Air Conditioning in Paris

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One of the many things I was told to prepare for my month-long trip to Paris was the lack of air conditioning (AC) in the city. Prompted by idle curiosity and the knowledge that I would feel better if I had something to distract me from the heat, I decided to observe if buildings were designed differently to keep spaces cool without AC. I found the answer to this to be a resounding yes and that planning and individual behaviors also played a role. Due to planning decisions, building design and individual behaviors, Paris is comfortable with limited air conditioning outside a heat wave.

I spent most of the trip relatively comfortable, heat-wise. The daily temperatures rarely reached above 85°F and cooled off each night. The major exception to this was the day we arrived. We were welcomed to Paris on the last day of a major heat wave with a high temperature of around 100°F. Most of us experienced heat exhaustion at some point including myself.

This was not just my classmates and I struggling to adjust after an overseas plane ride either. During the heatwave we encountered, 300 people were hospitalized and two people died across France.[1] A 2023 study found that across major European cities, Paris has the highest risk of heatwave-related deaths.[2] While the methods I will discuss work well outside of a heat wave, they are not able to keep people adequately cool when one occurs.

Some of you may be thinking *"If people are dying due to the heat, install air conditioning!"* And yes, air conditioning does reduce the health risk of heat waves.[3] During this heat wave, Marine Le Pen, the leader of the far-right National Rally political party, called for France to do just that.[4] But air conditioning is far more complicated than it's almost ubiquitous use in the United States would suggest.

AC operates by expelling hot air outside while cooling the inside of buildings.[5] Due to this "waste heat," wide use of air conditioning during heat waves increases the outside temperature.[6] Modeling studies of Paris have shown that wide use of air condition in heat waves can raise the street temperature by up to 4°C.[7] The impacts of this are not distributed evenly either. Those who do not have air conditioning in their homes and/or do not have access to air conditioned public spaces are most harmed by the increased temperature.[8] Air conditioning use also increases energy consumption which contributes to global warming that then increases the severity and frequency of heat waves.[9]

Due to these issues, the Ministère de L'Aménagement du Territoire and the Ministère de la Transition Écologique have explicitly described air condition is a "maladaptation" to global warming (a maladaptation being a change that attempts to improve the climate but leads to increased vulnerability).[10] The Paris government has relied on other methods to cool the city.

Planning

One of the few places that the government has worked to increase air conditioning in is transportation.[11] On some RER, metros and buses there were signs on the windows instructing people to keep the windows closed as the cars had air conditioning.

Figure 1 Sign instructing passengers to keep the windows closed as the train is air conditioned on the RER. Photo courtesy of author.

Paris has also invested in more sustainable ways of cooling. Starting in 1991 Paris has created a district cooling system that uses water from the Seine to cool over 700 buildings.[12] District cooling is more efficient than individual air conditioners, producing less waste heat[13] and in the case of this system, being powered entirely by renewable energy. Paris is currently working to expand this system to more areas of the city.[14]

Paris has also worked to mitigate the heat created by the Urban Heat Island Effect.[15] Urban Heat Island refers to the phenomenon of cities being hotter than the surrounding area due to heat radiating off of buildings and paved surfaces.[16] As major source of heat in the city is the dark colored rooftops, part of Paris' climate action plan is to have all roofs produce energy, food or water by 2050 by having solar panels, urban agriculture or rainwater collection systems.[17]

