

BEYOND MADRID'S HEAT

Sheltering the Vulnerable

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19. 05 . 2025

Delft University of Technology
AR3DC100 Architectural Design Crossovers
Graduation Studio

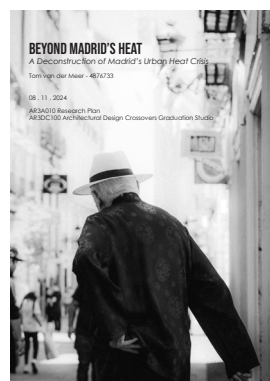
REFLECTION PAPER



Tutors
Research
Architecture
Building Technology

A.M.R. van der Meij
J.P.M. van Lierop
G. Karvelas

[FRONT COVER]
 A homeless man sitting
 alone in a brown field
 on the periphery of San
 Cristóbal de los Ángeles,
 with the Poblados
 Dirigidos of the 1960s
 behind him.



Research Plan; 08. 11. 2024



Graduation Plan; 20. 01. 2025



Research Paper; 19. 05. 2025

[FIGURE 1]
 This document serves
 as a reflection on the
 work carried out in
 the accompanying
 documents during the
 2024–2025 graduation
 year at Delft University
 of Technology, within
 the MSc Architecture,
 Urbanism and
 Building Sciences,
 track Architecture. The
 work was developed
 in the graduation
 studio Architectural
 Design Crossovers: The
 Expanded City of Madrid
 – "Urban Commons",
 under the supervision
 of A.M.R. van der Meij
 (Research Mentor), J.P.M.
 van Lierop (Architecture
 Mentor), and G. Karvelas
 (Building Technology
 Mentor).



P4 Presentation; 26. 05. 2025

REFLECTION

During my graduation year, I had the opportunity to visit Madrid on two separate occasions. The initial visit served as an exploratory phase, allowing me to explore the city and to identify potential areas of relevance to my research topic. By the time of the second visit, my research had progressed a lot, allowing me to have a more focused approach of the subjects and locations that had not been addressed in the first visit. The direction of my research was heavily influenced by the sightings of my field research. I saw throughout the city, and especially around the location of my intervention, the homeless population of Madrid. Given that my research centers on the impact of urban heat on marginalized populations, I selected the city's most socioeconomically disadvantaged neighborhood as the location for my intervention. Walking through and around these neighborhoods often felt very intrusive, as I encountered deeply personal and vulnerable aspects of people's lives. I witnessed individuals experiencing homelessness, substance abuse, and involvement in other illegal activities. These encounters highlighted the sensitivity of the context I was engaging with and underscored the ethical complexities of conducting research in such environments. In that sense, I feel like I have two kinds of experiences from this graduation. The first one being a researcher from the comfort of my laptop writing and designing with the tools that the internet and data provides, and on the other hand the real life experiences of getting out in the field and "your hands dirty". The combination of these approaches provides a more comprehensive and grounded understanding of the subject.

[FIGURE 2]
Screenshot from a video recorded during a bike ride through Villaverde, showing a homeless man pushing a shopping cart filled with his belongings through the streets.



[FIGURE 3]
Photo taken from the Gran Vía de Villaverde highway, capturing two homeless men preparing and eating a meal.



[FIGURE 4]
Photo taken from the Gran Vía de Villaverde highway, showing a group of eight people gathered near a shanty town.



[FIGURE 5]
Photo taken during a local soccer match at C.D. San Cristóbal de los Ángeles, with neighborhood residents gathered as spectators.



ADC STUDIO

The project addresses a key aspect of contemporary environmental challenges in the built environment, focusing on designing solutions to combat urban heat in Madrid. This connects to the Architectural Design Crossovers studio theme of Urban Commons, which examines shared resources and spaces within cities. My project provides the opportunity to create a technically driven solution addressing the physical properties regarding urban heat, while also shaping spaces that address social and communal interaction. To me, this is what architecture is all about: the intersection of technical and social aspects. Through this perspective, the project combines architecture with a focus on sustainability, social inclusivity, and community resilience. This interdisciplinary approach demonstrates how architecture helps shape urban environments that meet the needs of the users.

METHODS

As previously mentioned, the direction of my research was strongly shaped by the observations made during the initial fieldwork conducted in November 2024. Additionally, I outlined a range of research methods in my research plan (*Figure 1*). Upon reflection, many of these methods are not explicitly represented in the research paper (*Figure 1*), but have instead been used in the design process itself, which can be found in the appendix of the research paper.

