



City of Tacoma
WASHINGTON

Project No. 1411
January 13, 2015

BLRB architects

WORK-LIVE ADAPTIVE REUSE CODE COMPATABILITY STUDY

TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGES</u>
EXECUTIVE SUMMARY & CONTRIBUTORS.....	2
HISTORY AND BACKGROUND OF WORK-LIVE PROJECT TYPES	4
BENEFITS OF WORK-LIVE IN TACOMA	5
DEFINITION OF LIVE-WORK AND WORK-LIVE.....	7
CODE ANALYSIS & PRECEDENTS.....	10
PROPOSED WORK-LIVE MATRIX	16
PROJECT PRECEDENTS.....	21
CASE STUDY SITES.....	24
RECOMMENDATIONS FOR IMPLEMENTATION.....	38

APPENDICES

- A. TACOMA MUNICIPAL CODE – TITLE 13 – SECTION 13.06A.050
- B. 2012 INTERNATIONAL BUILDING CODE - SECTION 419

EXECUTIVE SUMMARY

The City of Tacoma has a large stock of unreinforced (or lightly reinforced) concrete and masonry buildings that may represent a significant risk in an earthquake. Many of these buildings sit vacant and are at even more of a risk due to lack of maintenance. The barriers to development of these buildings into their highest and best uses are a combination of market factors and the costs of compliance with current code requirements.

The City would like to adopt local codes that would encourage work-live type uses of these structures to re-occupy these buildings and increase the likelihood of gaining tenants and much needed cash flow. Improvements will include incremental code adjustments that create a clear path for future work-live compliance.

The purpose of this report is to analyze, research, and propose a work-live building code that allows this to occur. The scope of work for this report includes code analysis and research of the City's existing efforts on live-work and work-live codes, identifying obstacles to re-occupying these types of buildings, and completing benchmark studies focused on re-occupying UnReinforced Masonry (URM) or concrete type buildings in jurisdictions similar to the City of Tacoma. This final report was prepared to describe the process and findings of the study, and to make recommendations to both code changes and important parameters for inventorying the City's URM or unreinforced concrete buildings.

We also drew upon the expertise of Thomas Dolan, an Oakland-based architect and author of the preeminent publication on Live-Work: [Live-Work Planning and Design: Zero-Commute Housing](#). Mr. Dolan has been instrumental in the advocacy, code development, and understanding of Live-Work and Work-Live development in Oakland and the architectural and planning profession. His input was invaluable to this discussion, and hopefully he will continue to be a part of the Tacoma Work-Live discussion as future code amendments are developed and implemented.

This process includes a thorough analysis of the existing Tacoma Municipal Code, as well as other precedent codes that already address live-work and work-live development throughout the country. The result - the proposed **City of Tacoma Work-Live Matrix** - borrows ideas and provisions from each of these codes, as well as lessons learned that resulted in successful projects. Goals for this study are to implement code revisions that: improve safety for the public and emergency personnel; provide certainty for property owners; minimize the need for discretion for Planning and Development Services staff; and increase the likelihood of utilizing existing building stock.

The final section of this report studies the likely impact of the proposed Work-Live Matrix on three existing URM buildings chosen by the City of Tacoma for work-live development potential. Whether these specific sites will eventually be used for Work-Live development is less critical than validating the Work-Live principles for buildings that could support this new type of development in the City of Tacoma.

Prepared by: Caela McKeever, RA, LEED AP
Interior Architect
BLRB Architects

Ben Ferguson, AIA, LEED AP BD+C
Senior Associate
BLRB Architects

CONTRIBUTORS

Ben Ferguson, Senior Associate, BLRB Architects

Tom Dolan, Principal, Thomas Dolan Architecture

Susan Coffman, Planning and Development Services Division Manager, City of Tacoma

Ryan Erickson, Fire Code Official, City of Tacoma

Frank Terrill, Senior Plans Examiner, City of Tacoma

Patrick McElligott, Assistant Fire Marshal, City of Tacoma

Brian Boudet, Planning Division Manager, City of Tacoma

David Johnson, Building Official, City of Tacoma

HISTORY AND BACKGROUND OF WORK/LIVE PROJECT TYPES

HISTORY OF LIVE-WORK AND WORK-LIVE IN TACOMA

Images of downtown Tacoma from the late 1800's and early 1900's show a vibrant, crowded scene. Sidewalks are packed with pedestrians on streets lined with stores, businesses, and restaurants. "Flexhouses" – two- or three-story buildings with living quarters upstairs and tenant-owned working/public spaces downstairs – were common throughout the district, as was typical throughout the country at that time. The opening of the Tacoma Mall in 1965 quickly led to the decline of the downtown area, as patrons of once-bustling downtown shops relocated their patronage to the suburban mall three miles away. The downtown core lost most of its flexhouse and commercial tenants, and until present day, has seen these historic buildings sit vacant on-and-off for the last 50 years.

