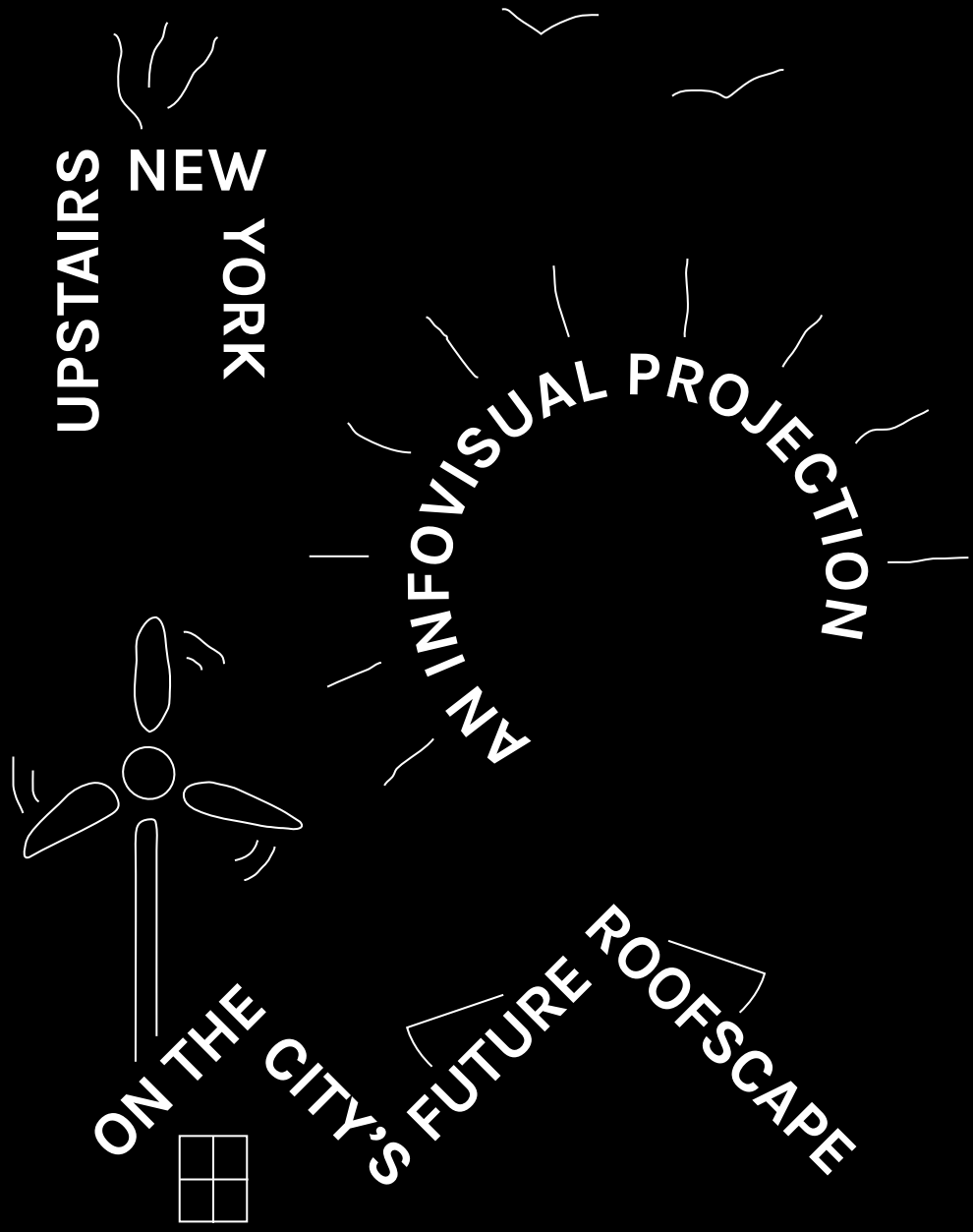

Eventually Made

COLOPHON

Publisher
EM Papers

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Eventually Made

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UPSTAIRS NEW YORK

AN INFOVISUAL PROJECTION ON THE CITY'S FUTURE ROOFSCAPE

Eventually Made

“When this old world starts getting me down
And people are just too much for me to face
I climb way up to the top of the stairs
And all my cares just drift right into space

On the roof, it’s peaceful as can be
And there the world below can’t bother me
Let me tell you now

When I come home feeling tired and beat
I go up where the air is fresh and sweet
I get away from the hustling crowds
And all that rat race noise down in the street”

“Up on the Roof”, *The Drifters*, 1962

PREFACE

In 2019, after the New York City Council had already passed a series of laws governing future roof uses for more sustainable and economic development, it became apparent that as our cities top out horizontally, it would be imperative to examine its vertical growth, studying the city's crowns in their role as a barrier, canvas, and outlet to the built fabric. Laid out as an extensive visual and projective research, the historical and predicted narrative of the roofscape combined with the recent paradigm shift has warranted to approach the subject from different angles and resulting in a trilogy of analyses, highlighting the a) ecological value, b) programmatic potential, and c) pandemic repercussions of New York City's roofs.

In the beginning, the city is looked at from the perspective of 2040 with means of both past and future idiosyncrasies, starting from the observation that the roof harbors great potential for everything that would not fit or work downstairs. The roof space is an outlet to the congested city, a backyard above, and privy to a programmatic injection of all sorts: ecological as demanded by recent legislation,

extracurricular as seen a lot in down time, or utilitarian as expansions to the living space below. On the municipal level, the focus lies on the city's urban development and ecological value of its roofs as part of the Climate Mobilization Act. The city is significantly lacking green spaces and roofs offer plentiful grounds to turn into plants and foliage with little means. The results vary in regards to extent and dedication, agencies involved, and goals achieved but effectively foresee growing green tops to a concrete metropolis. Dialing back to 2020, this city is suddenly experiencing an acceleration of developments on all levels, utterly transformed by the mechanics of a rolled out pandemic. The same roofs are tackled by a form of hardware store urbanism and personal refuge in isolation. The distancing below continues above, as singular roofs turn into social islands: waving connections of stranded individuals.

