

## Nigel Coates on teaching with Bernard Tschumi in the 1980s

### Regarding and remixing Mies's courtyard houses

#### Heads and tails

I read with interest your recent article about literary approaches to architecture as developed by Bernard Tschumi and myself (*arq* 19.2, pp. 110–22). I find the article well researched and broadly accurate. The method of reading our positions through the briefs we set our students does bear fruit. Limitations arise from problems of context, so my letter is an attempt to sketch in the background.

Firstly, the majority of the material gathered for the article probably came from sources in the UK and not from Bernard's archive in New York. Secondly, by concentrating on our respective teaching briefs as the 'material', personal circumstances and ambitions remain inferred. (Also there seems to be an inherent unfairness in the fact that the master-student story always gets told chronologically, but we'll have to live with that. It would be interesting to attempt a reverse theory of influence, but not here.)

Imagine the burgeoning ferment of the Architectural Association in the late 1970s and early 1980s. I became a Diploma student of Bernard's in 1973–4, the first year of Alvin Boyarsky's unit system. Everyone that made up the faculty and student body was attentive to their new responsibilities, which was precisely what Alvin wanted. Bernard was just one of an array of Diploma School tutors, including legendary figures Rem Koolhaas, Colin Fournier, and Dalibor Vesely, all of whom were eager to test their ideas and establish a lasting influence as Peter Cook had done with Archigram. The unit system worked rather well and, from then on, would dominate progressive architectural education in the UK.

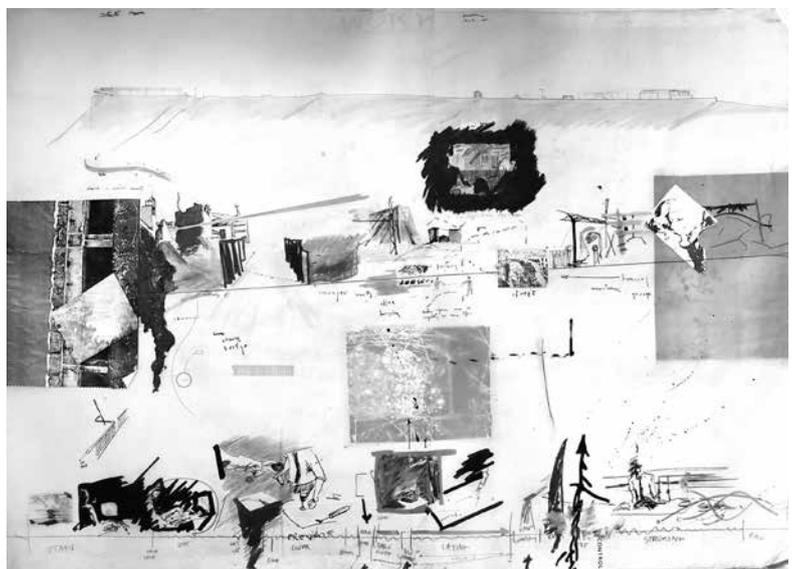
I soon bought into Bernard's

comprehensive project – questioning the politics of the city with Situationist scepticism along with a healthy dose of philosophical enquiry into 'space'. He was by far my intellectual superior and set out a very smart agenda. We, his students, would attempt to fulfil it with projects that were laced with symbolism, but sometimes as derivative as they were radical.

Like the examples cited, Bernard's early briefs were certainly mind-bending. Movement in a space was given the same graphic value as the space that enclosed it, whereas the drawing techniques were relatively conventional. Year-by-year I learned to use drawing as a tool to capture experience, giving prominence to the effect rather than objectifying the idea. This is why my drawings became so three-dimensional, so expressionistic, and much messier than the axonometrics, diagrams, and collages that I had done until then.

By 1979, Bernard had asked me to support him as a tutor in his unit. Naturally, I was as hungry to learn from him as ever, but was also eager to gain my own autonomy. (All students are ruthless in this respect.) He was the original thinker, and wanted his influence to endure, so it suited us both. Bernard had opened the door for me and I gladly strode through it. His interests were reoriented towards New York, which at the time was at the zenith of its allure. London, by comparison, had its fair share of attraction in the form of counter-culture despite (or because of) a struggling economy. But it certainly didn't have New York's glamour. To Rem and Bernard, London must have seemed over-familiar and comparatively provincial.