The last 20 years, however, has seen a concerted effort from local developers, business owners, and citizens to revitalize downtown. In 1990 the University of Washington began building its downtown Tacoma campus - immediately adjacent to the former Union Station, renovated that same year. The Washington State Museum of History and the Museum of Glass, built in 1996 and 2002 respectively, both added to the revitalization of this stretch of downtown. As a consequence, the blocks surrounding the University of Washington Tacoma campus have continued to develop, with new construction and renovation of historic buildings alike. The area surrounding the historic theatre district has also seen resurgence, as well as a smaller, yet pointed development surge in the Dome District just southeast of downtown.

Though many of the existing buildings being discussed are located in or near the downtown core, smaller mixed-use centers throughout the city where smaller-scale commercial corridors connect adjacent residential neighborhoods are also being considered as candidates for live-work and work-live development. These smaller neighborhoods have concentrated pedestrian streets that would attract small-scale commercial storefronts, bringing local activity to neighborhood commercial cores and encourage increased community interaction - facets of early-century life that have waned in recent decades, as neighborhoods have become increasingly car-dependent for everyday needs.

CITY OF TACOMA COMPREHENSIVE DEVELOPMENT PLAN

Since creating *Land Use Management Plan: Goals and Policies for Physical Development* in 1975, the City of Tacoma has had a strategic plan in place for the future development and vision of the city. The most recent version of the document, the *City of Tacoma Comprehensive Plan* issued in 2011, is intended to be continually assessed and updated as the needs, demographics, and culture of the city evolves. The Plan addresses the five elements mandated by the State Growth Management Act – *land use, transportation, housing, capitol facilities, and utilities* – as well as two additional elements the City of Tacoma has deemed important to the future growth of the city: *economic, and recreation and open space*.

BENEFITS OF WORK-LIVE IN TACOMA

Today the downtown core is active and busy during business hours, when employees and patrons populate the area. However, the district is distinctly lacking residents, and after businesses close the neighborhood is silent with empty streets. With this study and future development strategies, the City of Tacoma hopes to create a vehicle for reenergizing existing historic buildings in the district to be reused for Work/Live projects – thus injecting the downtown and mixed-use cores with residents and street-level life, making downtown Tacoma and its various mixed-use centers vibrant communities at any time of day.

Both the current Comprehensive Plan and the City's Land-Use Regulatory Code address these concerns, both in their own way seeking the same goals that work-live development aims to solve (an encouraging sign).

Among the goals outlined in The Comprehensive Plan, several particularly support the goals of work-live development:

- *To achieve a diversified, globally competitive, sustainable economy that provides family wage jobs, increases per capita and business income, protects the environment, improves the quality of life, and makes full use of human, financial, capital, and natural resources in the creation of marketable goods and services.*
- *To offer a pleasing, aesthetic and healthful environment in which to live, work, and play, and to possess an image, which instills a sense of community pride in its citizens.*
- *To become a livable community with a strong sense of history, a sustainable community supported by preservation efforts, and an economically vibrant community supported by preservation activities; to employ nationally-recognized best practices in Tacoma's preservation program; to regard*

historic preservation as integral to other community goals and policies; and to acknowledge historic resources as integral features of the public realm.

- *To achieve concentrated centers of development with appropriate multimodal transportation facilities, services, and linkages that promote a balanced pattern of growth and development, reduce sprawl, foster economies in the provision of public utilities and services and yield energy savings.*
- *To achieve an attractive, convenient and well-balanced system of commercial facilities, which serve the needs of the citizens, are appropriate to their relative service areas and are compatible with adjacent land use.*
- *To maintain and support vibrant and stable residential neighborhoods while promoting a variety of housing opportunities to meet the needs of all residents.*

Sentiments expressed in the City's Land Use Regulatory Code also speak to the future vision the City has of its Downtown and Mixed-Use Centers, especially the concept of a vibrant "24-hour city":

The purpose of [Title 13, Section 13.06A.050.D] is to assist with the revitalization of Downtown Tacoma and the City's other Mixed-Use Centers and with the implementation of the City's Comprehensive Plan by facilitating additional economic activity in conjunction with residential uses. This will help to reduce vacant space as well as preserve Downtown's architectural and cultural past and encourage the development of a live-work and residential community Downtown, thus creating a more balanced ratio between housing and jobs in the region's primary employment center. This revitalization will also facilitate the development of a "24-hour city" and encourage mixed commercial and residential uses in order to improve air quality and reduce vehicle trips and vehicle miles traveled by locating residents, jobs, hotels, and transit services near each other.

Each of the goals addressed above support the goals of this study and the current work-live discussions with the City: to utilize existing URM and historic buildings for appropriate uses and maintain the sense of history these buildings bring to the City; reduce the dependence on car-based transportation in the city core; create more affordable housing solutions for self-employed residents, allowing them to pay one rent amount for both residential and commercial spaces; and encourage pedestrian traffic in empty mixed-use zones and increase street-front presence - thus creating a safer, friendlier, and balanced city.

DEFINITION OF LIVE/WORK

The term live-work is commonly used by the public to describe a housing style, typically an open-concept apartment with high ceilings ideal for artists and other creative occupations. In the context of this report Live/Work is specific to the technical definition found within the International Building Code (IBC). Section 202 of the IBC defines Live-Work units as:

A live/work unit is a dwelling unit or sleeping unit in which a significant portion of the space includes a nonresidential use which is operated by the tenant.

