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ABSTRACT
The 2009 Great Recession adversely impacted the post-industrial built landscape in the US. Globalization and international wage inequality also led to the closure and abandonment of numerous historic industrial districts. However, another more positive outcome came from the last economic crisis — the rise of the artisan-based economy, which values highly crafted specialized goods and blends old manufacturing techniques with new digital technologies. Small companies producing high quality products are providing an alternative to American consumption based culture. This paper will present the current state of post-industrial regeneration in the US and discuss how the artisan-based economy is regenerating American post-industrial urban districts.

Introduction
For the past 40 years, globalization, the downsizing of manufacturing corporations and the automation of factories has led to an abandonment of historic post-industrial districts in cities throughout the US. Daniel Bell in his landmark book, The Coming of Post-Industrial Society (Bell 1973) predicted this paradigm shift in which the US economy would rely more on service-based economies (professional services, retail and construction) and less so on the manufacturing-based economy. He based his prediction on the natural evolution of the economy of societies from pre-industrial, which was, and still is, based on extraction (mining, fishing, forestry and agriculture), to industrial that is centred around the machine and the production of goods in an efficient manner and, to post-industrial, which is based on services and powered by information (Bell 1973). Within the context of this new post-industrial era that we are facing, the manufacture of things, as opposed to the delivering of services, is rare. In America, the recovery from the 2009 Great Recession is indeed underway but it is an economic recovery unlike any one we have experienced. Continued automation in manufacturing and the increase in outsourcing of jobs in the service economy sector, along with competition between countries and American states for jobs, have caused wages to remain stagnant in the US for the past decade. This condition has exacerbated long-term
unemployment among low-educated and skilled adult workers (Smeeding et al. 2011, 82–126). Moreover, unemployment among university educated young workers has increased and this has caused many millennials\(^1\) to carefully consider the costs, risks and benefits of a college education. Today, the youngest of America’s workforce have begun to consider other means of employment and career fulfillment (Elsby et al. 2011).

While it is safe to say that manufacturing, based on Fordist principles, remains alive and relevant in the US, a new Post-Fordist manufacturing approach is emerging and, with it, a new built environment which has evolved from the historic industrial one. Post-Fordism based manufacturing in the US centres around individualized or ‘one-off’ product production. It tends to rely on sophisticated manufacturing technology, high craft or high quality production and on-demand production rather than large quantity manufacturing and large inventory. This new industrial paradigm values ideas produced by highly skilled and creative workers who identify more with the artisan tradition of entrepreneurship than the corporate model, which values production (Gibson-Graham, Cameron, and Healy 2010). This new American artisan-based entrepreneurship is part of an emerging economic concept called New Growth Theory (NGT), in which financial capital is invested in human capital that will generate new ideas and innovation. Since NGT focuses more on human talent and less on raw materials and geographic location, capital investors are not constricted to the existing production functions of a particular place. In this new way of producing things, quality of product is valued more than the quantity of product. NGT is not only shaping the new innovation economy in the US but also re-inventing the American post-industrial landscape (Kushner 2013).

The new artisan-based economy is being developed by a diverse group of entrepreneurs. They include software developers, video game designers and web designers as well as more traditional artisans such as brewers and vintners, furniture makers and cabinetmakers, fine artists and musicians. They all share a common bond: the creation of an idea and a product that is either valued in its own right or mass produced somewhere else that is less costly. From 2000–2009, businesses that identified themselves as ‘Creative Industries’ in the US increased 69%, from 509,000 to 730,000 (as of 16 November 2015, Americans for the Arts listed on its website: http://www.artsindexusa.org/wp-content/uploads/2013/09/2013-NAI-Full-Report.pdf).

These self-styled twenty-first century artisans are creating smaller, more efficient companies and they occupy existing buildings, mainly to limit overhead costs. The buildings tend to be large factories that were built in the early twentieth century in once abandoned post-industrial districts, which are now renovated to a new and different resplendence (Moore and Ingalis 2010). Their facilities can be found in mid-sized cities such as St Louis, Missouri, Milwaukeee, Wisconsin and Peoria, Illinois. These companies tend to value interpersonal relationships among their peers and competitors and seek out places to live and work in historic industrial environments, which they perceive as both socially vibrant and conducive to an active lifestyle. Admittedly, this new environment is re-invented from the old industrial one in an ad hoc manner and it is only beginning to be understood by municipal and state governments. US federal government policy makers have yet to acknowledge this new trend and it remains to be seen whether it is a resilient urban model or another fashion for urban living that is not sustainable for the long-term prosperity of the American city. Because it is done at the grassroots level, it is difficult to determine that new artisan-based urbanism has a broader vision. Furthermore, its creators rely on existing public policy
initiatives, which are unfocused and subject to change by political whims by state legislatures and the US Congress (Bierig 2010) (Figure 1).