"Upstairs New York: An Infovisual Projection on the City's Future Roofscape" frames the immediacy of these trends under the hypothesis that NYC has the ability to turn its lead role in environmental sustainability from a local enabler to a global inspirer. This project lays out the fundamentals of the roof as a new architectural hotspot beyond technical necessities, in order to then multiply possibilities for everyday reuse on the top of buildings across the city and the world.

COMING UP

The overlooked surface

The verticality of New York City dictates a specific viewing range. We know there are streets and stores (eye level), apartments and offices (above), and subways (below), but anything on top of the clearly visible does not play a large role in the city's collective spatial thinking. What happens on our roofs is mostly off-limits, neglected space, or even daunting (the heights, low parapets, a healthy dose of vertigo). Therefore, when we find roofs to house anything beyond water towers and mechanical units, it is a moment of revelation, a discovery of a secret, alternate place. Rooftops are often quieter than we would expect, and the lack of street noise and crowds—the metropolitan soundtrack—nurtures the idea of a hidden refuge underneath the sky: a breathing space that is pure potential and yet, to a lamentable degree, untapped.

Roofs of all colors

From an environmental perspective, the city's roofs are a primary barrier to the impact of storms and sun, and therefore a critical component in plans for weathering a warming climate. The *NYC CoolRoofs* initiative has provided financial support to help cover over 9 million square feet of rooftops in white, reflective paint since 2009. *White roofs* lower the heat gain of buildings, resulting in air conditioning energy savings and a lower ambient temperature. In 2010, the mayor unveiled PlaNYC, which included a new technology to counter sewage spilling into city waterways: *Blue roofs* effectively function as water retention systems that filter and channel stormwater with a monitored slow release to not overpower the city's drainage system. In 2019, the City Council passed the *Climate Mobilization Act* (CMA), which requires that all roof projects on new and old buildings install a green roof, solar panels, or wind turbines. While most new construction projects will feature one of these three roof types, exempted (e.g., churches, nonprofit organizations) and existing roofs will not.

Roofs of all types

How might the New York City roofscape develop in the next 20 years? What layers will be added to the existing menu of roof uses? New Yorkers are offsetting the city's density and the resulting shortage of backyards and courtyards by finding creative solutions to expand their domains. In addition to the mandated sustainable options, we believe the city's new climate legislation will spark alternate rooftop uses. Building owners are motivated to activate their tops with a return on their investment, tenants will be inspired to make use of barren roofs. There are many curious examples of roof use in the city's history: The Ansonia Hotel famously raised chicken, ducks, and goats on its roof, the city's iconic pigeon men care for the birds over generations, and more recently impromptu rooftop concerts, screenings, and camping excursions appear and disappear within a day. Imagining what our city's crowns might look like 20 years from now, we look backwards and forwards, categorizing what happens on roofs and to what purpose. Can we rethink the roofscape as an elevated public space?

Private domains

Current roof transformations can be categorized in terms of who benefits from their use. Sustainability driven solutions contribute to lower carbon emissions and the reliance on fossil fuels. Alternate uses generally benefit city residents: Recreational roofs come in many forms and can overlap with sustainable options such as gardening, beekeeping, and lot-sized parks in the air. An important question for New Yorkers is the accessibility of these roofs: Is it a private terrace connected to a luxury residence, or can I access the hidden community garden above? Will my package arrive at the drone hub next door or still on the street? Beyond roof height and accessibility, the structural load-bearing capacity on the roof is the principal determinant of use. In the metropolis, any roof needs to be considered in relation to its block. Will my neighbors overshadow my roof and therefore cancel any gardening ambitions, or am I too exposed to their eyes to sunbathe? If roofs are a building-wide bonus space for the domestic below, what opportunities do short-term residents or long-term institutional tenants have to shape the spaces to their needs?

Drawing potentials

If the historical drive towards even more density in the metropolis continues to accelerate, we have reason to predict that no stones will be left unturned to maximize the use of any surface. Using the roof therefore means filling up a layer of the city that is still surprisingly overlooked. Ziplines and live animal farms on penthouses are both figments of the imagination and glimpses of the past. These predictions are therefore an overlaying of possible pasts and plausible futures, because New York, as we know it, is a constant expansion to new territories, even if we know this new one already: It was just hidden above.

("Coming Up" has been published on *Urban Omnibus*, *The Architectural League of New York*, on May 6, 2020)

UPSTAIRS NEW YORK

Growing pastime

Amidst the many short-lived shopping crazes in New York City during the national lockdown in the Spring of 2020, gardening tools looked like an unlikely one. The appeal, it seems, was the benefit of a new pastime to hold over the isolation, learning a new craft that connects to the dearly missed outside, and the prospect to reap the fruits of one's labor. Should the planted vegetables help comb-over any insecurity in the food supply, all the better. This form of widespread hyper-local farming was famous first in the midst of World War II when the country urged families to plant *victory gardens* as an initiative to support the need for food rations in wartimes. Now, without a government campaign, many city dwellers turn to grow a garden simply because the city's already scarce greens currently grant limited access, in an effort to curtail congregating and combat the virus. On April 1, New York State Governor Andrew M. Cuomo announced the closure of all playgrounds in public parks. While green space remained open, many New Yorkers still opted to steer clear of possible contagion in the public realm. Instead, small-scale rooftop and backyard gardening opened up opportunities to supplement the city's greens in private terrains.