As makes sense with this definition, Section 419 permits the work portion of the live-work unit to no more than 50% of the unit, thus ensuring that the residential portion is at least equal to, if not greater than the work portion the unit.

The Seattle Land-Use Code defines Live/Work as:

"Live/work unit" means a structure or portion of a structure: (1) that combines a commercial or manufacturing activity that is allowed in the zone with a residential living space for the owner of the commercial or manufacturing business, or the owner's employee, and that person's household; (2) where the resident owner or employee of the business is responsible for the commercial or manufacturing activity performed; and (3) where the commercial or manufacturing activity conducted takes place subject to a valid business license associated with the premises.

Tom Dolan describes Live/Work this way in his book, Live-Work Planning and Design: Zero-Commute Housing:

"Live/work is a term used to describe a unit in which the needs of the residential component and the quiet enjoyment expectations of the neighbors in the building or adjacent buildings take precedence over the work needs of the unit in question...The predominant use of the live/work unit is residence; work activity is secondary or, if separated, of comparable importance."

Dolan's definition begins to speak to the typical fundamental difference between Live/Work and Work/Live: the "quiet enjoyment" he speaks of varies with the percentage of live-to-work space allowed within the unit. This difference is made more apparent as we explore the definition of Work/Live below.

DEFINITION OF WORK/LIVE

As with Live-Work, the definition of Work-Live can vary across jurisdictions, though most follow similar modes of thought. Below is Tom Dolan's description of Work-Live:

"Work/live is a term used to describe a unit in which the needs of the work component take precedence over the quiet enjoyment expectations of residents...The predominant use of a work/live unit is commercial or industrial work activity; residence is a secondary, if not accessory, use."

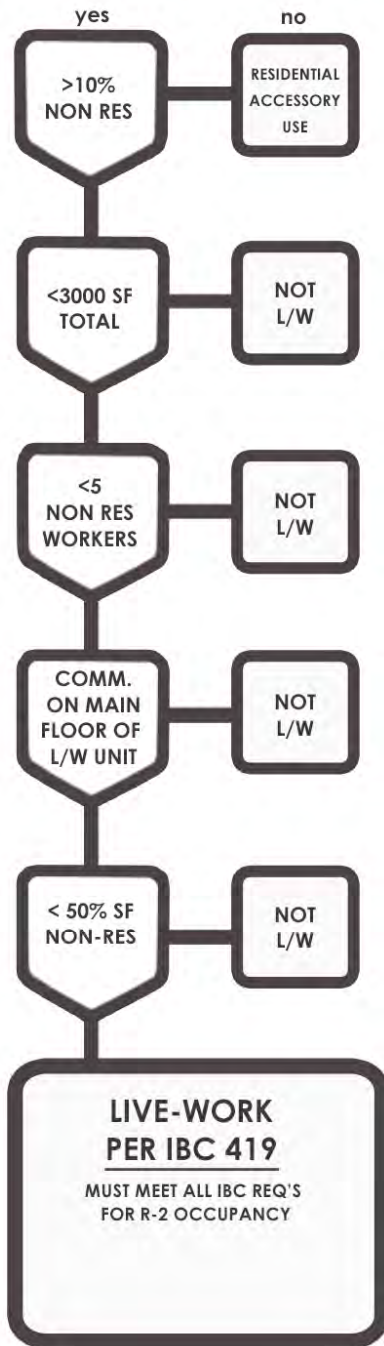
Building officials at the City of Tacoma have been exploring the life safety implications of allowing Work/Live uses in the city. The purpose of this study is to further explore the obstacles and opportunities posed by Work/Live. Throughout this study, the consultant team has met with Planning and Development Services and Fire Department staff to identify concerns, discuss opportunities, provide a clear definition, and propose changes to code policy that will result in new development without compromising public safety.

A Live/Work unit is a place where people live but also work. Work/Live is the inverse of this Live/Work, a place where people work but also live. The proposed definition for Work/Live is:

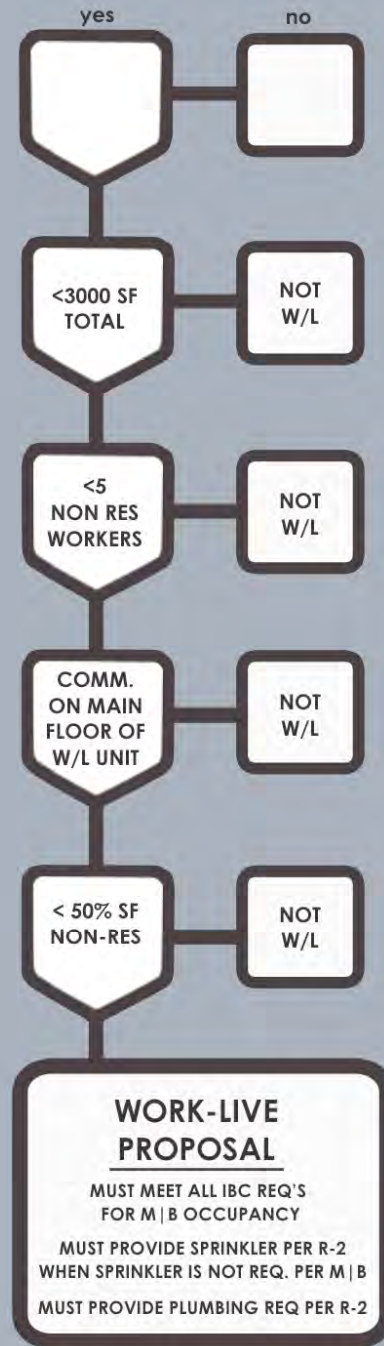
A work/live unit is a nonresidential unit in which a significant portion of the space includes a dwelling or sleeping use for the tenant.