Rumours of the death of American manufacturing have been greatly exaggerated. Quite the contrary, output of durable goods has risen 9.1% since the Great Recession of 2009 in the US and manufacturing continues to expand throughout the US, including the American Midwest (as of 14 April 2015, International Business Times listed on its website http://www.ibtimes.com/analysis-renaissance-us-manufacturing-real-maybe-not-what-you-think-1552997). What is changing is how industrial production is occurring in the US and how new ideas in industrial production are reshaping the historic industrial landscape. Many traditional mainstream manufacturing corporations are now subcontracting with artisan companies. Entrepreneurship, especially among millennials, is on the rise and they are developing artisan-based companies which utilize cutting edge technology (Lloyd 2006; Markusen and Schrock 2008) (Figure 2).

Although Fordism remains the predominant system for manufacturing production (especially when automation is involved), post-Fordism, characterized by small-batch production and product specialization, is becoming more prevalent throughout the US. In fact, it is working within Fordist production models through subcontracted work for the production of ideas instead of products. This collaboration between two different production systems is making an impact on the physical environment of the post-industrial landscape (Roggero 2011).

However, there remains a negative and outdated perception of the typical historic industrial district and this stigma continues to be an impediment for urban regeneration in many rustbelt American cities. The prevailing image of the American Post-industrial city remains 8 Mile in Detroit or Broadway Avenue in Gary, Indiana; it is one of abandoned decayed warehouse and factory buildings, situated on polluted waterfronts. For the past three decades, the American press and the American media have perpetuated this image. The reality in US post-industrial cities is more nuanced and rapidly changing. The purpose-built urban industrial district, with its assemblage of robust constructed buildings that are now being designated as historic by state governments, continues to be a place for industrial production. With every Broadway Avenue in Gary, Indiana, example, there are also examples of post-industrial regeneration, such as the Historic Central Manufacturing District in Chicago.
where industrial production and urban regeneration are occurring simultaneously (Ruggiero 2015). Fortunately, perceptions are beginning to change. Four decades of environmental remediation by the Environmental Protection Agency (EPA) and implementation of life safety and welfare measures by the Occupational Safety and Health Administration (OSHA) have not only improved the environmental conditions for workers, but these measures have also improved the overall environment of numerous American post-industrial cities.

This paper presents the current state of post-industrial regeneration in the US and how it is being re-invented, at first in an extemporized manner by its inhabitants and activists, then in a rational, but perhaps more rigid and less dynamic way by planners, urban designers, landscape architects and architects. It concludes by proposing better ways to understand how post-industrial patrimony can be re-invented for the artisan economy within a policy and design framework that can better utilize existing US governmental tax incentive plans, financing tools and urban and architectural design ideas to regenerate American post-industrial cities.

**US post-industrial regeneration in the early twenty-first century**

Considerable scholarship has been produced focusing on the re-invention of the post-industrial quarter in North America. As early as 1961, Jane Jacobs declared, ‘Cities need old buildings so badly it is probably impossible for vigorous streets and districts to grow without them’ (Jacobs 1961, 187). In this statement, she was referring to not only brownstones in lower Manhattan but also older industrial buildings. Over the past 30 years, the demise and rise of the post-industrial city has been documented. Urban disintegration in industrial cities caused by post-Fordist dispersion and Globalism has led to the abandonment of traditional urban industrial quarters. It has been a trend noted by many social scientists, anthropologists and city planning experts (Gottdiener 2000; Backlund and Sandberg 2002). The regeneration of post-industrial districts has also been documented. In *Loft Living*, Sharon Zukin (1982) argued that adaptive re-use, gentrification and heritage tourism eventually transformed New York’s SoHo and Greenwich Village into attractive places where a creative culture emerged. Graeme Evans in his book *Cultural Planning: An Urban Renaissance?* (2001) considered how cultural production, and its consumption by wealthy service sectors providers, played a significant role in regenerating the post-industrial quarter. Richard Lloyd, a social scientist at the University of Chicago, examined how Chicago’s Wicker Park was transformed by millennials from a post-industrial abandoned district into the Midwest’s foremost young entrepreneurial and cultural urban village (Lloyd 2006). All of these scholars have noted a commonality in redeveloping post-industrial districts: (1) the redevelopment developed in an ad hoc manner; (2) the development was done by and for young artisans/artists/entrepreneurs who were seeking out affordable and flexible building spaces to work; (3) social and interactive establishments – bars, cafes, coffee houses, galleries and nightclubs – are located within a live and work environment.