New York was home to tenacious godfather figures like Philip Johnson, the New York Five, Leo



1 Working drawing showing deconstructed storyboard technique used to combine the video with the site, by Mark Prizeman, a student of Nigel Coates's Unit at the AA, 1981–2.

Castelli, and Clement Greenberg. Rem and Bernard vied with each other to take part, spending consecutive periods at Peter Eisenman's Institute for Architecture and Urban Studies. Meanwhile, back in London they had both handed things over to their respective acolytes, Zaha Hadid and myself. We were to keep the flame burning in London while they were taking part in the more formalist and philosophical polemics current over there.

This tale of two cities is perhaps the unspoken backbone of Claire Jamieson and Rebecca Roberts-Hughes's story – a division of territories gradually became apparent. New York may at first have had the edge in architectural circles, but it was also well practiced in the louche alternatives at the Factory, and its media organ Andy Warhol's Interview. But this world was regarded as too superficial for any serious architect. Bernard didn't really approve of the fashion paradigm I was pursuing back in London, which made me realise I needed to develop my own distinct approach.

I didn't need to look far. The creative mood was shifting in London in ways no one could have predicted. An iconoclastic change in music and tribal style was underway with what came to be known as Punk, most of which was spawned in squats, struggling nightclubs, or abandoned spaces washed up by the depressed economy. People who belonged to this fledgling scene were caught up in a surge of dystopian self-empowerment that was bound to affect everything, including architecture.

Notation and the cool artistic stance wasn't my driving force. I was working on my own identity in a city that was moving at the speed of light, with all things Punk shaking establishment processes to the core. I funnelled my very broad palette of interests into makeshift over-the-top fashion, cult events like the now mythical Blitz Club, all against a backdrop of the apparent desolation of post-industrial London. All of this found its way into my thinking, my way of drawing, and consequently into the briefs I issued to my students at the AA, and the riotous visions of London they brought about.

Over the academic year 1980–1, I too was in and out of New York. I picked up a few tricks from the art world – not only from conceptual or performance-led work, but from the more painterly members of the

Trans-avant-garde, including Francesco Clemente, Julian Schnabel, and Jean Michel Basquiat. I found their work much more exuberant, spontaneous, and visual than the protagonists of conceptual and performance artists like Gordon Matta-Clark, Vito Acconci, Laurie Anderson, and Robert Longo. I wanted to draw in a similar vein and imagine the gritty world around me transformed into anarchistic architectural scenarios, like my own Ski Station (1981), or the unit's year-long project, Giant Sized Baby Town. As the article recounts, we were 'scratching away at the surface of a place'. Narrative came out of the method, and surprised even us with its coherence.

By then, London was fully operational in every creative field. People I knew wanted to take things into their own hands, to make things – not just their outrageous clothes but the chairs they sat on, to say nothing of how they wanted to use the city they lived in. My work at the AA developed in tandem with that of my students. With confidence building, we edged closer and closer towards a group ethos – and the freeform and often messy work was resonating both for enthusiasts and the detractors. Things famously came to a head when external examiners James Stirling and Ed Jones found the work of the Unit lacking in architectural specificity, whereas it was later reprieved by Bernard and Sverre Fehn who affirmed the exact opposite – much to our relief.

I'd like to think of Bernard's and my respective approaches as two sides of the same coin; as the article postulates, we have developed two approaches to formulate a literary architecture. His side (the heads) is sharply sculpted, enigmatic in its precision and focused on the currency of 'disjunction'; mine (the tails) is messier and more apparently impressionistic, expressionistic even, and hinges on 'narrative'. Each side balances the mind and the hand, and each contains the other. In the article these approaches come across as one evolving into the other, whereas in reality, they were struck together.

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## Mies and the remix

*'I think that a really good architectural idea will stand development and variation in this way because a really good idea will always have a general application.'*  
Ludwig Mies van der Rohe.<sup>1</sup>

The courtyard house type, what Ludwig Mies referred to as 'a really good architectural idea', is also a really ancient idea that dates back as far as 6400 BC. While originally associated with arid climates in the Middle East and traditionally comprised of cellular spaces, thick walls, small apertures, and a perimeter wall for privacy and security, the courtyard house type has accommodated a wide variety of divergent models, including Mies's own enigmatic projects from the 1930s. As Antoine-Chrysostome Quatremère de Quincy famously wrote: 'All is precise and given in the model; all is more or less vague in the type.'