Section 419 of the International Building Code defines the attributes of live/work that negate the life-safety concerns that are the basis of building codes. There are four primary limitations on live-work areas. They must: be less than 3,000 square feet in area; have nonresidential area of not more than 50% of the unit; have the nonresidential area limited to the main floor of the unit; and have not more than five nonresidential workers or employees occupying the nonresidential area at one time. These limitations become the basis for work/live, with the nonresidential area as the primary function and the residential portion in support. See the flow diagram on the following page for a visual representation of the code.

R-2 OCCUPANCY WITH COMMERCIAL USE



M | B OCCUPANCY WITH RESIDENTIAL USE



CODE ANALYSIS AND PRECEDENTS

The building code for the City of Tacoma takes its core from the 2012 International Building Code, with local and state amendments. As discussed previously, the Tacoma Municipal Zoning Code also addresses Live-Work and Work-Live in the Downtown Core and Mixed-Use Centers. Below we will be reviewing current provisions in each code for work-live, as well as noting any amendments that may need to occur to accommodate the proposed Work/Live Code and supporting documents into the City of Tacoma's Municipal Code (TMC). See Appendix A for TMC Title 13 – Section 13.06A.050 – Additional Use Regulations.

TACOMA MUNICIPAL CODE - TITLE 13: LAND USE REGULATORY CODE

In 2012, the Tacoma Land Use Regulatory Code was amended to include a section on live-work and work-live development. The amendments address a number of issues related to live-work and work-live, including:

- Parking requirements
- Change of occupancy requirements
- Mezzanines
- Scope of adaptive reuse projects

Additional issues are addressed that apply specifically to work-live development:

- Relationship of residential to work space
- Additional impacts to adjacent development generated by Work/Live projects
- Historic building requirements
- Density requirements

The Land Use Regulatory Code allows live-work and work-live development in the following zones:

- Mixed-Use Centers (See Appendix C for Zoning Map):
- Downtown Core (See Appendix D for Zoning Map):

BENEFITS OF LAND USE REGULATORY CODE

Prior to the amendment of the code in 2012, there were no provisions for live-work and work-live development in the City of Tacoma. This amendment opens the door for future projects, and instigated this study focusing on the Tacoma Building Code - the

last step in fully integrating live-work and work-live project types into the City's development potential.

ROADBLOCKS IN LAND USE REGULATORY CODE

The code as written currently does not allow for live-work or work-live construction that is of the separated type - meaning the residential and work areas must share the same area. This limits the ability to create a higher degree of separation between the living and working areas, which would allow more intense work uses (i.e. retail, welding, small-flame fabrication, etc.) that may be necessary for certain types of small-scale businesses.

The existing planning code has other provisions that should be reevaluated.

- Purpose and Intent: this section limits Work/Live to older, economically distressed, or historically significant buildings. Work/Live is a valuable tool for developers of new construction, it may be beneficial to remove the limitations for existing buildings.
- The residential portion of a work-live unit is limited to 33% of the unit. This ratio is more restrictive than the IBC section 419 for live-work units, a 50% maximum residential use area is recommended.
- Mezzanines are encouraged in work/live. It is recommended that the restriction on a greater than 10% increase in floor area be eliminated. The 33% maximum area relative to the floor below is already a requirement of the IBC and is not necessary.
- It is also recommended to eliminate the restriction on projects greater than 20 dwelling units. There are multiple buildings in Tacoma that need redevelopment that would exceed 20 units. It is common for projects to become more viable the larger they are. There is no clear rationale for this limitation.

INTERNATIONAL BUILDING CODE – SECTION 419

In the 2009 edition of the International Building Code, Section 419 was introduced to specifically address the live-work project type. This section of the code serves as the model for the provision set forth in the Tacoma Municipal Zoning Code, and for our discussions surrounding work-live. See Appendix B for Chapter 419 of the 2012 IBC.

BENEFITS OF SECTION 419

Prior to 2009, live-work development had not been addressed by code, and jurisdictions found themselves scrambling to apply the existing to code what was a unique project type, leading to watered-down live-work projects, illegally-occupied independent projects, and projects that were unable to overcome regulatory obstacles and never came to fruition.

By providing clear provisions for live-work and clarifying requirements that differ from other residential and commercial development, the addition of 419 into the IBC has created a vehicle for jurisdictions to analyze and collaborate with developers on true live-work projects.