In 1989, Peter Marcuse described how changing political and cultural ideas affected urban form. He proposed the idea that the American city was divided into quarters based on the predominant use or disuse of it. Marcuse stated that cities now had residential quarters, dominating quarters, gentrified quarters, suburbs, tenement quarters and abandoned quarters. He further noted that each urban quarter was not isolated but intricately linked to each other, thus forming a mutually dependent whole city (Bell and Jayne 2004).
With the exception of Jacobs, these scholars only considered how the post-industrial city could exist and be regenerated through the cultural milieu of its past industrial heritage. Researchers noted that the branding of cities through heritage was linked to an objective to develop consumption-based industries – art, food, fashion, music, video and tourism – within post-industrial cities. By the early 2000s, the urban post-industrial district’s industrial identity, e.g. St Louis’ Soulard District’s brewery and food market heritage, provided a means for its urban regeneration. In the US, the 2009 Great Recession challenged this assumption. Without disposable income, wealthier workers in the service-based economy (bankers, investment consultants, professionals) could not readily sustain a craft-based economy that relied solely on its relationship to its place and entertainment-based consumption. Many development ventures collapsed and rustbelt cities, such as Goshen, Indiana, (which lost its industrial economy decades earlier) fell further into decay. However, cities such as Peoria, Illinois, which retained its largest employer, machinery producing giant, Caterpillar, transformed their economy and their post-industrial environment through a balance of Fordism and post-Fordism. The difference between these two cities in transforming their post-industrial patrimony summarizes how post-industrial regeneration changed during the last 10 years in the US. As large manufacturing downsized, companies implemented new processes of subcontracting to smaller companies that provided customized and often technically innovative products. These smaller companies developed an updated ‘artisan’ approach of producing a product that was based on ideas. In Peoria, Illinois, new companies were started by unemployed Caterpillar middle-management personnel and by university-based innovation start-up companies. During the American economic recovery, Fordism generated post-Fordism. This new paradigm impacted the post-industrial city and challenged Marcuse’s concept of a quartered city. Smaller, artisan-based manufacturing companies changed the physical form of the post-industrial city, mainly by combining living and working in one place, through a decades old design and building practice – adaptive reuse. Existing and often abandoned industrial buildings were repurposed into smaller artisan-based shops along with living units for both workers and entrepreneurs. The streets, alleys, waterfronts and large paved exterior spaces were transformed into parks, promenades, walks and plazas, redeveloped in order to serve as social spaces for the new younger inhabitants.

Adaptive reuse and the post-Fordist city

Re-inventing post-industrial districts in the US began long before the Great Recession of 2009, in fact, real estate developers and grassroots developed significant adaptive reuse rehabilitation projects throughout the US. NGO’s (non-governmental organizations) were also the catalyst for brownfield industrial redevelopment in cities such as Minneapolis, Minnesota and Portland, Oregon. Although this adaptive re-use development was common, it was rarely considered by building design professionals as an attractive option for building development. As early as 1959, abandoned industrial buildings were being adapted for new uses mainly by the fringe groups of the American population – artists and ethnic groups. Jacobs based her assertion, mentioned earlier, on her observations of what was happening in lower Manhattan where artists and immigrant groups began populating abandoned warehouses and factories in order to create, produce, sell goods and socialize. She differentiated these unassuming existing buildings from historic landmarks by labelling them as ‘aged’, instead of ‘old’, and defined this term as ‘the good lot of plain, ordinary, low-value old
buildings, including some rundown old buildings’ (Jacobs 1961, 187; Friedman and Sagalyn 1989). These artists and immigrants were attracted to these abandoned districts for one simple reason – affordability (Figure 3). They were cheap to buy or rent and these entrepreneurs were willing to endure the lack of creature comforts (air-conditioning, plumbing, electricity) for large flats of inexpensive useable space that kept the rain and snow off their heads. Planners and policy makers chose to ignore this spontaneous grassroots development or regarded it as only benign. Although it was not prevalent in Europe, which established government sponsored post-industrial regeneration development schemes during the post-war decades, in cities such as Copenhagen and its ‘Christiana Effect’, ad hoc grassroots development also occurred (Riesto 2015). By the 1980s, SoHo and TriBeCa were ‘discovered’ by wealthier urban Manhattan elites who soon displaced the original bohemian inhabitants that developed these post-industrial districts into liveable live/work neighbourhoods. Soon after this displacement, the ‘fringe’ population relocated to another blighted and more affordable part of Manhattan, i.e. Alphabet City. Wealthier tenants and owners soon followed and displaced them and a cycle of grassroots urban ‘pioneers’ displaced by affluent elites was set into motion. The phenomena soon spread to other American cities as well – Boston, San Francisco, Baltimore and Chicago.

While this type of urban design and regeneration was occurring, American planning, design, and policy experts took little notice of it. During Jacobs’ time, the 1950s and 1960s, planners were implementing the Housing and Urban Development (HUD) initiative, Urban Renewal, which systematically demolished large urban areas of buildings that were both residential and industrial. This was done with the expectation that newer and better buildings would replace decayed building stock. More often than not their assumptions were wrong. Demolition, through HUD’s funding, yielded a considerable amount of land in the inner cities for redevelopment that never came to fruition (Gordon 2008). The US Interstate Highway System also severed large industrial districts from central business areas of the city (Smith 1996; Hurley 2010; Zukin 2011).

Throughout the 1950s and up until 2000, design and planning professionals sought to define the research and development workplace. Research park development, such as North Carolina’s Research Triangle Park and New Jersey’s Bell Labs, provided a sanitized corporate culture that was completely devoid of any urban amenity and only accessible by the
By 2010, research parks had fallen into disrepair. Young talent (millennials), recruited by these companies to perform research and development, spurned these corporate environments and chose instead to work in historic, more urban districts. As early as the 1980s, noted urban studies theorist, Richard Florida noticed this changing trend in their preferences for workplaces. In *The Rise of the Creative Class: and How it’s Transforming Work, Leisure, Community, and Everyday Life*, Florida (2002) noted that when it came to choices of places to live and work, the millennial generation were attracted to places that embodied their ethos — creative, individual, distinctive, social, ecological and healthy. Florida’s ‘Creative Class’ wanted an urban experience and, more importantly, they wanted to both *live and work* in it.