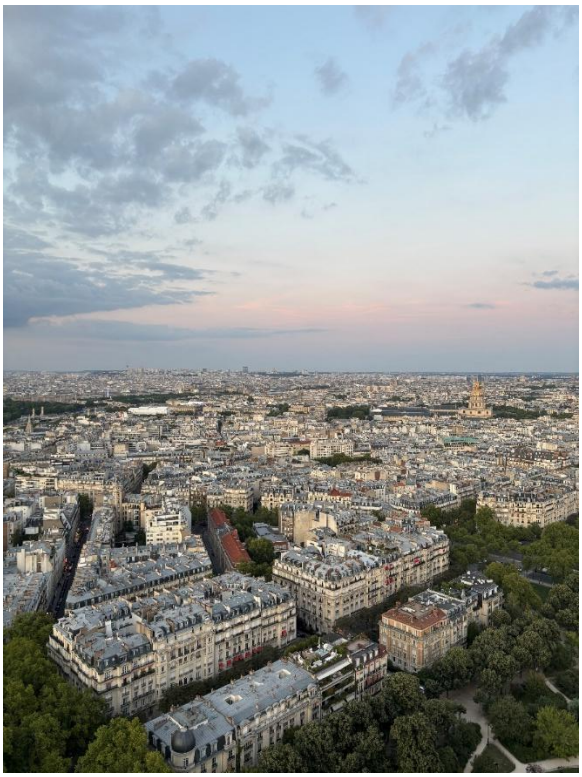

Figure 2 Rooftops of Paris viewed from the Eiffel Tower. Photo courtesy of author.

Additionally, Paris is working on increasing green space in the city. Trees and other plants provide shade and also help to cool through process called evapotranspiration where the plants use the heat from the air to evaporate water off of their leaves.[18] One way Paris is working to increase this green space is by redesigning school yards to include less asphalt.

The Paris government is also working to address the impact of heat waves on residents of the city. Part of the Climate Action Plan is to create "Cool Islands" throughout the city. These are publicly accessible places including museums and parks where people can go to stay cool. As part of this, there is an interactive map, updated each summer, with information about these Cool Islands.[19]

Heat is a major issue in Paris and from increasing green space to reducing emissions from cars, the city is working to make it less dangerous.

Building Design

Due to a general lack of fans in Paris stores and the one I bought breaking almost immediately, I was dependent on the design of my room to keep me cool. This worked surprisingly well, helped by not experiencing another heat wave after that first day.

My window was slightly recessed from the exterior wall which stopped direct sunlight from entering my room for most of the day. There was also a mechanical exterior shutter. When I would open my windows and shutters at the end of the day, I could feel how warm the metal got, but the temperature of my room was only slightly warmer than when I left.

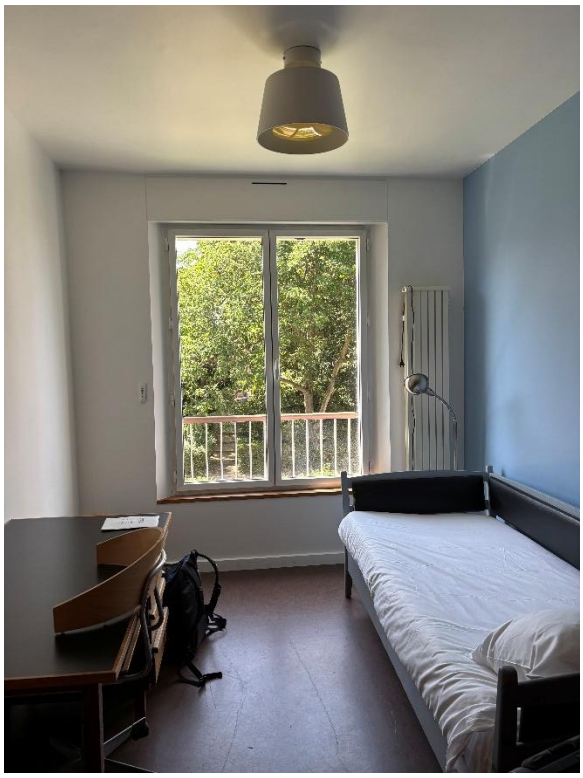

Figure 3 The author's dorm room. Photo courtesy of author.

Consistently the coolest part of the building –for nothing is actually *cold* in Paris – was the stairwell. This was in part due to the splayed windows which allowed for lots of natural light with little direct sunlight. In the U.S., this form of windows is primarily used in buildings built before people had modern technologies to create light and regulate temperature. I was really excited to see a historic adaption in a building built in the 1950s.