As much has been written about architectural *types*, it may be useful to venture outside our discipline to consider how we form categories, and by extension, classify buildings. In the 1970s, cognitive psychologist Eleanor Rosch developed the Prototype Theory, marking a radical break from the Classical Theory of categorisation. In the Classical Theory, originating with Plato and Aristotle, members of a category were grouped by their common properties; in other words, a category had clear boundaries and was characterised by the shared properties of its members. In Rosch's Prototype Theory, rather than forming such definition-based categories, things are categorised based on prototypes, recognising that some members of any given category are better exemplars, or are more central, than others. A dog is a more central or prototypical member of the category 'pet' than an elephant.

Rosch and her colleagues went on to rank categories in a taxonomic hierarchy: superordinate, basic-level, and subordinate. In our discussion of Mies's courtyard houses, housing would be the highest level or superordinate category, a specific Mies courtyard house project, the lowest level or subordinate category. Courtyard houses would be the middle level or basic-level category. Prioritising the middle category as the most psychologically basic, Rosch developed a list of characteristics describing the basic-level category. To name a few, it is the highest level

category at which: a single mental image can represent the entire category, members can most quickly be identified, and most knowledge is organised. It is also the level with the most common labels for category members.<sup>2</sup> Chairs and dogs, like courtyard houses, are basic-level categories with a wide diversity of members. Consider how much and how little the Chihuahua and Great Dane have in common, or for that matter, Mies's courtyard houses and traditional courtyard houses. The generic nature of a basic-level category, not unlike a type, offers a potent degree of ambiguity.

*Fuzzy sets*, defined by Lotfi Zadeh in 1965, also share characteristics with types. Membership in a fuzzy set is not binary; members are not either in or out. 'More often than not, the classes of objects encountered in the real physical world do not have precisely defined criteria of membership.'<sup>3</sup> This helps explain how Mies's projects could be included in the courtyard house fuzzy set while sharing so few of the spatial or material characteristics associated with traditional courtyard houses, or for that matter, the courtyard house projects of his contemporaries.

Luciana Fornari Colombo (*arq* 19.2, pp. 123–32) acknowledges that Mies's projects bear little resemblance to traditional models, but defends their membership in the courtyard house type by pointing to what she apparently considers a defining characteristic. 'This plan configuration can still be primarily associated with the courtyard house typology because it attaches the roof of the house to windowless peripheral walls in [sic] at least two sides'. Perhaps, but in Wittgenstein's discussion of 'family resemblances',<sup>4</sup> he claims that members of a category may be related to one another without all members having *any* properties in common that define the category. This suggests that it is possible to have a courtyard house that does not have an enclosing wall, let alone one that attaches to the roof.

While Mies himself embraced the nomenclature 'courtyard houses' (or to be more accurate, 'court houses') to describe a set of projects first developed in the 1930s, their open flowing plans, thin planes of opaque and transparent materials, and seamless visual transitions from interior to exterior space are hardly prototypical or central examples of the category or type. They are rather remixes of: 1) a modern spatial type explored earlier in the Brick Country House



2 Model of the Courtyard House, originally titled 'Project for a Small House 1934'; Art Institute of Chicago exhibition 'Architecture of Mies van der Rohe', 3 12/15/1938-1/15/1939 Chicago, The Art Institute of Chicago, Ryerson and Burnham Archives, Edward A. Duckett Collection, Digital File # 198602\_150504-001.

project and realised in the German Pavilion, a type of centrifugal plan that releases interior space to join the landscape beyond and; 2) a sampled element from an ancient building type, namely the perimeter enclosing wall. While the combination resulted in rather counterintuitive hybrids, and proposals that really cannot be taken seriously as solutions to a housing shortage given their generous one-bedroom open plans, these projects are important reminders that types are generative. With types, basic-level categories and fuzzy sets, their vagueness and soft boundaries invite inventive sampling, remixing and renaming. The redefining of categories is, in and of itself, at the heart of the creative act.