A central aspect of this approach was the use of data to substantiate design decisions. This data was drawn from various sources, for example climate datasets, to address the environmental challenges central to the project. As such, the project evolved into a research-by-design methodology, whereby iterative design development was used as a means of progressing the design. Each design iteration offered an opportunity to evaluate different spatial and environmental qualities, guiding the project forward.

One of the key methods in this project was field research. In my research paper, I emphasize the importance of designing with the people. However, in practice, this has been rather difficult. During my second visit to the site, I had developed a better understanding of the people, the context, and the area's history (*Figures 2–10*), but they did not know me. I attempted to reach out to members of the community to meet and discuss my project, but there were no replies.

Ironically, this experience was the opposite of the participatory approach I advocate for in my research. It made me realize how difficult it can be to be accepted as an outsider, especially when proposing changes within a community.

[FIGURE 6]

"El Ayuntamiento
desmantela el
asentamiento chabolista
de San Cristóbal"

"The City Council
dismantles the San
Cristóbal shanty town"

"Sigue activo el
'narcolocal' de Villaverde
donde fue atacada una
policía por un pitbull"

"The Villaverde drug bar
where a police officer
was attacked by a pit
bull is still active."

"San Cristóbal de los
Ángeles, nuevo mercado
de la droga en Madrid"
"San Cristóbal de los
Ángeles, Madrid's new
drug market"

"San Cristóbal se levanta
contra la vuelta de la
droga al barrio: "Somos
una reproducción de la
Cañada""

"San Cristóbal rises
up against the return
of drugs to the
neighborhood: "We are
a reproduction of La
Cañada""

"San Cristóbal, el barrio
de Madrid azotado por
la venta de droga: Es
mejor que os marchéis"

"San Cristóbal, the
Madrid neighborhood
plagued by drug
dealing: "It's better if you
leave. ""

"Desmantelados 15
narcopisos en San
Cristóbal de los Ángeles
(Villaverde): hay 25
detenidos"

"15 drug detention
centers dismantled in
San Cristóbal de los
Ángeles (Villaverde): 25
people arrested"

El Ayuntamiento desmantela el asentamiento chabolista de San Cristóbal

— Los vecinos denunciaban la inseguridad que traía consigo

13 de noviembre de 2024 - 20:32 (Actualizado: 15 de noviembre de 2024 - 20:11)

Sigue activo el 'narcolocal' de Villaverde donde fue atacada una policía por un pitbull

— Es uno de los puntos de venta de droga y prostitución más activos del barrio, denuncian los vecinos

10 de febrero de 2025 - 07:56 (Actualizado: 10 de febrero de 2025 - 13:23)

San Cristóbal de los Ángeles, nuevo mercado de la droga en Madrid

— Lo denuncian los vecinos que piden medidas urgentes para acabar con el vandalismo, los narcopisos y la degradación que sufre el barrio

27 de octubre de 2024 - 14:40 (Actualizado: 27 de octubre de 2024 - 22:41)

San Cristóbal se levanta contra la vuelta de la droga al barrio: "Somos una reproducción de la Cañada"

MADRID AIDA SKIREJ | NOTICIA | 26.10.2024 - 14:12 |

SAN CRISTÓBAL, EL BARRIO DE MADRID AZOTADO POR LA VENTA DE DROGA: «ES MEJOR QUE OS MARCHÉIS»

La colonia de Villaverde está tomada por narcopisos y camellos que venden a plena luz del día en la calle

Los vecinos reclaman más presencia policial y limpieza, y critican la pasividad del ayuntamiento

CARLOTA BARCALA
Madrid

01/09/2023
Actualizado a las 16:10h.



 **GACETÍN MADRID**
Periódico digital de la Ciudad de Madrid

Desmantelados 15 narcopisos en San Cristóbal de los Ángeles (Villaverde): hay 25 detenidos

17 mayo, 2024



[FIGURE 7]
"Seguridad y educación"
"Safety and education"

*"Queremos seguir
viviendo en San Cristóbal
ino somos el Bronx"*
*"We want to continue
living in San Cristóbal,
we are not the Bronx"*



[FIGURE 8]
1980s
*"¿Que pasa? Por que
a cachos se me cae mi
casa?"*
*"What's going on!?
Why is my house falling
apart?"*



[FIGURE 9]
"Yo amo mi barrio"
"I love my neighborhood"

*"Del barrio de San
Cristóbal vo nos
moveran"*
*"They won't move us
from the San Cristóbal
neighborhood"*



[FIGURE 10]
*"San Cristóbal, ayúdanos
que nos hagan el
estudio"*
*"San Cristóbal, help us
get the study done"*

RESEARCH & DESIGN

The research informed the design process, particularly by a chapter titled “*Shifting the Balance*”, which explores strategies to mitigate the challenges associated with urban heat and considers the potential of reframing it as an opportunity rather than solely a threat. The methods and approaches discussed in this chapter were integrated into the design, where contextually appropriate.