Figure 4 Splayed window in dorm stairwell. Photo courtesy of author.

While there is a variety of measures that help to keep buildings cool,[20] windows and openings were the easiest details for me to observe. I consistently saw window design elements that help to keep buildings cool across hundreds of years of architectural design.

Firstly, from stained glass in Norte Dame to a brutalist dorm building, almost all the windows in buildings in Paris open. Simply having air movement is an important part of keeping a space cool. This can be accomplished through pushed air systems or just by opening a window.[21]

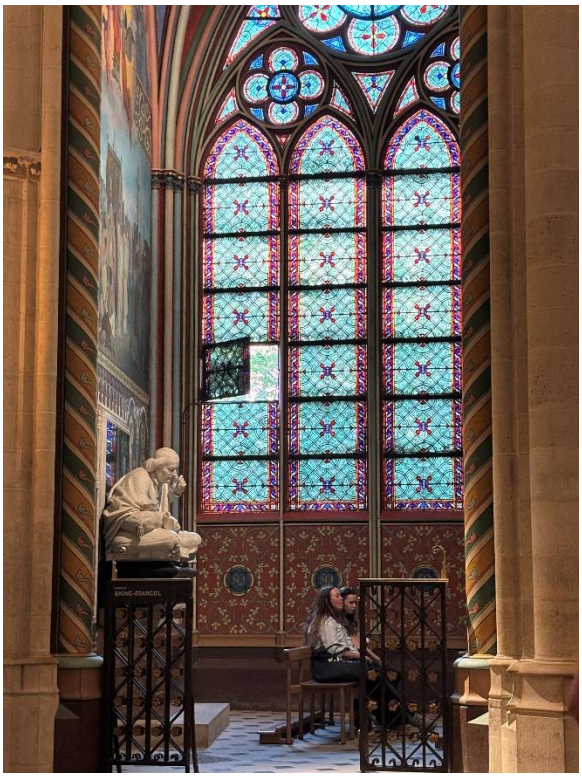

Figure 5 An open stained-glass window at Norte Dame. Photo courtesy of author.

Figure 6 Brutalist dorm with open windows. Photo courtesy of author.

All shutters I saw were operable too. Some are mechanical like the ones in my dorm, but there are also plenty of older buildings with their shutters still in use. These allow people to trap the cooler air in the room during the middle of the day and open them up when it cools down at night. The shutters also have small slats that can be adjusted to allow for some airflow.

Figure 7 Building with operatable shutters in the Latin Quarter. Photo courtesy of author.

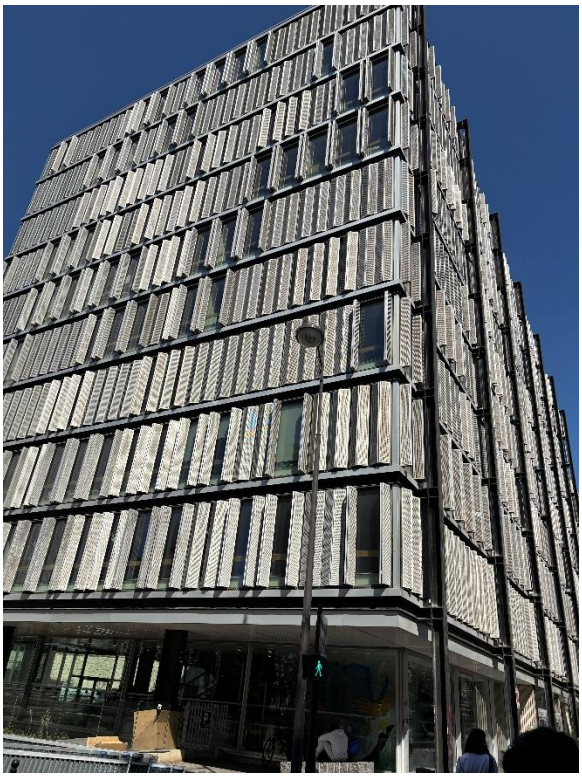

Figure 8 Modernist building with operatable shutters. Photo courtesy of author.