American cities that heeded Bell’s forecast of the emergence of the post-industrial age in the 1970s fared much better than the ones that ignored it. In 1974, St Paul, Minnesota, mayor, George Latimer, defined the boundaries of the city’s warehouse district, renamed it ‘Lowertown’ and established the Lowertown Redevelopment Corporation, eventually naming noted planner Weiming Lu as its executive director. From the 1980s until the early 2000s, Lowertown became an urban village within St Paul and a haven for innovation and entrepreneurship (Figure 4). Portland, Oregon, realized that its Pearl District, that comprised railway yards and warehouses, required extensive environmental remediation and used EPA ‘Superfund’ financial support to remove toxic contamination within the buildings and in the soil. By addressing the challenges and perceived stigmas head on, St Paul and Portland positioned their post-industrial districts for ecologically based, transit-oriented new development. When the 2009 Recession struck, these two cities were well positioned for regeneration, while cities that ignored the coming post-industrial revolution, namely Detroit, Buffalo, New York and smaller rustbelt cities such as Goshen, Indiana, and Rockford, Illinois, experienced accelerated economic decline and urban decay. By 2010, it became apparent that post-industrial development in the US would not be a nationally led endeavour; instead, it would be led by states and with every city fending for itself. Prudent and audacious planning and design by progressive cities paid off; innovation-based companies and creative young talent would make Portland and the twin cities of Minneapolis/St Paul more prosperous cities after the Great Recession.

Most planners and architects of American cities have lacked any vision for re-inventing their post-industrial patrimony. The reasoning for this is that the typical planner attempts to bring consensus among community retrospectively. American planner Kristina Ford best summed up the current planning approach in the US:

> In the actual process of writing a typical city plan, planners invite citizens to participate in public working meetings at which planners pose to those citizens a series of questions meant to establish consensus views of the city’s hoped-for future. Those questions might be: ‘How would you like to see your city look in twenty years?’ or ‘How do you want your neighborhood to change in the future?’ or ‘Where should new apartment complexes be located in the next twenty years?’ or ‘What new land uses would make your neighborhood a better place to live in the future?’ (Ford 2010, 189).

This approach by planners is problematic in post-industrial regeneration planning. Questions posed to the public perhaps should be: ‘What is currently happening in the post-industrial district?’ or ‘What could be happening in the district?’ or ‘Who is inhabiting the buildings and open spaces?’ By not asking the right questions, planners did not recognize either the
challenges or the opportunities presented in post-industrial regeneration and concluded that it to be problematic (Wiechmann and Pallagst 2012).

Developers, artists and entrepreneurs in districts such as Peoria, Illinois’ warehouse district challenged the accepted policy opinion. Following the example set by Jacobs in Death and Life of Great American Cities but also experimenting with newer sustainable design practices, small-scale developers re-invented warehouses and factories in Peoria. Developers rebuilt streets and sidewalks with materials (brick and stone) harvested from the adjacent warehouses and factories without any support from the municipal government. In rehabilitating district buildings, tile covered walls, which were originally installed for an ice cream factory, were not demolished but prominently featured in the converted live/work apartment units for artist and artisan entrepreneurs.

Work in the Peoria Warehouse District was slow and ad hoc in nature; it did not attract attention within Peoria and definitely not at the state and national levels. Federal policy makers dismissed the notion that Peoria could become an innovative city. In August 2009, incoming director of the National Endowment for the Arts, Rocco Landesman, implied in an interview for the New York Times that ‘Peoria didn’t exist on the map of cultural significance’. Motivated by their bruised feelings, artists, artisans and developers invited Mr Landesman to Peoria and its Warehouse District. While walking along the district’s streets and alleys and touring the re-purposed warehouses and factories, he discovered a thriving live/work community of painters, sculptures, custom bicycle fabricators and commodity investors (Davila 2012).

What happened in Peoria’s Warehouse District represents the state of post-industrial regeneration in the US: ad hoc and organic in its organization, vernacular in its design and construction, and built by the people who live and work in it. The 2009 recession could have had a devastating impact on Peoria; Caterpillar, the city’s largest employer, laid off over 20,000 employees, most of them in Peoria. However, most of the middle level engineers and skilled fabricators chose to remain in the city and start Caterpillar related fabrication companies. Due to its dense urban form, proximity to the central business district and its affordability, these companies chose to locate their operations in the Peoria Warehouse District. Small-scale successful projects led to bigger and more ambitious ones, so much so that by 2011 the federal government provided funding for infrastructure renewal in the district, nearly $8 million through US Federal stimulus funding; in 2014, architects and urban designers began to consider its possibilities after 10 years of grassroots-led rehabilitation and re-invention (Tumber 2011).