Supplementing public greens in private

The newly found outlet of opportunities on residential roofs comes as no surprise, as in 2019 the City Council passed the Climate Mobilization Act, which requires that all roof projects on current and future buildings install sustainable technologies. This legislation does not include alternative uses for private roofs, or incentives to transform existing residential ones, but can be seen as an instigator into a newfound interest to make use of the above. In light of these rules for the construction industry, it instigated a research and speculation into how the city's roof use might evolve in the next 20 years. Since the original investigation began before the global crisis, the latest developments in the city gave reason to believe that the pandemic-induced lockdown

ultimately propels the ongoing tendencies. The aggravated lack of green spaces in the city alongside an individual need for extensions of the domestic space could evolve into an accelerated version of pandemic urbanism.

Run on the roofs with history

New Yorkers have been using roof spaces as expansions to the built fabric for a long time. The 1962 hit single "Up on the Roof" by *The Drifters* already attests to the desire to escape the city streets on top: "When I come home feeling tired and beat / I go up where the air is fresh and sweet / I get away from the hustling crowds / And all that rat race noise down in the street." In an effort to offset the maximized density of the metropolis and compensate for the lack of backyards and courtyards, tenants and owners have creatively leveraged the boundaries of what is possible upstairs. Among the most notable examples is the famous luxury residence of the Ansonia Hotel on the Upper West Side. To provide the freshest eggs in town, its roof hosted 500 chickens, as well as ducks and goats among others. The farm was shut down in 1907 by the Department of Health, with the remaining animals joining the Central Park Zoo. Nevertheless, the utopian vision of developer William Earle Dodge Stokes to have a self-sufficient building can be seen as a precursor to modern urban farming, and rooftop farms in small and large scales have made a comeback since. Brooklyn Grange is a popular reference in the city and home to a 5.6-acre vegetable farm spanned over three buildings, yielding a crop of estimated 80,000 pounds of vegetables every year. The raising of chickens on roofs is also legal inasmuch as they are considered pets, although most are rather kept in backyards. In a response to the global decline in the bee population, the New York City Board of Health legalized personal beekeeping in 2010, monitored by the New York State Department of Agriculture and Markets, and supervised by various local apiculturist groups around the city.

Another iconic phenomenon is the widespread tradition of raising pigeons on roofs. Informally dubbed pigeon men, the participants can be observed in all boroughs, tending to the birdcages with feed to house the city's pigeon population. They can still be witnessed today, with the practice passed down across generations and neighborhoods. This passion project first became widely known with Elia Kazan's 1954 film "On the Waterfront", starring Marlon Brando as a longshoreman caring for the birds on rooftops as a pastime, engaged in feeding, breeding, and racing them on city housetops.

Helicopters also made use of landing on the city's roofs, making it popular for New York's upper class to travel in and out of the city via helicopter, flying from and landing on various corporate roofs. However, helipad landings have been heavily restricted in the city since a helicopter crashed on the roof of the Pan Am Building in 1977, killing five people. Applications to build rooftop helipads still appear, however, such as in certain 2019 plans that were later abandoned for a corporate headquarters in Queens.

First barrier, fifth wall

In a dense high-rise metropolis like New York City, roofs and their refractive and reflective qualities increasingly play a key role in the fight against climate change, as the first barrier to solar heat gain and the first membrane to stormwater retention and flows. In reality, most NYC roofs are built with little consideration to these factors and have an abundance of floor area, usually out of bare concrete, layered tar paper or bitumen finishing, and a sparse population of elevator machine rooms, AC units, and water towers on top. Answering the progressively alarming calls of global warming in the last ten to 15 years, the municipal government has implemented a series of initiatives and incentives, as well as laws and regulations for the construction industry, that aim to research the potential of mitigating this first element.

Beginning in 2009, the city instigated the NYC CoolRoofs initiative, a program for financial support and help to cover residential rooftops in white, reflective paint. Over 9 million square feet of rooftops have been transformed to date. White roofs lower the heat gain of buildings, resulting in air conditioning energy savings and a lower ambient temperature. In parallel to this, the mayor's office unveiled PlaNYC in 2010. The scheme included a

new technology to counter sewage spilling into city waterways, so-called blue roofs that effectively function as water retention systems to filter and channel stormwater with a monitored slow release so as to not overpower the city's drainage system. An array of small beds with layers of gravel and a retention tank give control over the momentary overflow of stormwater. Led by the New York City Department of Environmental Protection, blue roofs were first tested in conjunction with vegetated roofs on the roof of Public School 118, an elementary school in Queens, as a testbed for new roof technologies.

The most incisive legislation followed in 2019 when the City Council passed the Climate Mobilization Act. Among other decrees, the series of laws requires that all new constructions and roof renovations of existing buildings install a green roof, solar panels, or wind turbines, or a combination thereof. While solar panels and wind turbines are increasingly popular solutions to emission-free energy production on the scale of individual buildings, green roofs contribute to better heat absorption, a lower ambient temperature, and therefore a reduced AC load, as well as natural stormwater retention, benefitting the city's sewage system. Green roofs can come in two categories of intensive and extensive vegetation. Intensive vegetation includes the farming of agricultural crops, requiring a higher load-bearing capacity of the roof structure, more water, and higher maintenance. Extensive vegetation often includes a shallow growing medium with sedum plant varieties that need little to no irrigation and minimal maintenance, mostly used on roofs without occupancy. The costs of this climatic upgrading would largely fall onto the owners, with the exception of a limited tax incentive for green roofs. The Green Roof Tax Abatement program targets these transformations and offers a tax abatement of $5.23 per square foot of roof area with a minimum coverage of 80 percent. In addition, the new legislation sets emission caps for various typologies above 25,000 square feet including the existing built fabric. The goal is to reduce building emissions by 40 percent in 2030 and double this reduction by 2050. This effectively forces landlords to retrofit their real estate with upgraded windows, heating systems, and insulation.