Similar to my dorm room, few windows are flush with the exterior walls. Again, this helps to limit the amount of direct sunlight received.[22] While this may seem like a small detail, it was also the most universal.

Figure 9 Two buildings from different time periods both with recessed windows. Photo courtesy of author.

One of the iconic images of Paris is, of course, the café with tables under an awning. This awning is more than just aesthetic though. Not only does it shade the people sitting outside, but it also shades the windows of these cafés to help them stay cool inside.

There are so many other examples of buildings regulating heat from clearstory windows at the Flower Market to the canopy at Le Halles. I am not able to go through all of my examples, but most buildings in Paris are designed to regulate heat without air conditioning.

Individual Behavior

After waking up with heat exhaustion that first night, I wandered through my hall as most of the public areas were much cooler than my room. I noticed that in the bathroom and kitchen the windows were wide open to let as much air in as possible and even though it was still warm out, the increased airflow helped cool the rooms. I went back to my room, fully opened my the shutters and window and eventually my room cooled off to a manageable temperature. Along with design, knowing how to behave in places with no air conditioning in ways that keep you cool is important.

I was the only one from my class on my floor and as I never spoke more than a startled "hello" to my other hallmates, I was left to observe their behavior to learn how I was supposed to do things. I learned that you kept your shutters closed during the warmest part of the day and open when the temperature cooled down at night. Most of my hallmates left their doors to the hallway open when their shutters were down to allow for some airflow. This was much different than the dorms at UMW where I never saw anyone do the same.

The door to the balcony at one end of the hallway was always open, despite a torn paper I found on the ground once instructing residents to keep it closed. This allowed a consistent breeze. If the other residents on my floor had not blatantly disregarded the rule about the door being kept open, the floor would have been significantly warmer. Keeping the door to a balcony open was common across the other buildings on campus too.

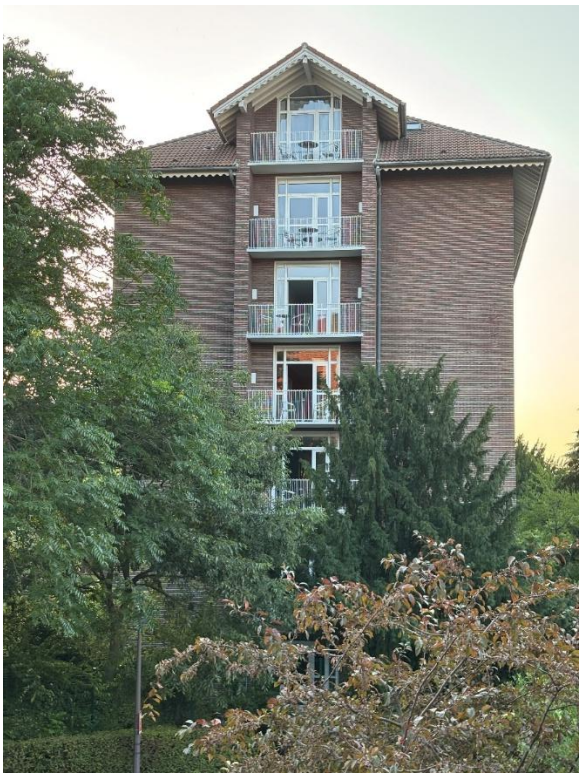

Figure 10 Dorm with doors to the balconies left open. Photo courtesy of author.

In the first few days we were in the city, most of my class – me included – bought paper fans. These are relatively common across the city, especially on the subway. The small amount of airflow they create has a huge impact on how hot you feel. Portable electronic fans are mostly used by tourists, but paper fans were used by residents and visitors alike. But there is also a gendered component of using these fans. Outside of our group, it was primarily female presenting people who I observed using paper fans.