Additionally, the design process also contributed to the research. A key design intervention involved the extension of an existing park through an elevated structure that accommodates the different topographies of the site.

This design decision asked for further investigation into how public green spaces can support more community-oriented approaches to addressing urban heat. In this case this design decision thus served as a way for researching the social dynamics in the context of climate adaptation.

RELEVANCE

The climate crisis encompasses a wide range of issues, with global warming being a central concern. In urban areas, the dense concentration of people places pressure on these environments, making cities especially vulnerable. To adapt, various strategies have emerged, including those aimed at mitigating the urban heat island effect. However, much of the research so far has focused on the physical aspects of this phenomenon. My project, explores urban heat from a broader perspective, highlighting its importance not just as an environmental challenge but as a social issue. Architecture can play a vital role in addressing urban heat by creating spaces that are not only technically resilient but also socially, contributing to a more holistic understanding of sustainability. This approach, I believe, is essential for the discipline to fully engage with the complexities of climate adaptation.

TRANSFERABILITY

One of the key design components involves the renovation of an existing residential tower located within the neighborhood. This particular typology appears multiple times throughout the area (*Figure 11*). During the design process, a panel system was developed, tailored to the structural grid of these towers. While initially designed for a specific building, the system is conceived with adaptability in mind and could, in theory, be implemented across similar towers within the neighborhood, offering a scalable approach to retrofitting existing housing stock.



[FIGURE 11]
The project transforms a typology that reoccurs at various locations throughout the neighborhood of San Cristóbal de Los Ángeles. The dotted line marks the specific site of the intervention.

FINAL PART GRADUATION

As I reach the final stretch of this graduation year, I'm looking forward to shape the research outcomes on the site.

At the same time, I look forward to supporting the design not only with the (mainly qualitative) insights explored in the research but also by evaluating the project's effectiveness through quantitative measures (*Appendix B*), ensuring it performs as intended. This will be achieved using tools like Ladybug to analyze and validate the project's performance.

"How can (climate) shelters for the homeless population in large cities, such as Madrid, be designed to balance the need for support with the concerns of surrounding communities?"

"How can a participatory approach be effectively implemented in the design process when the population being designed for is difficult to engage or uninviting?"

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- [FIGURE 3]. - Author - 15 . 03 . 2025 . 14:30 . San Cristóbal de los Ángeles
- [FIGURE 4]. - Author - 15 . 03 . 2025 . 14:45 . San Cristóbal de los Ángeles
- [FIGURE 5]. - Author - 15 . 03 . 2025 . 14:00 . San Cristóbal de los Ángeles
- [FIGURE 6]. - <https://www.telemadrid.es/programas/madrid-directo/El-Ayuntamiento-desmantela-el-asentamiento-chabolista-de-San-Cristobal-2-2724647554--20241113083241.html>
- <https://www.telemadrid.es/programas/buenos-dias-madrid/Sigue-activo-el-narcolocal-de-Villaverde-donde-fue-atacada-una-policia-por-un-pitbull-2-2751344841--20250210075608.html>
- <https://www.telemadrid.es/programas/telenoticias-fin-de-semana/San-Cristobal-de-los-Angeles-nuevo-mercado-de-la-droga-en-Madrid-2-2719548022--20241027024009.html>
- <https://www.20minutos.es/noticia/5648487/0/san-cristobal-se-levanta-contra-la-vuelta-de-la-droga-al-barrio-somos-una-reproduccion-de-la-canada/>
- <https://www.abc.es/espana/madrid/san-cristobal-barrio-madrid-azotado-venta-droga-20230901044311-nt.html>
- <https://gacetinmadrid.com/2024/05/17/desmantelados-15-narcopisos-san-cristobal-villaverde/>
- [FIGURE 7]. - Goytre, N. (2022). Memoria y vida de San Cristóbal [Video]. Vimeo. <https://vimeo.com/691780287>
- [FIGURE 8]. - Quintana, V. P. (2007). San Cristóbal de los Ángeles: Experiencia singular de revitalización de un barrio de la periferia madrileña (pp. 17 /328)
- [FIGURE 9]. - CRONISTAS VILLAVARDE
- [FIGURE 10]. - Goytre, N. (2022). Memoria y vida de San Cristóbal [Video]. Vimeo. <https://vimeo.com/691780287>
- [FIGURE 11]. - Author
- [BACK COVER]. - Author - 15 . 03 . 2025 . 15:30 . San Cristóbal de los Ángeles [EDITED]