Pandemic acceleration

As the 2020 pandemic hit New York City with full swing and continues to exacerbate the problems of density in the metropolis, it also allowed the municipality to accelerate long-planned sustainability initiatives and test-drives. With sidewalks often only a minimum of 5 feet wide, streets surrounding major parks and city squares were turned overnight into car-free zones, such as the perimeter of Union Square and Bryant Park. On July 2, Mayor Bill de Blasio announced the opening of 22 streets in NYC into piazzas for public outdoor dining to help restaurants operate during the continued restrictions of indoor venues.

While these initiatives helped ease pedestrian movement under social distancing rules in the streets, it is the density of the building fabric that poses additional problems for individual citizens. With little space to roam in times of voluntary confinement, living arrangements and minimum square footage apartments make it difficult to maintain the necessary exercise and movement our bodies have grown accustomed to. A rise in the interest of home fitness programs and Zoom-based work-ins ensued as many New Yorkers were looking to uphold their daily routines, or find workarounds in addition to other recreational activities such as musical practice, pet care, domestic gardening, and leisure. As *New York Magazine* photographer Jeremy Cohen documented from his home, his neighbors have begun to increasingly resort to the roofs of their tenement buildings for an underused outlet and bonus space to the home. Pictures and videos of people playing the cello, practicing tennis against a wall or badminton with a partner all manifested this mostly unsanctioned run for the roofs. For relaxation outside the house, people were seen arranging picnics and indulging in tar beaching, a New York City tradition of sunbathing on a tar paper roof. In this sense, the emergence of roof actions can be traced to the lack of balcony and terrace spaces in common residential buildings, but the combination of repose and gardening points towards a more fundamental need of urbanites, for more green spots in the concrete world of their lives.

Layers of progress

The radicality with which these laws initiate an inevitable change in urban life will require a spatial reaction from both planners and users, while the general construction mechanism might turn this into a lengthy process for gradual adaptation. In order to simulate this transformation, the visual projection aims to make a near-future prognosis: an overly busy roofscape of transplanted typologies through a series of productive encounters. In this way, textures, geometries, and programs are reshuffled in an effort to de-locate specifics of any city district and build a representative slice that serves as a background for a vertical image teeming with details throughout a continuous scroll.

Rather than installing them solely for their own sake, the ubiquitous appearance of sustainable energy technologies enables the top layer of houses to blossom into an open field for programmatic intervention. It is therefore a proposition to consider the roof as an actual site, an elevated ground floor, by pushing owners to provide access, educational institutions to extend their scholar activities, communities to create shared areas, public buildings to increase free space or private households to demand expansion with minimal investment. Initially drawn to represent the ever-growing complexity of a new local territory through a tentative preview for the following two decades, the authors witness, and testify to, the layering of social appropriation from the simple necessity to drive density for a growing population with adjusted measures. The projection represents an adaptable proposition, a tableau offering elements to be implemented into the future roofscape of any metropolis. From a planning perspective, it is furthermore a pamphlet for projection as a syncrisis of visible change of behavior on both municipal and individual levels.

As an urban study, it bears some signs of local specificity and others of transferable compatibility. For once, New York City buildings are commonly decked with flat roofs, resulting in a large amount of empty square feet in the city primed for individual outlets as well as sustainable technology deployment. Here, the coexistence of an urgent demand for climate protection and residents' advanced drive into unclaimed territories are amplified by the desire for personal free space and the city's innovation-driven mentality for sustainability. At the same time, it can be witnessed as a case for new typologies and environmental progress waiting to unfold their full potential. Born from these intersecting conditions, New York City wields the power to proactively tackle critical ecological issues by developing opportunities that trigger an organic growth of green spaces in the wake of regulatory measures, with the city's roofs becoming a primary field of action – now substantially sooner than expected.

("Upstairs New York" has been published in *topos magazine 112: Green Technologies* on September 14, 2020)

SCROLL

Notes on the visual: Textures, geometries, and programs are reshuffled in an effort to de-locate specifics and build a representative slice of the city serving as a background for a vertical teeming image of details to be discovered as a continuous scroll. The scenario depicts an overpopulated roof landscape, a speculation of transplanting typologies through a series of productive encounters.

NEW TOP CITY

Out of space

If you looked around almost any New York City borough during the lockdown in the Spring of 2020, it was near impossible to miss the sight of neighbors exploring their undeveloped roofs. Initially mistaken for regular cases of *tar beaching*, the kinds of activities now carried out there quickly diversified. New York residents are limited in their own space due to the city's hyper-density, inflated real estate prices and often unusual living arrangements so that abruptly spending most of the day at home meant to make do with what is available. Closed gyms and diminished contact led to a risen interest in-home workout videos, missing parks moved to excessive indoor gardening and a lack of social interaction advanced virtual hangouts. These changed behaviors were witnessed throughout the world, yet here, because of escalating case numbers, they seemed proportionally intensified. So in the weeks after tar beaching turned into roof picnics, those made way for makeshift planters, barbecues, and lawn furniture, effectively converting rooftops utilizing what can be bought in hardware stores and online. The state officially suspended all non-essential construction in March, making do-it-yourself solutions the only possible avenue for home (and roof) improvements until May.

The urge to use the upstairs in a dense metropolis is not news in New York City. As early as 1908, the *New York Times* commented that roof sleeping had now become popular around town. In the age before air conditioning, tenants used to carry their mattresses to the roof in the summer to enjoy the cool night's breeze. When tenement housing was finally equipped with standardized fire escapes after legislation of 1901, people started using these for outdoor sleeping instead, so as to not carry their beds up several flights. After accidents with crammed fire escapes and people falling down in their sleep, the city launched a campaign discouraging their use for overnight stays and effectively ending this trend. Consequently, most residents occupied the undeveloped roofs preferably for short periods, such as putting up a clothesline or sunbathing. Today, their use has intensified and diversified both due to the expected growth of the city and subsequent building upgrades but also with an

understanding of the roof as bonus space, an add-on territory for citizens; as an outlet for what won't fit downstairs.