Education, innovation and clustering in the post-industrial district

In the years after the Great Recession, attracting capital investment in both infrastructure and in start-up enterprises has been the primary objective of mayors and municipal economic policy makers for US post-industrial cities. Cities now attempt to attract ‘mobile capital’, private funding that moves across national boundaries in order to gain higher returns. They also seek to attract and retain ‘local capital’, locally based financial assets, factories, machinery and equipment used for industrial production. The reasoning is obvious. Richard Schragger sums it up best:

Cities cannot move, and their ability to adjust to new economic conditions is limited by existing infrastructure and the embedded nature of the built environment. What cities do have is land
and location: economic development has to happen ‘in place’ and ‘place’ (land plus location) is an asset that is readily fixed. (Schragger 2009, 485)

In order to attract mobile capital and retain local capital, cities that have accomplished successful post-industrial regeneration projects combined education initiatives with historic preservation and artisan-based start-up entrepreneurship. In 1992, the Milwaukee Institute of Art and Design (MIAD) moved into a former riverfront industrial warehouse in Milwaukee’s post-industrial historic district, the Third Ward. As the district regenerated, MIAD graduates began start-up businesses, mainly in industrial design, and were subcontracted by one of the city’s largest employers, Harley-Davidson. The pedestrian-oriented Third Ward, with its robust early twentieth-century buildings, became a haven for young entrepreneurs who soon socialized in the district’s coffee houses, cafes and bars. In 2009–2010, Milwaukee began regenerating the urban areas along the Milwaukee River. By incorporating the ecological urbanism into this project, there were more areas for socialization, recreation and natural habitat. The regenerated Third Ward along with the Milwaukee River Greenway created areas of clustering which enabled entrepreneurs to socialize and develop ideas together (Thomson 2012).

Clustering of industry and built conurbation is hardly new in other countries such as the UK, but because of the enormous scale of the built patrimony of the Fordist heritage in North America, it is a renewed and different idea in the US. British geographer Rodney Tolley referred to it as ‘local industrial linkage’ – the development of support networks that encourage idea exchange, sub-contracting and specialized processing where spatial concentrations of small or medium-sized firms in the same industry exist (Tolley 1972). In repurposing once large factories based on Fordism for newer artisan-based post-Fordism, clustering for live/work activities becomes both viable and vital.

There are significant factors to consider in post-industrial regeneration in the US. How material industrial heritage came into being greatly determines how it can be rehabilitated. Unlike in the UK, where the adapting of heritage factories into residential units or professional offices comes into conflict with the tradition of craft, American post-industrial regeneration tends to be preoccupied with finding new occupants for outsized abandoned buildings (see Shills 1981 for the definition of tradition). Beyond environmental remediation, the enormous building scale must be considered; the challenge remains how local industrial linkage, as defined by Tolley, can be achieved among disparate tenants thus making a community of entrepreneurs within what was once a sole occupant and product making enterprise building. Two case studies demonstrate the two prevailing approaches to this solving problem. The Uniroyal Tire Factory in Eau Claire, Wisconsin, demonstrates the ad hoc approach to regeneration. Situated along the bucolic Chippewa River, the abandoned factory is now known as Banbury Place, a subdivided complex where space is divided up to meet tenants needs. The space is rough; there are few amenities but it is affordable. Here, artisans rent space, transform it to their liking and needs, and produce goods from custom windows, to tools, to food products. Residential units are also provided in the converted clerical office buildings adjacent to the factory. The owner and tenants of Banbury Place utilize what the former Uniroyal factory bestowed them; the loading docks, freight yards, rail lines and river berths are in the same configuration as they were when it was a working factory (as of 3 December 2015, Banbury Place is listed on its website: http://www.banbury.com).

The second approach re-invents the industrial built patrimony into something completely new from the old. This can be seen at the American Tobacco Campus and Historic District in
Durham, North Carolina. Formerly the Lucky Strike Cigarette Factory, American Tobacco is situated within Durham’s central business district; developer Jim Goodman and architect Edwin Belk envisioned a new district that provided not only places to work but also residential units and recreational and entertainment facilities. Factory elements were transformed into follies; the historic water tower became a sculptural campanile; the freight railway line was flooded and converted into a water feature, and the abandoned power station was adapted into an art gallery. New uses were introduced into the former factory and tobacco warehouses; this included high-tech pharmaceutical laboratories and artisan-based twenty-first century artisan manufacturing — custom bicycle fabrication, custom furniture making and micro-brewed beer. The result is an innovation-based city within a declining post-industrial one. Unlike Banbury Place, new amenities were added (two new parking structures and a baseball stadium), while old ones were transformed. The design of the entire complex was so well planned that American Tobacco retained its historic and architecture character — a requirement in certified historic rehabilitation — while becoming a distinctively new architectural experience. However, there were trade-offs between new architecture and new function. The scope and cost of the work was great, nearly a half a billion dollars; this resulted in higher rents which discouraged many artisans to occupy units. This comparison emphasizes an important point. On the one hand, a dynamic and refurbished redesigned post-industrial complex such as American Tobacco can bring excitement for both the artisan maker and artisan retailer, but on the other hand, what Banbury Place lacks in updated upgrades it makes up for by being an affordable place for artisans to become entrepreneurs (as of 3 December 2015, American Tobacco Campus and Historic District is listed on its website: https://americantobaccocampus.com).

