study the practices, organisational dynamics, and politics of realisation of federated material industries, which effectively bridge realms of material production (at a geological scale) and consumption through construction (at the

level of extended urbanisation).⁹ The aim is to develop a distinctive approach to the epistemology of urbanisation and its relation to the Great Acceleration by tracing a detailed material history and theory of the extended urban fabrics of the postwar period.¹⁰ At the same time, this line of inquiry enables a systematic ‘urbanisation’ of scholarship on material production and construction.¹¹

This chapter examines Belgium’s postwar clay industries during the period 1945–1985. Scrutinising the archives of the Belgian National Federation of Clay Industries (NFCI, 1947; today the Belgian Brick Federation), it outlines the reciprocal relationships between the emergence and consolidation of extended forms of residential urbanisation, on the one hand, and the intensified industrialisation of brick production, on the other. It proceeds from the observation that, in a context of rapid (sub)urbanisation and the accompanying shift to a consumption-driven market, the federated clay industry was compelled to adopt a proactive politics of realisation to accelerate and reinvent traditional brick production, to rebrand brick as a ‘new’ and indispensable material for Belgium’s state-induced suburban housing programmes. These historical perspectives on industry and commerce open a very self-evident window onto different realms of production, not only in the development of technology,¹² but also in the evolving forms of construction labour on the urbanising worksites.¹³ This chapter shows the NFCI’s constant struggle to synchronise the capacities of Belgium’s brick-producing industries with the consumption demands of state-induced urbanisation in order to calibrate extraction, production, distribution, onsite manufacturing, and eventually urban growth. The stockpile in that setting, finally, surfaced as a pertinent historical prism, refracting some of these dynamics with remarkable clarity.

3 See, for instance: Hannah le Roux, “Circulating asbestos. The international AC review, 1956–1985,” in: Kim Förster (ed.), *Environmental Histories of Architecture* (Montréal: Canadian Centre for Architecture, 2022), ch. 6, 1–17; Vyta Pivo, “Shrouded in Dust: The Unseen Labor of African American Cement Workers,” *Journal of Architectural Education* 74, no. 2 (2020), 328–331; Monika Motylińska et al. (eds.), “Swimming in an ocean of materials,” *ABE Journal* 23, Dossier: Material Constraints (2024); Kiel Moe, *Unless: The Seagram Building Construction Ecology* (New York: Actar, 2021).

4 Jane Hutton, *Reciprocal Landscapes: Stories in Material Movement* (Abingdon: Routledge, 2019).

5 Neil Brenner et al. (eds.), *Environments of Planetary Urbanization* (Berlin: Jovis Verlag, 2026); Neil Brenner and Nikos Katsikis, “Operational Landscapes: Hinterlands of the Capitalocene,” *Architectural Design* 90, no. 1 (2020), 22–31.

6 Carl H. Nightingale, *Our Urban Planet in Theory and History* (Cambridge: CUP, 2024).

7 Mathieu Fernandez et al., “La terre et le béton: Le projet d’urbanisme considéré sous l’angle du métabolisme territorial,” *Vertigo – la revue électronique en sciences de l’environnement* 18, no. 3 (2018).

8 Tom Broes, “Urbanization through concrete plants, or the ‘realization’ of cement as terraforming practice: the Belgian case 1955–85,” *Bulletin KNOB* 124, no. 4 (2025), 20–40.

9 Garth Meyers, “Political Ecology and Urbanisation: Zanzibar’s Construction Materials Industry,” *The Journal of Modern African Studies* 37, no. 1 (1999), 83–108; David Harvey, *Abstract from the Concrete* (Berlin: Sternberg Press, 2017).

10 John R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge (Mass.): Belknap Press of Harvard University Press, 2016); Neil Brenner and Swarnabh Ghosh, “The Monster ‘Within’: Capitalist Urbanization as Geometabolic Escalation,” *Developmant and Change*, 56, no. 4–5 (2025), 668–728.

11 Tom Broes et al., “Het verstedelijken van constructiegeschiedenis: de stad als assemblage van bouwpraktijken?,” *Stadsgeschiedenis* 18, no. 1 (2023), 39–56.

12 Steven Groák and Graham Ive, “Economics and technological change: Some implications for the study of the building industry,” *Habitat International* 10, no. 4 (1986), 115–132.