The present research and visualization are part of a long-term project on the evolution of roof uses in New York City. Initiated by a series of laws passed in 2019 that governs roof technology implementation in the construction industry, we collaborated to explore and speculate how the city's roofscape might transform in the next 20 years. Since the original investigation began before the current pandemic, our empirical notes gave us reason to argue that the pandemic-induced lockdown ultimately propels the ongoing tendencies and manifests its own form of hands-on urbanism. The illustration is an explorative research tool to show the parallelity of developments and the emergence of distanced productive encounters. Textures, geometries, and programs of the existing city are reshuffled to de-locate specifics and build a representative slice of the urban fabric serving as a background for a vertical teeming image, containing a vast amount of details to zoom into.

The limits of now

The crisis has forced a reaction on various domains of society, towards a more rational collective behavior as much as the singular responsibilities of the individual. Residents began to pursue domestic renovation projects of all natures, including the transformation of their roofs from bare, tar paper covered surfaces to places of refuge and recreation. Born from the limitations of home space plus freed up commute time and mandatory desk presence, urbanites have learned to activate the unused land as a site for both private and collaborative undertakings. Claiming the roofscape for future transformation, those concepts result in an interplay from single to household and building efforts such as self-designed sunloungers, a family-owned vegetable garden, a shared chicken coop, a collectively organized gallery or an open-air cinema for the neighborhood spread across parapets. For a long time, the tension between opportunity and limitation has not been more (personally) productive and (communally) creative on an urban scale. Citizens well-equipped to overcome

the effects of isolation and distancing with digital versions of meetings use those same platforms to share creative solutions from peer to peer.

We observe a new appreciation for craftsmanship as a consequence of an overload of ideas online, temporary supply shortages, and the exploration of new territories beyond private boundaries. Untrained labor and missing tools and materials bring about an aesthetic expression of their own. As a result, these endeavors build up a catalog for convenient reproductions of repeated popular domestic ventures. Roofs, an intermediate of personal ownership and public function, are ideal grounds for such realizations in their most immediate form. With the resources for self-made construction currently high in demand, this collective run creates a momentum enabling tenants to make the most out of times of non-operating technical help. Projects need to become specific by definition: video tutorials compensate for lack of experience, ordered materials come in standardized shapes and numbers, artistic decisions are made on the spot (weather orientation, treatment of surfaces, fitting in context). Showcased and field-tested at the same time, this type of do-it-yourself has the potential to effectively pivot from a responsive into a proactive form of spatial design.

Palette of responses

The pandemic has introduced, it seems, new rules for urban behavior that operate beyond the power of municipality and policies for a more direct change of environment. The impact of abrupt decrees this March, curtailing public gatherings, discouraging physical contact, and enforcing non-essential workers to telework has brought about a reassessment of our living spaces and the means that exist for personal expression, leisure, and betterment of their relationship to their surroundings. With COVID-19 taking full force in March 2020, instead of waiting the anticipated 15-30 years to see changes implemented, the crisis might have kickstarted the run for the roofs in an undeniably very dense city. On the street level, decisions to close off car traffic, allow additional outdoor dining on parking spaces and temporarily suspend the ban on outdoor consumption of alcohol all helped ease the economic

hardship of the hospitality industry and mitigated the lack of safe gathering opportunities. The appropriation of rooftops also represents the creation of safe spaces close to one's home. Since the trend is now largely tenant initiated instead of being led by city programs or landlords, the roofs are not following instructions to create white, blue, or green roofs, but producing livable spaces and temporary outlets alike. In working with existing, neglected tenement and row house roofs, these projects do not refuse the mandates enacted by the Climate Mobilization Act but rather enrich and diversify the hitherto rather barren roofscape of the city in a more immediate and organic fashion.

Together/above/apart

Fast forward to the newly adjusted mid-pandemic everyday life, we can see a difference in behavior and sensibilities of the populations. Mere images of crowds and tight gatherings have become uncomfortable and eerie as if stemming from an alternate reality or past paradigm. The closeness of buildings and apartments is tolerated by a belief in the impenetrability of framed and mass wall construction, layers of glass or screens, and the yearning for fresh air on any day. While we benefit from the new standards of frequently airing the apartment as much as we do from washing our hands religiously after each trip outside, NYC apartments are still notoriously undersized and only the lucky few have access to outdoor space. The appreciation for outside moments has thus increased and many have turned towards backyards and specifically roofs to fashion outdoor living rooms, small gardens, and newfound room for activities. It appears, going upstairs has become a common part of the day, a quick picnic before the sun comes down or joining the neighbors in the 7 PM applause for essential workers. Residents are not alone on their roofs as stay-at-home orders might have suggested but have ostensibly found a new form of encounters: together/above/apart. Different building heights and minimal parapets impede potential roof crossings, making it easier to withhold distancing guidelines up there; now effectively acting as time-shared social islands that we can reach and wave from to our neighbors in remote sympathy.

Roofs tomorrow

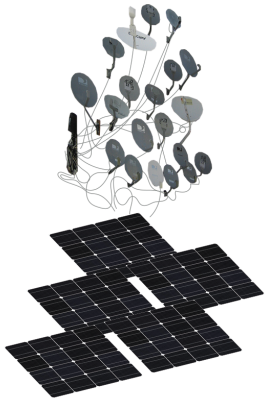
The bulk of urban transformations that occur during a pandemic does not play out on roofs, as the crisis has severely affected the life of all citizens, treatment of the infected, people on the streets, occupancy of offices and stores, the closure of restaurants and businesses and a heightened awareness for distances, proper face covering and ambulance activity. The battles are fought in hospitals, in the executive and legislative branches of the government and in media campaigns for awareness and education as to how best curtail the effects of the virus which is maintaining such a strong hold over the city. What happens on the roofs is a side effect, a consequence of exhausted space downstairs, minimal living spaces, and a lack of personal green spaces when public gatherings are not an option. The efforts undertaken on the roofs are shaped by the hardware store and online retailer catalogs and enabled by the gained time of suspended commute times while working from home.