Post-industrial regeneration and US historic preservation policy

Heritage and patrimony is explicitly de-centralized at the federal level of government in the US; management of both areas occurs within the US National Park Service (NPS) and the National Endowment for the Arts (NEA) and the Environmental Protection Agency (EPA). This has advantages and disadvantages in the redeveloping post-industrial sites. The US Constitution, through the Fifth and Sixteenth Amendments, safeguards property rights of owners. The federal and state governments can seize property but only after paying a property owner fair market value. In order to safeguard historic built patrimony and protect the environment, the federal government must entice the state governments through federal monetary aid or by federal licensing and permitting (Stipe 2003). Furthermore, in the US, unless a property or monument poses a threat to the health and welfare of the community, only then may a form of government take action to remedy the problem. This almost always occurs at the municipal level and is sometimes subject to scrutiny by the judicial system (Stipe 2003).

Nevertheless, municipal governments, state governments and even the federal government do get involved in post-industrial regeneration, but it is typically done mainly by the ‘carrot’ approach of providing incentives and rarely by the ‘stick’ approach of litigation. American cities have used four strategies in redeveloping abandoned industrial districts; the first option is to lure an industry or a company from another city, mainly through the use of rebates or reduced corporate income taxes to relocate, preferably to an abandoned industrial site. The second approach is to condemn the abandoned property, pay the owner fair-market value, and remediate the environmental hazards left by the previous industry in order to make it attractive for new developers. This often results in a complete demolition
of the historic resource and it is an expensive endeavour to undertake. The third, and more common, approach is for a city to do nothing. The last approach used for redevelopment is the ‘carrot’ approach of income tax crediting for historic preservation, which allows 20% of the cost of redevelopment construction of historic buildings subtracted from a developer’s owed federal income tax. Implemented in the early 1980s, the tax credit programme was initially intended for the restoration of historic landmark buildings; it then became a viable way to regenerate historic commercial buildings, specifically, in central business districts. It is now an attractive financial tool for post-industrial redevelopment. In order to qualify for this funding incentive, developers must comply with the US Secretary of the Interior’s Standards for Historic Rehabilitation. This 10-article design guideline document summarizes the American ethos to building conservation and loosely follows the Venice Charter for the Conservation and Restoration of Monuments and Sites of 1964 (Morton 1993). Developers must retain ownership for five years in order to benefit for the tax credit programme.

The developers of American Tobacco used both the federal and the North Carolina state historic preservation tax credits and found them both useful and burdensome. The credits allowed more liquidity to the project, nearly $200 million; but due to the fact that the developer had to retain ownership five years after tenant occupancy, the developer experienced prolonged financial risk from the project, much longer than a typical new construction development (as of 3 December 2015, American Tobacco Campus and Historic District is listed on its website: https://americantobaccocampus.com).

US foundational philanthropy is another means to financing post-industrial redevelopment, especially for artisan-based occupant complexes. The Pittsburgh Cultural Trust provided funding for the redevelopment of warehouses into the Energy Innovation Center, a business incubator for start-up high-tech artisan-entrepreneurs who are developing new renewable energy producing products. In St Paul, the McKnight Foundation provided a $10 million ‘seed’ bank for small-scale redevelopment in the Lowertown Warehouse District. This enabled the artisan-based non-profit foundation, Tilsner Artists Cooperative, to develop the Tilsner Warehouse.

Although federal and some state tax credits support post-industrial regeneration, banking policies and loaning practices do not. The Federal Housing Administration (FHA), the Federal National Mortgage Association (Fannie Mae), and the Federal Home Loan Mortgage Corporation (Freddie Mac), all restrict the commercial development in mixed-use buildings to 25%. Changes in financing policies that encourage mixed-use would not only benefit post-industrial redevelopment but also facilitate business growth among artisan-entrepreneurs, allowing them to minimize risk. New financing policies could aid in developing a critical mass of artisans, and finally build local industrial linkage as experienced in the UK (as of 13 December 2014, The Congress for the New Urbanism listed on its website: https://www.greentownconference.com/greentowns/congress-for-the-new-urbanism-liveworkwalk-initiative/). The reason why federal banking agencies continue to be an impediment to artisan-based redevelopment is an aversion to risk, stemming from the negative concepts of post-industrial historic districts, a continuing problem in the US (Roe 2001).

**Conclusion**

From New York’s High Line to Portland’s Pearl District, American post-industrial regeneration continues to be spasmodic and extemporaneous in its planning and execution. More often
than not, the industrial district’s inhabitants — the artisan or small industry entrepreneur — develop it. What is missing in its development is the role of the design professional: the city planner, urban designer, architect, civil engineer and landscape architect. Only after a string of small successes by non-design professionals do design professionals and governmental agencies get involved. It is an abdication of their professional responsibilities by the design sector in the US and it is an attitude that needs to change.