13 Linda Clarke, *Building Capitalism: Historical Change and the Labour Process in the Production of the Built Environment* (Abingdon: Routledge, 1992); Pratik Mishra, “Urbanisation Through Brick Kilns: The Interrelationship Between Appropriation of Nature and Labour Regimes,” *Indian Institute for Human Settlements* 5, no. 1 (2020), 17–36.

Federating a highly fragmented sector (1941-1947)

The Belgian clay industry first federated in 1941 with the creation of the Independent Sectoral Federation for the Clay Industry and Affiliated Trades (ISFCIAT) – founded by the country’s larger brick companies.¹⁴ Its immediate trigger was the severe rationing of coal, wood, straw, and steel under German occupation during the Second World War, which cut output to just 10–12% of capacity.¹⁵ However, deeper shifts were already underway. By the late 1930s, economic and construction crises, alongside competition from new materials and collapsing export markets, forced the industry to confront a new reality in which selling every brick was no longer assured. To protect the brick’s market position, the ISFCIAT sought to develop better sector statistics; establish market-regulating agreements; organise structured consultation with authorities, contractors, architects, and related trades; promote shared marketing through fairs and exhibitions; create a technical/commercial research office; and found a clay school with laboratories linked to academic research centres, among others.¹⁶ These ambitions would, however, only (partially and gradually) materialise after the war. The German authorities dissolved the ISFCIAT as early as 1942, replacing it with the Industrial Council of the Clay Industry (ICCI), whose mandate was strictly limited to allocating scarce resources.

When rationing ended, the ICCI was replaced by the National Federation of Clay Industries (NFCI), founded on 2 April 1947, with Victor Burton as executive chair.¹⁷ The sector was highly fragmented, with nearly 900 mostly small and medium-sized family brickyards spread across numerous Belgian municipalities. Although some miscellaneous products were produced, the industry was still overwhelmingly dominated by the production of traditional Rhine-format bricks – 3.2 million tonnes of small solid bricks of roughly 180 × 85 × 50 mm in 1947, albeit with regional variations.¹⁸ This persistence of traditional brick did not imply a total absence of

innovation. Throughout the nineteenth and early 20th centuries, the industry had gradually concentrated in regions with favourable clay deposits – especially the Rupel, Campine, and coastal regions – and had adopted successive technological advances: the Kollergang for mechanical grinding (early 1800s), the Hoffmann kiln for continuous firing, the Schlickeisen stiff-moulding press (after 1860), and mobile motorised excavators digging clay to unprecedented depths of up to 30 m (early 1900s).¹⁹

The sector’s industrialisation, however, remained strikingly limited and uneven. Many small, capital-light brickyards continued to rely on labour-intensive practices well into the mid-twentieth century – hand-digging and overwintering of clay,²⁰ hand-moulding bricks, and firing them in low-tech field or clamp kilns. Even the more advanced companies remained heavily dependent on manual labour to handle large volumes of raw material for kiln setting and unloading, internal transport, and stacking bricks for shipment.²¹ Natural drying in covered sheds, essential to prevent cracking during firing, remained the only viable option in 1947, keeping production labour-intensive and, above all, highly seasonal. Kilns shut down between November and February, when bricks could not dry properly, forcing many of the 9,000 manual labourers (out of a workforce of 12,290) to seek temporary winter employment.²² Streamlining this heterogeneous mix of traditional and semi-modern brickyards, centred on an age-old product, into a ‘modern’ materials industry posed an immense challenge for the NFCI.

14 Structurally, the clay industry consisted mainly of mature family businesses and remained weakly corporatised, with little presence of external investors or embedded financial-political networks, in sharp contrast to the cement and steel sectors.

15 Archief Belgische Baksteenfederatie (hereinafter ABB), not inventoried (hereinafter NU), *Eerste Jaarverslag* (1.10.41-31.3.42).

16 Ibidem.

17 ABB, NU, *Statuten 1947*.

18 ABB, NU, *75 jaar Belgische Baksteenfederatie*.

19 ABB, NU, *Geschiedenis van de baksteentechnologie*, G. Peirs, 1973 (hereinafter *Geschiedenis baksteentechnologie*).

20 Handmoulded clay retained water and was left to overwinter in the clay pits to ‘rot’ – so that frost made it more plastic.

21 An estimated 200,000 tonnes of clay were lifted by hand each day in 1960. See ABB, NU, *Geschiedenis baksteentechnologie*.

22 ABB, NU, *75 jaar Belgische Baksteenfederatie*.