In the long run, however, these semi-permanent structures and undeniable expansions of living space will be subject to landlord and municipal scrutiny, as many projects and DIY buildouts could be denounced at any point. The question of the longevity of bottom-up developments, especially in a state of emergency, makes the point of how sustainable the crisis mode can be. When COVID-19 spread through New York City in Spring, it was possible to extend onto the roof, turn to gardening or picnics as the mild weather permitted, but the next Winter might take these efforts out of service. The gained plethora of activities upstairs would scale down, returning roofs to their dormant state until next Spring. Then we can go up again and resume our personal projects, if needed.

("New Top City" has been published in *MONU #33: Pandemic Urbanism* on October 19, 2020)

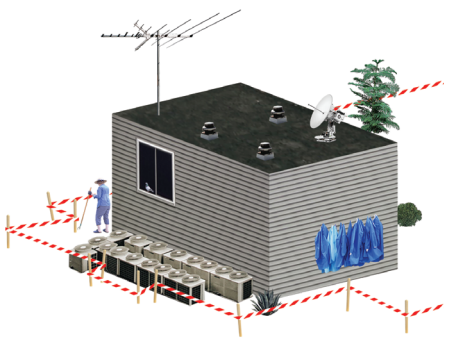
LEXICON OF PARTS

The following fragments serve as tools of identification for the complex yet clearly layered programming throughout the visual projection (from top to bottom). 32 zoom-ins describe the context of numerous situations, inventions, premonitions and inevitabilities in consequence of the described ecological agenda, initiated by political resolution and inspired by cultural response. These singular typologies aim to introduce another catalog of actions, setting the ground for future adaptation in urban planning and environmental debate.



Solar panels
Photovoltaic panels, which are able to transform light into energy, lower energy costs and cut greenhouse gas emissions.

Beekeeping
In response to the global decline in bee population, the NYC Board of Health legalized personal beekeeping in 2010.



Green roofs
Extensive green roofs are a cost-effective way to manage stormwater drainage and lower solar gain (a rise in interior temperature caused by heat-absorbing roof material). A shallow growing medium with sedum plant varieties that need little to no irrigation and minimal maintenance is mostly used on unoccupied roofs.

Office terraces
Corporate offices make use of their terraces and roof spaces with a flexible setup for employee perks such as yoga lessons, lunch outside, and happy hours.

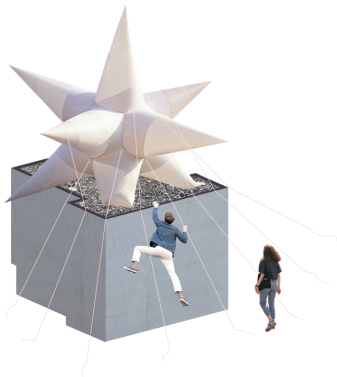
Wind turbines
Residential turbines harness wind energy and directly feed the building's energy consumption, lowering carbon emissions and utility bills.

Rooftop cinema & bar
In the summertime, the city offers an abundance of free public film screenings. While most open-air films are shown in parks, there are examples of private and public rooftop screenings.

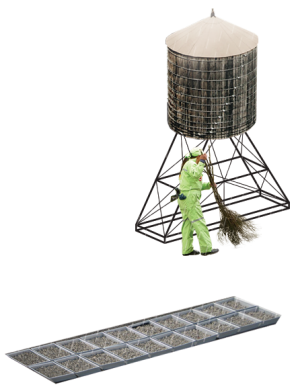
Residential extension
The residential roof terrace is a free-for-all in terms of use, and can host a number of domestic outings such as sunbathing, clothes drying, or the occasional illegal rooftop barbecue.

Urban farming
Rooftop farms are a growing option for localized food production, and help reduce carbon emissions, but intensive green roofs require high maintenance and a larger load-bearing capacity.

Sculpture garden
The NYC roofscape is home to many sculptures installed in hidden, terrace garden refuges connected to museums, galleries, and private residences.



Artist workshop
Using converted caretaker sheds and maintenance structures, a number of artists have chosen the top of the city for a quiet studio base removed from street noise and distractions.



Retention tanks
Blue roofs are a tested method for countering problems of stormwater drainage and plumbing overload. These water retention systems allow a slow release of accumulated stormwater, and can also be used to harvest rainwater.

Helipad
Helipad landings have been heavily restricted in NYC since a helicopter crashed onto the roof of the Pan Am Building in 1977, but applications to build rooftop helipads still appear, most recently in 2019 plans (now abandoned) for a corporate headquarters in Queens.

Private concert
Housed temporarily on top of private buildings for one-of-a-kind, one-night-only experiences, rooftop concerts are a growing alternative to dedicated music venues.

Cottage
Well-hidden on top of a residential building, this detached cottage, including a porch and a front yard, lives a parasitic yet almost suburban life.

Playground
As the city's usable fabric is extended over its roofs, playgrounds like this might be part of a school or kindergarten below, with a zipline connection to a neighboring roof.

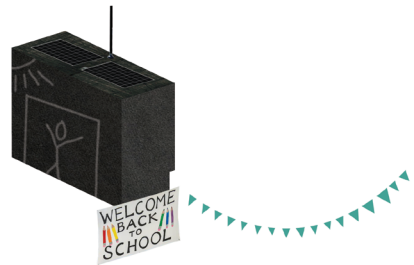
Pitched roofs
Pitched roofs offer fewer opportunities for roof conversions, but photovoltaics can be installed on their sun-facing sides.

Hotel pool
One of the most sought-after amenities in NYC's luxury hotels is the opportunity to swim while enjoying a panorama of the skyline.