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### Regarding Mies's courtyard houses

Although many of his designs for courtyard houses survive, Mies van der Rohe never realised one. Yet the courtyard house type is usually given a place of special importance in his oeuvre. Luciana Fornari Colombo in her study (*arq* 19.2, pp. 123–32) interrogates the genesis of Mies's courtyard house designs. Taking these as a starting point, I would like to speculate on Mies's design process and whether it may serve as a model for current practice.

### Mies's courtyard houses

The way we interpret Mies's courtyard house designs hinges on understanding their original motivation. Were they intended for specific sites and particular clients, or were they polemic experiments in avant-garde architecture? Terence Riley and others asserted that Mies's courtyard house designs originated with the project for Margaret Hubbe. Colombo, in contrast, champions the independent consideration of a building type, irrespective of site. She links the emergence of the type to Mies's teaching at the Bauhaus. I prefer to consider a more complex conglomerate of motivations. Favouring one over the other is to short-change the complexity inherent in any design process. To accept the courtyard house projects as 'less pure' in origin does not reduce their extraordinary status – on the contrary. We gain insight into Mies's method of addressing specific problems and recognising within them general responses that, at least in his view, hold bigger architectural truths.

Mies's courtyard houses are not atrium houses that follow a Roman model. The type, however, must have been familiar to Mies early on, if only through Schinkel's Roman Baths at Potsdam. It is easy to see the various studies for courtyard houses as part of an evolutionary process that started with Mies's first independent commission, the Riehl House of 1907, and its close relationship of ground floor plan and garden parterre. Shortly after, Mies travelled to England and visited several Garden City developments. We may only speculate to what degree he took inspiration from

their harmonious integration of house and site. When he reinvented his architectural approach after 1921, Mies also inverted previous relationships of house and site. The Country House in Brick asserted full control over its grounds. Mies published the design as a conceptual project. Any indication of an actual site was purged, presumably once the prospect of realisation (either as a house for himself or for an unidentified client) fell through. What stayed with Mies was the concept of controlling nature and providing a new degree of spatial freedom. It found its full realisation in the Barcelona Pavilion, itself a proto-courtyard house. The design upheld a conceptual ambiguity, being at the same time a permeable 'filter' and self-contained environment. The exhibition pavilion even provided its own horizon within. Following other realised projects in Krefeld, Stuttgart, and Brno, the Lemke House of 1933 is often considered the only built specimen of a courtyard house by Mies. It went through a number of design iterations. Ultimately, Mies favoured client expectation over conceptual innovation. The relatively modest house with its L-shaped plan held a patio at its centre and opened out to a larger garden. By no means 'compromised', the realised building is a valid document of Mies's core architectural concerns. At around the same time, Mies's studies for a mountain house were again an assertive response to site that emphasised architecture's

protective qualities. Although no site was identified, the sketches likely related to places familiar to Mies from previous travels.

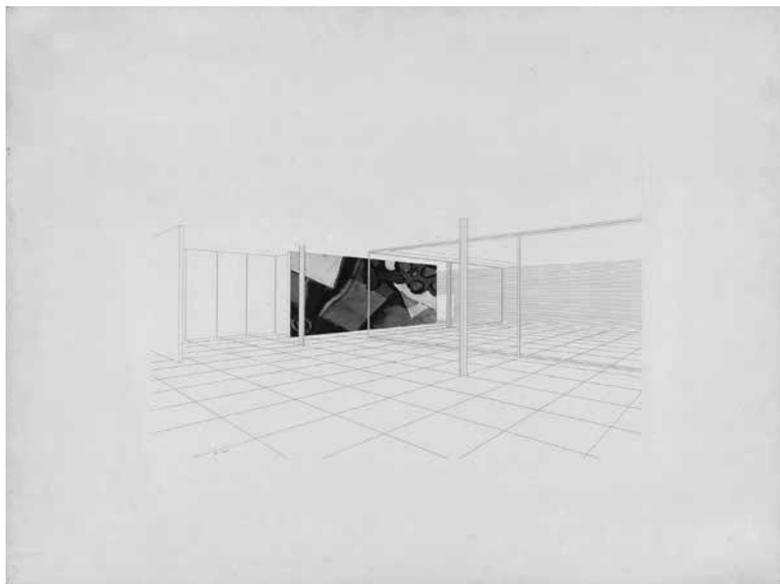
By the time Mies worked on the Hubbe House commission the conceptual idea of open-plan living contained within perimeter walls has had a long gestation period. The courtyard house studies that followed were part of that lineage. We may, however, look at the Hubbe House project also as a turning point. In order to integrate the house in its 'dull' river marsh setting, the house and adjoining terraces were contained within garden walls. The necessity to accommodate additional dwellings in close proximity to the main house prompted a further radicalisation of the idea of a house anchored to its site by walls extending outwards. The iconic group of three courtyard houses achieves complete visual exclusion by means of continuous exterior walls.