Unless they were air conditioned, stores left their doors open to signify that they were open. This was so consistent that on multiple occasions I found myself confused by the automatic doors of air conditioned establishments, unsure if they were really open.

As I have mentioned before, nothing is *cold* in Paris merely cool. While I did find myself wishing my Orangina was properly chilled, I did not miss the goosebump-inducing coldness of American air conditioning. While this is probably cultural to some degree, it is also good practice for using air conditioning in a more sustainable way. Simply raising the temperature AC cools to reduces the energy cost and the amount of hot air displaced to the street.[23]

Conclusion / The Future

Planning, building design and individual behavior interact to allow Paris to be comfortable in the summer when a heat wave is not occurring. The Paris government is working to address the impact of these heat waves, but planning is a slow process. It is important to keep in mind these heat waves are a result of the global process that is climate change.[24] If the rest of the world is using air conditioning with abandon (and doing other climate unfriendly actions), then heat is only going to become more a problem.

Countries that are more dependent on air conditioning (like the United States) can learn a lot from France. Cities can look to Paris for strategies to minimize the Urban Heat Island effect. Buildings can be built differently to reduce the necessity of air conditioning – something that can be supported by regulations. People can take simple measures to make their AC systems more sustainable like closing their blinds/curtains during the middle of the day and setting their AC to a higher temperature.

While the lack of air conditioning in Paris is far from a perfect design, it is one that is largely functional and ultimately more sustainable. Convincing people to sacrifice comfort for an

abstract greater good is challenging. But investing in alternate cooling strategies is a necessary part of reducing the impacts of climate change.

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[1] Angelique Chrisafis et al, "Europe's heatwave moves east as row erupts in France over air conditioning," Accessed August 10, 2025, https://www.irishexaminer.com/world/arid-41662490.html.

[2] Lara Bullens, "Parisians are most at risk of dying in European heatwaves," Accessed August 10, 2025, https://www.france24.com/en/environment/20230717-parisians-are-most-at-risk-of-dying-in-european-heatwaves.

[3] Vincent Viguié et al., "Early adaptation to heat waves and future reduction of air-conditioning energy use in Paris," Environmental Research Letters 15, no. 7 (2020), https://doi.org/10.1088/1748-9326/ab6a24.

[4] Aude Le Gentil and Giorgio Leali, "Le Pen vows 'major air conditioning equipment plan' as France swelters," Accessed Augst 7, 2025, https://www.politico.eu/article/marine-le-pen-air-conditioning-france-climate-change/.

[5] Karin Lundgren-Kownacki et al.,"Challenges of using air conditioning in an increasingly hot climate," *International Journal of Biometeorology*, vol. 62 (2018): 401-412, https://rdcu.be/eApLn.

[6] Cécile de Munck et al.,"How Much Can Air Conditioning Increase Air Temperatures for a City like Paris, France?" *International Journal of Climatology* 33, (2013): 210–27, doi:10.1002/joc.3415.

[7] Vincent Viguié et al., "Early adaptation to heat waves and future reduction of air-conditioning energy use in Paris," Environmental Research Letters 15, no. 7 (2020), https://doi.org/10.1088/1748-9326/ab6a24.; Cécile de Munck et al.,"How Much Can Air Conditioning Increase Air Temperatures for a City like Paris, France?" *International Journal of Climatology* 33, (2013): 210–27, doi:10.1002/joc.3415.

[8] See note 5 above.

[9] See note 3 above.

[10] "Adaptation de La France Au Changement Climatique," Ministère de L'Aménagement du Territoire, Ministère de la Transition Écologique, Accessed August 5, 2025, https://www.ecologie.gouv.fr/politiques-publiques/adaptation-france-changement-climatique#3e-plan-national-dadaptation-au-changement-climatique-0.

[11] See note 4 above.