Sauna
Both private and public examples of rooftop saunas are used mostly in the winter, when the cold exterior temperature stands in contrast to the internal heat, and visitors can cool down on patio furniture in between sessions.

White roof
Covering roofs in white reflective paint helps lower heat gain and ambient temperature.

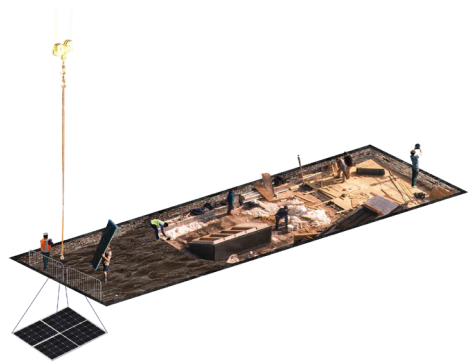
Athletic fields
Many schools short on athletic facilities find available space on the roof. NYC building code requires rooftops used as tennis and basketball courts to be enclosed by a ten-foot wire fence and an overhead closure for ball games.



Schoolyard
With limited real estate available for recreation, this school opted to place its yard on the roof, safely enclosed by a wire mesh fence and connected to the sports courts on the neighboring roof.

Pigeon lofts
Pigeon keeping in NYC can be traced back to the arrival of European immigrants in the 19th century. Today, *pigeon flyers* come from a variety of backgrounds, as a passion project is passed on among neighbors.

Drone hub
With the advancement of drone and autonomous courier technologies, this private rooftop doubles as a mail carrier drone hub: a PO box in the sky.



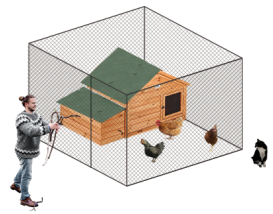
Construction site
As mandated, a lot of construction sites are topped off with the installation of renewable energy technologies. Many developers prefer photovoltaic panels, due to their immediate impact on energy costs.

Domestic
One of the most traditional and iconic domestic uses of outdoor space is the spanning of a clothesline to dry laundry quickly.

Camping
Several groups in NYC regularly organize rooftop camping nights that take participants from a communal sundown dinner through a night under the stars to wake up on top of the city.

Empty
Even in 2040, NYC is still home to a considerable number of roofs that are — apart from the quintessential water towers, A/C units, and elevator machine rooms — mostly empty.

Community garden
The archetypal NYC community garden is located in formerly vacant lots, open to members and sometimes the general public. This community garden sits on top of a tenement building and is a refuge for residents to garden and get together.



Chicken coop
Raising chickens (though not roosters, due to noise considerations) is legal in all five boroughs, and chickens are considered pets inasmuch as they require no license to keep. Most chicken coops are found in backyards but recent sightings suggest the existence of *rooftop chickens*.

Skyline dining
A number of high-end hotels offer restaurant seating under the sky to enjoy the surrounding view of the city.

Water towers
NYC's ubiquitous wooden water towers are still a cost-effective technology for buildings six stories and taller to maintain water pressure and fire safety supply.

Stylized garden
Carefully composed and planned miniature landscapes express the aesthetic visions of their owners in marked contrast to their functionalist roof neighbors.

THE ACT

The Climate Mobilization Act is the largest climate solution put forth by any city in the world. It consists of a slate of climate laws designed to dramatically cut carbon in New York City, including the following.

Green Roofs: Local Law 92, 94

Local laws 92 and Local Law 94 require all new buildings and buildings undergoing major roof renovations to be covered with solar panels, green roofs, or some combination of the two. The laws also require all buildings to reduce urban heat hazards.

Building Energy Efficiency Grade

Local Law 95 amends the ranges for how energy efficiency grades are calculated as required by Local Law 33 of 2018. Local Law 33 of 2018 required the display of energy efficiency scores and grades for buildings required to that annually benchmark their energy and water consumption. The energy label will be displayed near a public entrance and include both a letter grade and the energy efficiency score.

PACE: Local Law 96

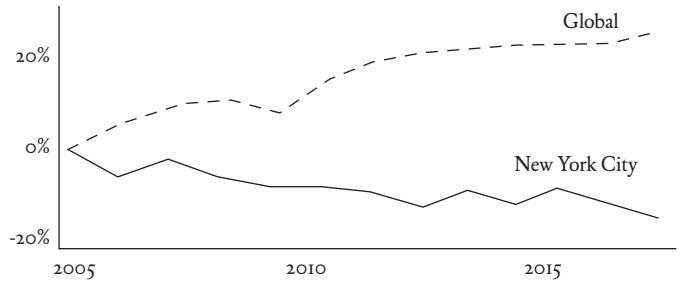
Local Law 96 establishes long-term, low-interest Property-Assessed Clean Energy financing to fund upgrades to building energy and water efficiency.

Buildings Mandate: Local Law 97

The centerpiece of the Climate Mobilization Act, Local Law 97 requires all buildings larger than 25,000 square feet to meet ambitious carbon reduction targets.

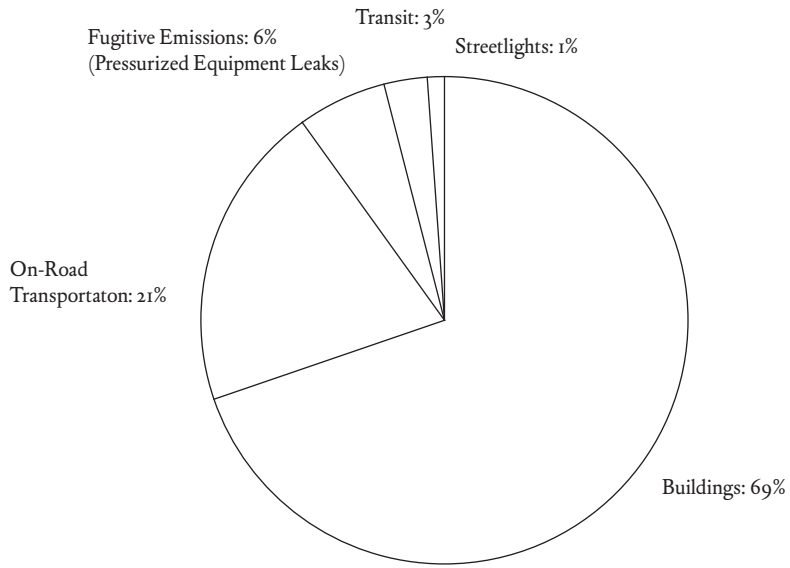
(from "The Climate Mobilization Act, 2019" by the *New York City Mayor's Office of Sustainability* on May 9, 2019)