ROADBLOCKS IN SECTION 419

Section 419 identifies live-work projects as R-2 occupancies. This directly challenges the use of existing URM buildings in Tacoma, most of which are currently M, B, or in rare cases, F-2 occupancies (assuming the residential portion of the renovation is more than 10% of the aggregate project floor area).

In keeping with the intent of this study, the goal for this work is to allow Tacoma's existing URM buildings to maintain their current occupancies (thus avoiding code thresholds for full conformance to current requirement of the IBC). Work-live is proposed as the identical use and tenant mix as live-work in B, M, and F-2 occupancy buildings rather than in R-2 buildings.

ADAPTING SECTION 419 FOR WORK-LIVE

The fundamental basis for the proposed work-live amendment is to ensure allowable work-live uses are at least as safe as work-live from Section 419. The four requirements for live-work are: 1) less than 3000 square feet per unit; 2) less than five non-residential workers; 3) the commercial activity is restricted to the first floor of the live-work unit; and 4) less than 50% of the live-work space is utilized for the non-residential activity.

The proposed new definition for work-live would be similarly defined as: meeting IBC requirements for R-2 occupancy (fire, egress, residential amenities, etc); less than 3000 square feet per unit; less than five non-residential workers; the commercial activity is restricted to the first floor of the work-live unit; and less than 50% of the live-work space is utilized for the residential activity. The flow diagram on the following page graphically depicts the similarities between the existing live-work code and the proposed work-live amendment.

CODE PRECEDENTS

Many American cities have adopted live-work or work-live planning and code principles. The reasons for adopting new codes are complex but most often include the need for affordable housing and the goal of repositioning buildings that are either obsolete for the intended use or the intended use is no longer compatible with the neighborhood. This section explores the background and code details of three cities and how they have adapted to market conditions.

CITY OF OAKLAND: LIVE-WORK PLANNING AND BUILDING CODES

Oakland is a city with a long-term industrial identity. Oakland adopted live-work (similar to Tacoma's proposed work-live) planning regulations in 1980. The planning department definition is: 'live-work is permitted only in buildings originally designed and constructed for commercial or industrial use and in zones that allow residential uses'. These changes followed a change in California law that gave local jurisdictions authority to relax building regulations to make it possible for commercial and industrial buildings to be converted to "joint living and work quarters".

Oakland has encountered difficulties with industrial property owners who are concerned about live-work units infringing upon industrial activities. Industrial businesses are concerned that increasing residential density will lead to limits on industrial noise and hours of operation. This issue is not relevant to Tacoma, the proposed work-live amendments are not intended for industrial zones, and all activities are planned in neighborhoods currently zoned for residential use.

Oakland's advances from 1980 continue to be reinforced with additional policies. The Oakland Building Services division codified the Oakland Live/Work Building Code in 1999. The Oakland code does not utilize IBC Live-work code section 419 because it was not available until 2009. Instead Oakland wrote an extensive code, primarily focused on existing buildings, that includes minimum unit size, loading berth requirements for large spaces (there is no maximum unit size), and has three different types of units with different allowances for percentage of total floor area dedicated to residential use.

Oakland recently adopted mixed-use zones that allow a variety of uses including live/work as an essentially residential type (congruent with IBC Section 419) and including open space and parking requirements; and work/live as new construction under specific 'live near' configurations. To date no new work/live units have been built under the specific restrictions of this new zone, i.e the live-near configuration.

CITY OF SEATTLE: LIVE-WORK ZONING AND BUILDING CODE

The fundamental market conditions of Seattle are significantly different from those in Tacoma. Multiple neighborhoods include buildings of similar scale, construction type, and era to those of Tacoma but the population and demand of our metropolitan neighbors result in much higher lease rates which in turn result in viable development pro-forma and willing bank lending. The market rates in Tacoma are typically below the threshold for viable development.

Seattle has adopted live-work planning principles in their land-use code, and encourage live-work uses in all commercial zones. Seattle Department of Planning and Development defines live-work as:

"Live-work unit" means a structure or portion of a structure: (1) that combines a commercial or manufacturing activity that is allowed in the zone with a residential living space for the owner of the commercial or manufacturing business, or the owner's employee, and that person's household; (2) where the resident owner or employee of the business is responsible for the commercial or manufacturing activity performed; and (3) where the commercial or manufacturing activity conducted takes place subject to a valid business license associated with the premises.

Seattle also has adopted changes to IBC section 419 relaxing some requirements for live-work units including: the definition of live-work, sprinkler system requirements, and an expansion for the occupancy types that can incorporate live-work units.

Specific changes include:

Delete section 419.1.1.3 – the definition that requires the non-residential area function to be limited to the first or main floor of the live-work unit.

Delete section 419.1.1.4 – the definition requiring not more than five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.

Add occupancy group R-3 to section 419.2 as an allowable group for live-work units

Relax sprinkler system requirements to allow 13-R and 13-D for Group R occupancies in buildings with four or fewer dwelling units that do not exceed two stories in height that are less than 5,000 square feet in area. Full NFPA 13 systems are required in all other buildings.

Clarify that accessibility provisions for live-work units will meet Group M occupancies unless the applicant specifies another occupancy.