[12] "Ice water that cools the city," Accessed August 14, 2025, https://www.inexpeditions.com/en/immersion/fraicheurdeparis.

[13] See note 5 above.

[14] See note 12 above.

[15] *Paris Climate Action Plan*, (City of Paris, 2018), https://cdn.paris.fr/paris/2019/07/24/1a706797eac9982aec6b767c56449240.pdf.

[16] "About Urban Heat Islands," National Integrated Heat Health Information System, https://www.heat.gov/pages/urban-heat-islands.

[17] See note 2 above.

[18] Francisco Manzano-Agugliaro et al., "Review of bioclimatic architecture strategies for achieving thermal comfort," Renewable and Sustainable Energy Reviews 49 (2015): 736-755, https://doi.org/10.1016/j.rser.2015.04.095.

[19] See note 15 above.

[20] Francisco Manzano-Agugliaro et al., "Review of bioclimatic architecture strategies for achieving thermal comfort," Renewable and Sustainable Energy Reviews 49 (2015): 736-755, https://doi.org/10.1016/j.rser.2015.04.095.

[21] See note 20 above.

[22] See note 20 above.

[23] See note 3 above.
[24] See note 5 above.

Bibliography

"About Urban Heat Islands." National Integrated Heat Health Information System. https://www.heat.gov/pages/urban-heat-islands.

Bullens, Lara. "Parisians are most at risk of dying in European heatwaves." Accessed August 10, 2025. https://www.france24.com/en/environment/20230717-parisians-are-most-at-risk-of-dying-in-european-heatwaves.

Chrisafis, Angelique et al. "Europe's heatwave moves east as row erupts in France over air conditioning." Accessed August 10, 2025. https://www.irishexaminer.com/world/arid-41662490.html.

de Munck, Cécile, Grégoire Pigeon and Valéry Masson et al."How Much Can Air Conditioning Increase Air Temperatures for a City like Paris, France?" *International Journal of Climatology* 33, (2013): 210–27. doi:10.1002/joc.3415.

"Ice water that cools the city." Accessed August 14, 2025. https://www.inexpeditions.com/en/immersion/fraicheurdeparis.

Le Gentil, Aude, and Giorgio Leali. "Le Pen vows 'major air conditioning equipment plan' as France swelters." Accessed Augst 7, 2025. https://www.politico.eu/article/marine-le-pen-air-conditioning-france-climate-change/.

Lundgren-Kownacki, Karin, Elisabeth Dalholm Hornyanszky, Tuan Anh Chu, Hohanna Alkan Olsson, and Per Becker. "Challenges of using air conditioning in an increasingly hot climate." *International Journal of Biometeorology* 62 (2018): 401-412. https://rdcu.be/eApLn.

Manzano-Agugliaro, Francisco Francisco G. Montoya, Andrés Sabio-Ortega and Amós García-Cruz. "Review of bioclimatic architecture strategies for achieving thermal comfort." Renewable and Sustainable Energy Reviews 49 (2015): 736-755. https://doi.org/10.1016/j.rser.2015.04.095.

Ministère de L'Aménagement du Territoire et de la Décentralization and Ministère de la Transition Écologique, de la Biodiversité, de la Forêt, de la Mer et de la Pêche. "Adaptation de La France Au Changement Climatique." Accessed August 5, 2025.

https://www.ecologie.gouv.fr/politiques-publiques/adaptation-france-changement-climatique#3e-plan-national-dadaptation-au-changement-climatique-0.

Paris Climate Action Plan. (City of Paris, 2018). https://cdn.paris.fr/paris/2019/07/24/1a706797eac9982aec6b767c56449240.pdf.

Viguié, Vincent, Aude Lemonsu, and Stéphane Hallegatte et al. "Early adaptation to heat waves and future reduction of air-conditioning energy use in Paris." Environmental Research Letters 15, no. 7 (2020). https://doi.org/10.1088/1748-9326/ab6a24.