What are interesting to experience in many American post-industrial districts are the new spaces, landscapes and structures in regenerated areas, which are vernacular in their design and construction. These are places that were abandoned; ‘outcasts’ — artists, inventors and artisans — were drawn to them because of their affordability and they re-invented the places to suit their own needs, giving them a new use. It is they, not American architects, planners or landscape architects, who are developing the initial vision of what an abandoned factory site or warehouse district can be.

The last recession left a perception that the federal government in the US is uninterested and unable to address post-industrial redevelopment and regeneration. At the closing plenary of the 2013 Remaking Cities Congress, the consensus among the delegates attending was that rustbelt cities could not rely on the US federal government for either support or guidance in redeveloping abandoned and declining industrial patrimony (as of 17 December 2014, The Remaking Cities Institute at the School of Architecture, Carnegie Mellon University listed on its website the Remaking Cities Congress 2013: http://www.cmu.edu/rci/remaking-cities-congress/). In addition, the successful post-industrial regeneration developments attributed to building design professionals are few and far between. Architects and planners involved in this work tend to follow the same ad hoc and grassroots means of implementing redevelopment. They tend to build consensus among disparate groups and interests, which generate the means to rebuild in abandoned industrial cities. Due to the de-centralized nature of government and the unrelated system of tax incentives, financial grants and philanthropy, a developer or an artisan-entrepreneur must have a commanding knowledge of the way these financial instruments are managed in order to make a redevelopment plan a reality. Moreover, accepted tools for evaluating risk for redevelopment, namely cost-driven/market driven analysis, may not determine whether redevelopment is feasible or not. Artisans, activists and NGO’s typically do not convey the financial security that is required to obtain funding for marginalized development (Malizia 2012). Yet, as can be seen in cities such as Portland, Oregon, Milwaukee, Wisconsin and Peoria, Illinois, these individuals and groups have made a significant impact in transforming post-industrial patrimony into productive, profitable places to live, work and experience. Without these so-called unconventional individuals and groups, Lower Manhattan’s High Line or Detroit’s Eastern Market would not exist. Post-industrial regeneration is happening throughout the US, but in order for it to happen in the most economically depressed cities, most notably in the Midwestern rustbelt, a holistic, clearly understood approach needs to be developed by all stakeholders: governments, private sector, NGO’s and philanthropic foundations.

Municipal, state and federal governments need to make redeveloping post-industrial patrimony a priority and work within the existing legal parameters of property law, and health, safety and welfare regulation. Existing tax incentive opportunities need to be clearly communicated by the government at all levels — federal, state and municipal. For example, a redevelopment project in an economically challenged city may qualify for historic preservation tax credits, enterprise zone tax credits, local income housing tax credits, and
environmental remediation grants at the federal level. The same project may qualify for similar state government tax incentives or pre-development property tax freezes and state funded environmental remediation grants. At the local level, city councils may establish a tax-increment-financing district (TIF), a policy tool that uses future gains in taxes to subsidize current improvements in a specific urban district (Johnson and Man 2001). These incentives are already being used but are managed by distinctly separate and uncommunicative agencies. Tremendous effort and skill is required by an individual or a group to assemble an incentive package for redevelopment. It can be done, and when it does happen developers often recap as much as 50% of their construction costs. However, it is a time-consuming process that can be prohibitive for the artisan-entrepreneurs who must also invest their time in developing their business. Governments must facilitate the various tax and financing subsidies programmes in a holistic and visionary manner that is simpler to apply for post-industrial redevelopment by small-scale entrepreneurs and developers. However, at this time it remains uncertain that government, at any of the various levels, can create desirable situations of regeneration of the historic built industrial patrimony in the US. Evans (2001) is correct when he states that bureaucrats are incapable of managing creative enterprises; however, the American policy for both historic preservation and environmental remediation provides the apparatus for a successful regeneration scheme throughout the US. Government policy makers now need to use existing programmes more effectively and more creatively.

Government mortgaging programmes should also ease regulations and criteria that inhibit live/work residential development. Capping mixed-use development to an arbitrary 25% of the net space in a building does not foster small-scale development and is counter to the prevailing trends of urban living and working by millennial generation artisan-entrepreneurs. More often than not, these individuals do not work during set working hours and prefer to blur social interaction with business dealings. Easing mortgage-funding restrictions in order to promote live/work units within post-industrial redevelopment will promote the ‘local industrial linkage’ that Tolley (1972) referred to in the UK over 40 years ago.