Seattle has not written code amendments to enable any type of work-live use within business, retail, or industrial zones.

CITY OF CHICAGO – WORK-LIVE ZONING CODE

The City of Chicago adopted work-live zoning codes in 2012. The new codes were developed to find additional methods of activating vacant storefronts that were plaguing the region during the recession. It signaled a return to “family in the back, store in the front” living common in early urban American history. The rationale is the same today as it was then, it is less of a financial burden to work and live in the same place. Commuting time and expense is eliminated, the tenant has a single rent payment, and sometimes the first floor of commercial buildings are larger than needed for commercial activities.

Chicago has named their version of work-live a ‘Business work-live unit’. The operating requirements for business work-live units include: the unit shall be occupied and used by the operator of the retail sales business and their household, the resident is required to maintain a business license, no portion of the work-live unit may be separately rented or sold. There are further development standards that include: minimum total gross square footage of six hundred (600) square feet, the business area must occupy at least fifty percent (50%) of the total square footage, the living space shall include cooking space, sanitary facilities and sleeping space, non-living spaces shall be designed exclusively to accommodate commercial uses, street level spaces fronting a public way must have commercial areas transparent to the sidewalk, the living space and work space should be contiguous but may be separated by hallways and courtyards, and any flammable liquids and hazardous materials beyond those normally associated with residential use shall require approval from the Fire Department.

PROPOSED CITY OF TACOMA WORK-LIVE MATRIX

The issues included in the proposed Work-Live Matrix below reflect code provisions that have been critical to successful live-work and work-live implementation in other jurisdictions. Through review of the code precedents discussed previously, and through discussions with the City of Tacoma, this matrix was created to compile these issues and address their implementation in the City of Tacoma's future work-live plan.

The IBC and IEBC continue to be the primary regulation for building modifications. The provisions described in the Work-Live Matrix describe proposed amendments to the code. Code sections that are not identified are not impacted. Each matrix issue is references the code section that is amended, and describes necessary amendments to a local, state, or national code.

In its final approved form, this matrix is intended to serve as a guide and reference document for City employees, design professionals, and developers while discussing and formulating work-live development – it is NOT intended to replace the Tacoma Municipal Code. Once approved, the appropriate parties must take the proposed provisions contained in this matrix and create or amend current code to match these provisions.

This matrix is also intended to be a working document, to be updated if necessary as work-live projects are built and the City recognizes lessons learned throughout the implementation process.

PROVISIONS IN MATRIX UNIQUE TO WORK-LIVE

The proposed matrix combines provisions from Section 419 of the International Building Code, the International Existing Building Code, the International Fire Code, and the Tacoma Municipal Code into a single reference document.

During development of this matrix, several roadblocks to work-live projects contained in the above codes were discussed with Planning & Development Services and Fire Department staff. The team proposed modifications that would create the highest degree of safety and provide incremental building improvements with a clear path to future compliance. Economic factors and market conditions were considered when code relaxations are proposed, but safety and realizing future compliance were the primary concerns.

To provide flexibility for occupants and property owners, two types of work-live units have been proposed. The first type "unseparated use" is identical to live-work,

effectively a single unit where both business and residential functions coexist. Unseparated use units can be organized on a single level or on multiple floors. A new unit type, "unseparated use", is proposed and provides a physical barrier between commercial and residential uses. Separate spaces within a single unit increases safety for high-intensity uses like light manufacturing and can also limit the requirements for sprinklers to residential portions.

Work-Live Occupancy Type and Change of Occupancy

Live-work development is categorized as a R-2 occupancy per IBC Section 419. Any building that is not currently permitted as R-2 would require a change of occupancy which is an automatic trigger for an upgrade to full compliance with the current IBC. This mandatory upgrade often results in high project costs which cannot be recovered at local rental rates. This reality is a contributing factor for the lack of adaptive reuse of underutilized commercial office buildings into residential product.

The proposed matrix describes a strategy to enable existing M, B, and F-2 buildings to maintain their original occupancy type while accommodating work-live use. By using the same requirements for work-live as are allowed in live-work per Section 419, this provision supports the notion that live-work and work-live are effectively interchangeable and equally safe. The internal uses in live-work and work-live is identical, and the safety provisions are identical regardless of the building occupancy.

Tacoma Land-Use Regulatory Code

The Tacoma Land-Use Regulatory Code, Section 13 defines work-live as a maximum of 33% of the total unit area. It is recommended that the city consider increasing the residential portion to 50% maximum to mirror the existing live-work code defined in IBC section 419.

Sprinklers

Sprinkler upgrades are one of the biggest budget hurdles in a building renovation. There are multiple aspects of a new sprinkler system that contribute to the high cost including: new large diameter water piping from the public right-of-way to the riser room (this includes costly repairs to the street), a new sprinkler riser room, routing sprinkler main piping throughout building (includes demolition and repair of existing walls and floors), and the installation of sprinkler heads (also resulting in demolition and repairs to walls and ceilings).