#### Design method

The seclusion of the courtyard houses suggests the negation of expansive space as proposed in the country houses in brick and concrete, for example. Yet I prefer to read the courtyard house type as an inversion of those earlier ideas. By containing the site within perimeter walls and thus internalising landscape Mies was indeed able to 'articulate space, open it up and connect it to the landscape' in unprecedented ways. The dialectical move of inverting an idea – preserving its conceptual integrity whilst

at the same time altering its formal expression – is found repeatedly in Mies's work. The curvilinear envelope of the glass skyscraper with its regularised internal column grid transformed into external columns and the coffered roof plate of the New National Gallery that sheltered a gesture of liberated use within. Other projects played out the ambiguity of what is interior and what exterior even more. The Exhibition House of 1931 – another step towards the courtyard house designs – was the first project to invert interior and exterior. It presented as exterior the interior of the vast exhibition hall the house was set within. In the drawings for the Resor House initially and later in those for the Museum in a Small City, the strongest feature of the interior 'room' was the landscape seen through absent openings, competing for spatial presence with furniture and, more intensely, with human beings presented as sculpture. Here, the presence of architectural elements was implied only through the absence of collaged 'reality'. These collages thus inverted conventions of representation. And by 1942, the Concert Hall collage merged a found 'landscape', actually an aircraft assembly plant, and the proposed 'room' (irrespective of its use) within a unified space as a final synthesis of previously disparate entities.

Mies's designs developed through evolutionary and iterative processes. Iterative design requires repetition. Drawings would be made repeatedly to test variations. Some of Mies's numerous courtyard house sketches combined plan variations with perspectival views and calculations of floor area. Mies's sketches were at the same time preliminary and purposeful. These are drawings made for 'finding out'. With Mies, design could proceed at different speeds. Mies launched into rapid production once he was certain of his proposition, or when clients demanded action. Impatience on the clients' side was frequent in the face of Mies's glacial progress at times. Yet slowness allowed for opportunities to unfold. Interested in the solution to a problem, Mies sought refinement rather than innovation. Unlike the philosopher Edmund Husserl, whose work Mies discussed with Grete Tugendhat, Mies was not a 'perpetual beginner'. Continuity mattered. Thinking of the epoch and conscious of long timespans,



3 Ludwig Mies van der Rohe, House with Three Courtyards: interior perspective, after 1938. Pencil, cut-out reproduction (detail from Georges Braque: Fruit Dish, Sheet Music and Pitcher, 1926) on illustration board, 30 x 40" (76.2 x 101.6 cm). New York, The Museum of Modern Art, The Mies van der Rohe Archive. Gift of the architect. Acc. no.: 686.1963.

Mies would keep an idea until he saw an opportunity to put it to work. After all, he was reluctant to 'invent a new architecture every Monday morning'.

Whether commissioned or self-motivated, whether sited or theoretical, the gradual emergence of the courtyard house type in Mies's *oeuvre* illustrates a mode of working as well as a way of thinking. Mies presented his buildings as an expression of a solid belief, a design philosophy. However, Mies in his work did not start with general assertions. Projects did not originate in fundamental statements. The Country House in Brick was linked to a site in Potsdam-Neubabelsberg. The Mountain House dwelled on Alpine landscapes. The Concert Hall was based on an actual factory building. Although often categorised as 'conceptual projects' these projects as well as many others started as specific responses to specific problems. Mies did not speculate. He worked with 'facts', that is, with the specific circumstances of a problem. He was interested in finding concrete solutions, not in considering abstract concepts. It is Mies's achievement to recognise within those specific solutions more profound, and enduring, responses to the more general concerns of a building type, a structural principle, or a construction system.

#### Practice and teaching

Mies's focus on finding specific responses to specific problems was also reflected in his professional practice and his approach to architectural education. Mies's authority in his practice was not founded on hierarchy. Instead, as his biographer Ed Windhorst reminded me, his office staff respected Mies because 'he always had the better solution'.<sup>5</sup> Having 'the better solution' presupposes a problem-oriented way of working.