Greenhouse gas emissions: global vs. local



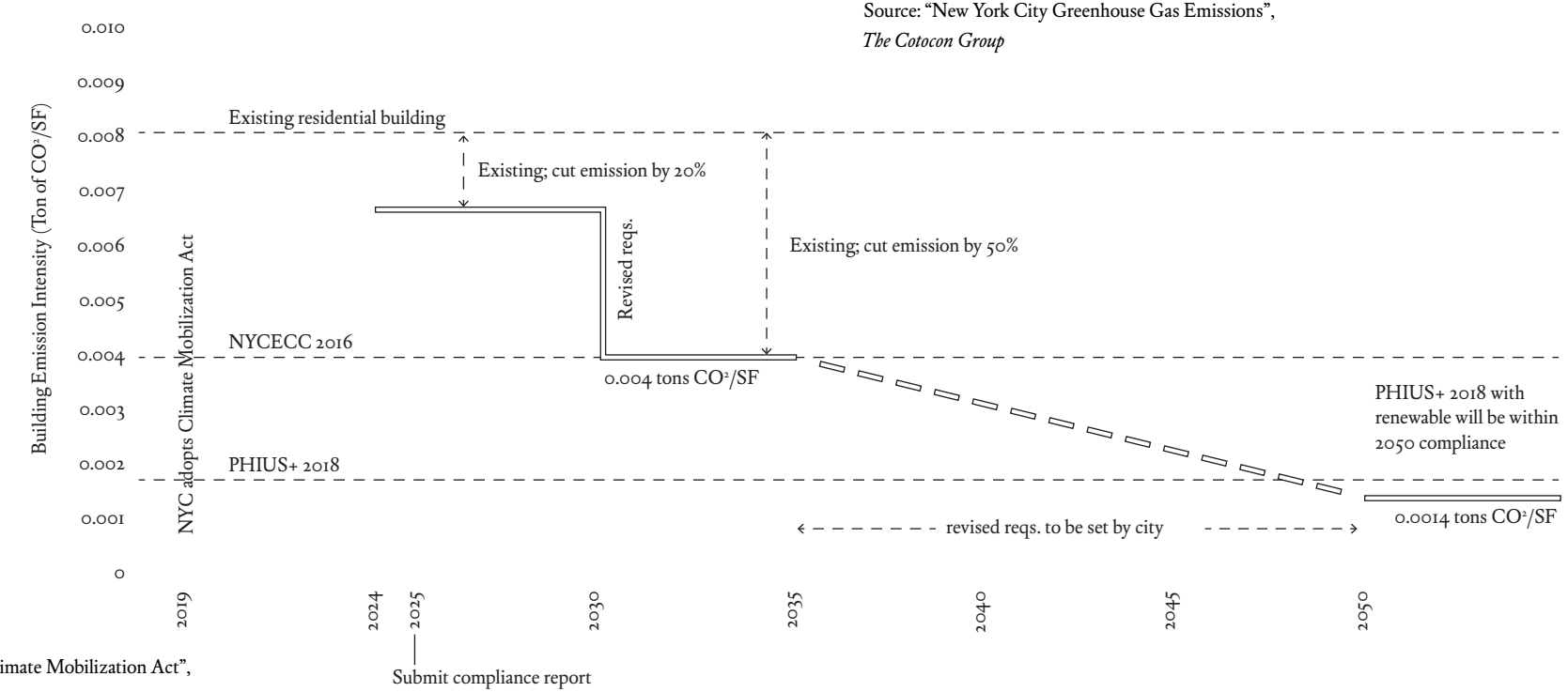
Source: "Change in GHG Emissions, 2005–2017",
Mayor's Office, International Energy Agency

Greenhouse gas emissions: by type



Source: "New York City Greenhouse Gas Emissions",
The Cotocon Group

Timeline for multifamily buildings



Source: "Untangling the Climate Mobilization Act",
Paul A. Castrucci Architect

ABOUT THE AUTHORS

Eventually Made is the creative output of Sebastian Bernardy and Vincent Meyer Madaus. Currently operating between Rotterdam, Berlin and New York, the authors research and develop architectural narratives nestled in the everyday; an engagement of assembling found contents and situations through different media. The studio has recently been granted support from the Stimuleringsfonds Creatieve Industrie to develop a self-initiated consultancy device for the symbiosis of amateur builders and professional designers.

Sebastian Bernardy is an architect and researcher based in Rotterdam. He joined AMO after graduating from TU Delft, collaborated with international offices in Berlin, and tutored the studio abroad program at Harvard GSD.

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eventuallymade.com

In 2019, after the New York City Council had already passed a series of laws governing future roof uses for more sustainable and economic development, it became apparent that as our cities top out horizontally, it would be imperative to examine its vertical growth, studying the city's crowns in their role as a barrier, canvas, and outlet to the built fabric. Laid out as an extensive visual and projective research, the historical and predicted narrative of the roofscape combined with the recent paradigm shift has warranted to approach the subject from different angles and resulting in a trilogy of analyses, highlighting the a) ecological value, b) programmatic potential, and c) pandemic repercussions of New York City's roofs.