The IBC requires sprinklers in multiple unit residential buildings because a sleeping occupant needs more protection during a fire than an alert occupant. Sprinklers are not always required in business, merchandising, and light industrial buildings. Live-work units in IBC Section 419 are always located in R-2 occupancy buildings and are therefore always sprinklered. Work-live units are located in B, M, and F-2 occupancy buildings and may not be sprinklered. Sprinklers must therefore be added to all work-live units to bring them up to same standard of safety already codified in Section 419.

The separation of occupancies presented by the dual residential-work combination inherent to live-work and work-live projects often creates conflict with code officials and developers. Requiring sprinklers in all work-live projects mitigates the hesitancy to allow multiple occupancies to share space under one common envelope with no fire separation.

There are three types of sprinkler systems that can be utilized in work-live projects. The NFPA 13 system is required for a project required to be "fully sprinklered" by the IBC and is the only system available for residential occupancies with five or more units. The NFPA 13R system is allowable for up to four units in buildings 4-stories or shorter, and the NFPA 13D system is allowable for up to two units maximum. Additional life safety measures may be required for when using a 13R or 13D system.

Consideration is included in the Matrix addressing existing buildings that may allow for partial work-live development, but have existing occupancies elsewhere that are not currently sprinklered. Per current code, adding residential occupancy to any building requires an upgrade to a full sprinkler system of the structure. This requirement could be cost-prohibitive to adding a small number of work-live units. A relaxation has been proposed that provides sprinklers in the residential units, provides sprinkler infrastructure to the building, and creates a clear path for future compliance with the IBC.

Renovations to existing buildings with work-live units must have the water connection and sprinkler riser designed for the full building, but the sprinkler system only needs to be routed to the work-live spaces.

- Water connections and sprinkler riser room must be installed sufficient to support the entire building
- Sprinklers must be provided for the work-live units per the Matrix
- Fire alarm notification must be provided at all residential floors, including work-live units
- Fire alarm detection must be provided at all floors
- Manual pull stations must be provided at all floors

- Future substantial improvements will require sprinkler installation for all affected areas, including non-residential uses

Seismic Standards

Per the matrix, all new construction must comply with current IBC requirements, while existing construction must comply with IEBC requirements. However, the matrix addresses the change of occupancy issue highlighted above - namely, that by adding a residential occupancy to the building or unit (assuming it meets the size provisions outlined in the matrix), a change of occupancy or change of use is not required to the building. This provision mitigates the extensive seismic upgrades that may be required if the building were forced to change occupancies.

High-rise Buildings

This report does not explore the complications surrounding the implementation of work-live into high-rise buildings (defined as six or more floors). There are unique requirements, safety considerations, and exiting concerns specific to high-rise construction that warrants future consideration prior to implementation or adaptation of these work-live recommendations. Issues to consider include: elevator size, construction types, and EMS service and safety.

City of Tacoma Work-Live Code Matrix

#	Issue	Work/Live Types		Comments	Existing Code Reference	Local Amendment required?
		Unseparated	Separated			
1	Maximum Unit Size	3,000 sf	3,000 sf		IBC 419.1.1.1	No
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	50% of unit (<1,500 sf at max size)		IBC 419.1.1.2	Yes - Land-use regulatory code Section 13.06A.050.E
3	Separation between Units	Separation per IBC; use most restrictive fire-rating requirements if multiple occupancies occupy same space	Separation per IBC for each use type		IBC 420.1, IBC 508.3.3, IBC 708.3	No
4	Sprinklers	Always required for unseparated work-live units Exception 1: For up to (4) four unit projects a 13R system is allowable with additional restrictions (see also Fire Alarms and Exit/Egresses for exception)	Always required for the residential portion of work-live units Exception 1: For up to (4) four unit projects a 13R system is allowable with additional restrictions Exception 2: For (1-2) unit projects, may use 13D system with additional restrictions (see also <i>Fire Alarms and Exit/Egresses</i> for exception)	Note: In renovations only, if remaining non-work-live floors are unsprinklered, must bring service for sprinklering rest of building at time of work-live renovation. Future substantial improvements will require sprinklering affected areas. This provision provides a clear path for full future compliance.	IBC 419.5	Yes - IFC or IEBC
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	Note: In renovations only, if remaining non-work-live floors are unsprinklered, must provide full fire alarm system for detection, manual pulls, and notification system to work-live units and all existing residential units in building.	IBC 419.5	Yes - IFC or IEBC
6	Mezzanines and Sleeping Lofts	Per IBC	Per IBC. Residential use only permissible in residential portion of unit		IBC 505	No
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	Per IBC for new construction; per IEBC for existing construction and renovations	Note: Adding a residential occupancy to an existing F, M, or B building does not trigger a change of use within live-work and work-live units for seismic requirements	IBC 1613.1, IEBC, IEBC Appendix A (for URM buildings)	No
8	Hazardous Materials	Per IFC	Per IFC		IFC	No
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45	Minimum: STC 50/IIC50; CNEL 45.		IBC 1207	No
10	Employee and Public Access	<5 non-residential employees	<5 non-residential employees		IBC 419.1.1.4	No
11	Reoccurring Inspections	Frequency per City policy for entire work-live unit	Frequency per City policy for commercial portion of work-live unit		Tacoma Municipal Fire Code	No
12	Guardrails	Per IBC for entire work-live unit - 42" guardrails required	Per IRC in residential portion of work-live unit - 36" guardrails allowable; per IBC in commercial portion unit - 42" guardrails required		IBC 1013, R312.1	No
13	Plumbing	Per UPC	Per UPC.		IBC 419.9	No