Local and state governments also need to promote educational opportunities, such as schools and programmes, which will develop future artisan-entrepreneurs for the district. These programmes should relate to creative intangible industrial heritage of the district and the city, as is the case with MIAD in Milwaukee and Duke University’s innovation start-up businesses at the American Tobacco Complex. Architects, planners and urban designers should now realize that the post-industrial landscape is an opportune place to design and rebuild. Greenfield development, long considered the norm in the US, should only be considered after post-industrial brownfield development occurs. Negative stereotypes of these districts should be countered with positive designed conceptual visions of renewal and reinvention. In order to accomplish this, environmental remediation of polluted sites should be addressed at the onset. Regardless of the future of the city or district, removal of pollution in the soil, building fabric and potable water supply must be initiated. Environmental remediation has occurred in Milwaukee (Milwaukee River Greenway), Miami, Florida (Buena Vista Rail Yard), Portland, Oregon (Pearl District) and Pittsburgh (Three Rivers Area); these environmental projects, funded entirely by the government, significantly reduced the risk involved in redevelopment and increased the real estate value of the districts. When government takes on the onerous task of remediation, the private sector and NGO’s will follow in redeveloping the district. The result is often a
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Designers need to acknowledge that there are different, but congruent, goals and objectives in post-industrial renewal. First and foremost, the objective for successful post-industrial regeneration is to increase urban metabolism — the facilitation of materials and energy into the city, which yields tangible (products) and knowledge (ideas) (Wolman 1965). To accomplish this, designers must seek ways in which to make the district and the city ‘whole’ again. Christopher Alexander defines ‘wholeness’ of a city as the way it grew organically under its own laws of growth enabling different parts of it to relate seamlessly with its counterparts (Alexander, Beis, and King 1987). Abandoned post-industrial districts are physical ruptures within the wholeness of the city. When the district is reconnected to the greater city then urban metabolism can occur once again within the overall historic structure of the city. When this does not occur, any urban metabolism that is created in the urban region spills over into the suburbs and exurbs. This causes urban sprawl (Bruegmann 2006).

Successful regeneration of historic industrial buildings and sites happens when architects and designers recognize and transform character-defining features into new and purposeful ones. As stated earlier in this paper, American industrial buildings are often robust and contain a tremendous amount of space. This provides easy adaptability for creative entrepreneurs and enables architects to sufficiently satisfy the Secretary of Interior’s Standards for Historic Preservation, the guiding principles used for designing and assessing historic building rehabilitations in the US.

Urban design with ecology in mind is expected by most millennials in the US. Ecological design, which reconnects the district back into the city’s ecosystem — waterways and their tributaries — should occur. An increasing number of industrial cities are ‘daylighting’ their streams and managing runoff flows from all city districts, both in water quantity and quality.

Successful redevelopment projects have re-invented former loading areas into piazzas and have transformed large service alleys into promenades. This promotes the social interaction that is desired by the artisan-entrepreneurs. It also promotes ‘local industrial linkage’. These are only a few ideas that designers should consider in post-industrial redevelopment. In next two decades in the US the challenge will be to meld together a holistic approach of policy and design that will effectively regenerate post-industrial cities.

Factories, warehouses and the infrastructure associated with it are robust in construction and built out of permanent materials that embody high craft. New inhabitants of redeveloped industrial districts appreciate the heritage that is embodied within them (Rypkema 2005). They appreciate and celebrate heavy timbers and beams, multi-wythe masonry walls and artefacts from the site’s industrial heyday such as water towers, large machinery and even old signage. These elements are part of the character of the place, a subjective value that is respected in the US. Along with street pavement materials, landscape features and late nineteenth-century and early twentieth-century architectural styles, the district retains its unique visual character even after it has been re-invented.

The competition is now on throughout America for cities to rebuild their economies and their tax bases. The service-based economy is not enough to sustain most cities. Goods and products are still being produced in the US, but the higher valued products are centred on high craft and innovation. Economically, the American city’s primary objective is to attract mobile global capital for infrastructure and economic development. Global international
investment is often attracted to innovative product ideas, which are manufactured in other areas of the world where labour is cheaper and where regulation is more lax. In the US and other Western countries, talent is replacing products and raw materials. Moreover, young people today are more mobile than ever; therefore, creating walkable, memorable and social spaces which they want is more important than ever. Artisan-based post-industrial urbanism promotes democracy and citizen involvement through property ownership. This can counter the lack of local democratic involvement that mobile capital, which by its nature, does not embody (Schrager 2009).

In the US, there is an emergence of tiered economic cities: talent-based creative class cities and abandoned and declining cities which are based on ideas that are stated by New Growth Theory proponents. This cultural divide is not a healthy prospect for the nation as whole. Detroit and Cleveland require investment of funds and ideas to remain relevant within the overall economy and not become a social and economic drain on the rest of the nation. Part of the solution is to re-invent and re-tool the industrial engines which built these cities in the first place. In order to accomplish this objective, American designers and policy makers must first have a broad vision for re-invention and practical, methodical processes to implement it (Davila 2012; Gillem 2012). The challenge for the foreseeable future is to create walkable, sociable and identifiable, urban districts while using the existing building stock and infrastructure. This will foster creativity and innovation in order for an emerging artisan-based economy to flourish. For the past 10 years, artisans and back-of-the-envelope developers have been beating the odds and have re-invented memorable places out of forgotten factories, warehouses and rail yards; it is now time to learn from what they have accomplished, re-direct public policy to promote more of it, and design re-invented landscapes in order for the artisan economy to thrive. In the US, the Industrial Revolution is over and the new innovation-based post-industrial one has begun; Fordism and post-Fordism now coexist. It is the time to redevelop industrial American cities for this new economic reality.

Note

1. Webster's Dictionary defines a millennial as a person born in the 1980s or 1990s, especially in the US.

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References