As in professional practice, so in architecture school: Mies thought of student assignments as 'problems' to be solved through rigorous and iterative work. This conviction carried over from his years as the last director of the Bauhaus to his new role as director of Armour's architecture programme in Chicago. And, following the merger of Armour and Lewis Institutes, two colleges that offered professional courses in science, engineering, and liberal arts, the Illinois Institute of Technology (IIT) remained more committed to professional training

than to academic exploration. IIT then was not yet a place of research in the way we understand universities to be today. Mies's curriculum at IIT emphasised the craft of making architecture. The curriculum foregrounded rationality and precision while eliminating scope for individual expression. Not surprisingly, Mies would not shy from assigning to students problems that interested him in the context of his professional practice. (In addition to the Museum for a Small City, numerous projects for high-rise and long-span structures may provide examples.) With regards to practice as well as teaching the courtyard houses were a defining project. Far from being just an 'abstract problem', as Terence Riley suggested, the courtyard house exercises responded to a specific problem and eventually addressed a far more general condition. The role of Ludwig Hilberseimer and the student projects for low-rise high-density housing developments at the Bauhaus deserve more attention in this context. The overlap of student projects and office work gave raise to questions of authorship. This has parallels in Mies's productive yet asymmetrical working relationship with Lilly Reich and others, and it points towards a mode of working that was distinct and central to Mies's career. Frank Lloyd Wright championed an apprenticeship model at Taliesin, where school and office effectively merged into one. Walter Gropius was an outspoken advocate of 'teamwork'. Albert Kahn had adopted a hierarchically structured management model and transformed the architect's office into an efficiently streamlined 'organisation'. Later, Louis Kahn would return to a studio model for both practice and teaching. Mies in turn relied on a group of younger collaborators or students to test different approaches and to produce preliminary versions before he would settle on a particular idea. Once found, Mies refined the solution by repeating a similar process with much narrower constraints until satisfied.

This collaborative interrogation of a design problem constituted a dialogue of sorts. The *atelier* (in contrast to the streamlined business office) and the design studio allow for such dialogue, either with collaborators or students. This mode of working involves a constant 'give and take', an exchange that makes

it ultimately impossible to distinguish who made which contribution. As the instigator of such dialogue at IIT, Mies claimed the results as his.

This kind of searching dialogue has to remain open-ended, thus avoiding foregone conclusions. It requires alertness to possibilities that may emerge in the process. Through the creative nature of the dialogue, and through the specific pedagogy of the design studio as set by a teacher or group of teachers, multiple opportunities for innovations in the thinking of and approach to context and technology, space and society are generated.

#### Research through design

We can interpret the studies for various courtyard houses as iterations of the same problem and hence as an example for patient research. Indeed, Colombo placed Mies's work on this house type in the context of 'research through design'. It may not surprise to find this label affixed to a study firmly rooted in the field of architectural history. After all, architects – and scholars – today are under immense pressure to defend the value of architectural inquiry. Research recognises the creative leap from established facts to new concepts. To architects it is self-evident that design produces insight and advances disciplinary knowledge. Insight is communicated through drawings, models and prototypes as well as realised buildings. In an ongoing debate, architects persistently argue that they are well trained in reading intention from design documents and *vice versa* that they are well able to express conceptual ideas through media other than writing.

It is of course most instructive to regard research through design – as undertaken by Mies, his colleagues at IIT, and architects in general – as embedded in teaching. Design research in all its facets is not new to architecture, neither in practice nor in education. Well before Christopher Frayling, and coincidentally parallel to Mies's courtyard house exercises at IIT, Herbert Read introduced the idea of research for art, into art, and through art.<sup>6</sup>

Research in architecture is inevitably tied to the concrete problems of a particular building: its site and programme, construction technology and budget, etc. 'Research springs from the midst of things', as David Leatherbarrow remarked, and

further, 'the practice of design research is at once dialogical and individual, participatory and personal'.<sup>7</sup> Le Corbusier summarised his work as 'patient research', and described his *atelier* as the place to do it. Mies thought of his work as a disciplined effort to overcome the 'unholy confusion' of his time. His research interests were not academic. Instead, Mies's studio research was design-centred and problem-driven. Later generations would reject the ties to specific problems and take up much more speculative research. That liberty of research – to pursue investigations independent of possible application – must firmly stand at the core of any university's ethos. Nevertheless, Mies's practice, his teaching, and the sustained exchange between both remain a model for research through design today.

#### MoMA exhibition 1947

Mies exhibited sketches, drawings, and models for the courtyard houses, including those made by IIT students, many years after the idea was initially conceived. The first Mies exhibition at the Museum of Modern Art in 1947 'canonised' the courtyard house projects. The related monograph by Philip Johnson and subsequent exhibitions relied by and large on the same material. Mies had left most of his office records including design documents in the care of Lilly Reich when he left Germany almost a decade earlier. They had been safely hidden away but remained out of reach. Except for some good photographs, Mies had little to show in America. He had not yet found clients to commission new work. The Resor House, although carefully worked out, did not get built. The Farnsworth House was yet a promise, not reality. Construction at the IIT campus had started, but it was unlikely to attract the attention of the (wealthy) private and corporate clients Mies was most interested in. Against this background, we can understand the decision to rework the courtyard houses and include them in the exhibition as an attempt to cover an additional segment of the market and as an offering to both private clients and commercial developers.

Whereas MoMA's authoritative exhibition on the Bauhaus of 1938 firmly tied Gropius' American reputation to his past achievements at the Bauhaus, the Mies exhibition of 1947 was not a retrospective of his

career. Instead, it was the calling card of an emerging player on the architectural scene of postwar America. It was also a showroom where exclusive furnishings merged with images of elite interiors. Royalties for his furniture designs had provided Mies with a steady income and funded much of the Bauhaus operation in its concluding Berlin period. Mies may have hoped to see this stream of income revived, as in fact it did in the following years. I think of the MoMA exhibition not as a résumé of past work but as a catalogue of future projects – city centre skyscrapers, corporate headquarters, cultural institutions, and remote weekend houses. The emphasis was not on what Mies had done but on what he had to offer. The exhibition laid out the breadth of Mies's work with an aspiration to attract a new client base. Yet one segment in his design portfolio did not appeal to prospective clients. By the late 1940s the suburbanisation of America had taken a distinct direction. Emergent consumerism and land-rich developers building for veterans with subsidised mortgages won the day over austere housing schemes. In the context of parkways and Levittown the courtyard house as a model for high-density low-rise developments was obsolete. Although it survived as a training exercise in the architecture curriculum at IIT, Mies himself did not pursue the idea further – except for Lafayette Park in Detroit, and there only in conjunction with high-rise apartment blocks.

I wonder: Had postwar residential development in America taken to a different, less sprawling model, would have the courtyard house idea established itself more strongly within our current repertoire of housing types?

Certainly, the courtyard house by no means disappeared. Often when societies were under pressure to balance individual aspiration with cultural circumstance architects turned to courtyard house typologies – Jørn Utzon in Denmark and Eduardo Souto de Moura in Portugal may serve as prominent examples. Courtyard houses are a long-established typology with earliest examples in the Jordan valley, in ancient China and Greece as well as in Inca settlements. It is a widespread typology that travelled with the people who once lived in it. It successfully combines a protected private realm with a commitment

to a shared ideal of community. In a time of mass migration it may well become the typology with the strongest potential to integrate different populations and divergent concepts of society.

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#### Notes

1. Letter from Ludwig Mies van der Rohe to Mr Stefano Desideri describing his courtyard houses. See: the Appendix of 'The Miesian courtyard house' by Luciana Fornari Colombo, in *arq: Architectural Research Quarterly*, 19:3 (2015), pp. 123–32.
2. For a helpful overview of Eleanor Rosch's research on Prototype Effects and Basic-Level Effects, see: George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind* (Chicago: The University of Chicago Press, 1987), pp. 40–8.
3. L. A. Zadeh, 'Fuzzy Sets', in *Information and Control*, 8 (1965), pp. 338–53.
4. Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Blackwell, 1953).
5. Edward Windhorst, personal conversation, 28 April 2015.
6. Herbert Read, *Education through Art* (London: Faber and Faber, 1943).
7. David Leatherbarrow, keynote address, All-Ireland Architecture Research Conference, Limerick, 25 January 2013.

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