WORK/LIVE PROJECT PRECEDENTS

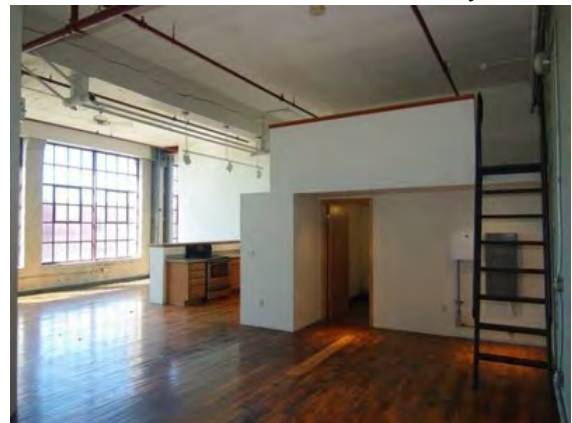
PROJECT #1

California Cotton Mills Studios
Location: Oakland, California
Architect: Thomas Dolan Architecture
Originally Built: 1917
Adaptive Reuse: 2005



The California Cotton Mills building opened as the largest cotton mill west of the Mississippi River and became a landmark for the city of Oakland. Prior to its redevelopment it spent twenty years as a mini-storage facility. The 117,500 square foot, four-story unreinforced masonry structure was adapted into seventy-four live-work units. Unit sizes range from 1,100 to 1,900 square feet and are all rentals. The project is in an isolated location with no access to walkable community assets.

Design features of the project include double-door access to each unit that allows large scale work, wide corridors, heavy floor loading capacity, and a freight elevator. The units with fifteen foot ceilings include mezzanines for sleeping areas, bathroom, and closet. The units with lower ceilings include both a mezzanine with low-clearance storage area below and a separate sleeping loft with five-foot eight-inch ceiling with a restroom beneath. Other than the generous lobby, the building does not include indoor community space. An outdoor area is used heavily by tenants and serves as the community area.



The work portions of the units are full height at the building periphery with ample daylight from the large industrial sash steel windows. Plumbing stacks, mezzanines and living areas are configured in the middle of the building. Every quarter, the residents hold an open-studio event where art and studios are displayed. The resident community has overcome the lack of neighborhood and internal community spaces by creating a culture centered on producing art. The project and community are thriving.

PROJECT #2

Willow Court Lofts

Location: Oakland, California

Architect: Thomas Dolan Architecture

Originally Built: 19

Adaptive Reuse: 2007



Willow Court is a high-bay, single-story concrete block warehouse in the buffer area between a residential neighborhood and an industrial area. The original building exterior lacks architectural character, primarily consisting of large blank walls with horizontal punched openings with aluminum storefront windows. The project consists of twenty live-work lofts between 750 and 1,100 square foot market-rate condominiums. One bay at the end of the building was sacrificed to create a secure area for eighteen parking spaces.

The roof structure is supported with wood bowstring trusses on twenty foot centers that span the full one hundred foot width of the building. The bottom chords of the trusses are eighteen feet above the slab and provide clearance for two levels below the trusses, and the deep trusses are tall enough for a third full height level between trusses for each unit. The live-work units are three-story townhouse style living.



The architect organized the project around two fountain courtyards that were carved from the middle of the structure. The resulting plan is in the shaped of a figure eight. A longitudinal open breezeway bisects the building and connects the two courtyards with a small parking area on one end and the street on the other. The courtyards and common building circulation create opportunities for accidental meetings and interactions between tenants.

Units with street frontage have small porches and front doors accessible from the sidewalk. All units have entry doors from the exterior breezeway, most of which directly connect to the courtyards. Most of the work areas are on the first floor around the building exterior with living spaces near the courtyards and upstairs.

PROJECT #3

Tashiro Kaplan Artist Lofts
Location: Seattle, Washington
Architect: SMR Architects
Originally Built: 1906 & 1908
Adaptive Reuse: 2004



Two turn-of-the-century unreinforced masonry buildings were adaptively reused to create affordable live-work loft-style apartments. The project is on the edge of Pioneer Square near the international district. It provides subsidized housing for an artist population that has been gentrified out of one of the hottest residential markets in the country.

The buildings are located on a hill and between four and six stories tall with large windows and two frontages on major urban streets. The 130,000 square foot building is the home to 28 commercial arts-related entities. The lower floors are house 40,000 square feet of retail space, including a coffee shop, artist-resident galleries, and a 110-person community room. Fifty single-level live-work units are located on the top three floors. Flexible floor plans accommodate a variety of artist disciplines from painters and sculptors, to musicians and digital artists. Units range in size from 800 to 1,800 square feet.



CASE STUDY SITES

As a part of this study, the City of Tacoma has requested that the following existing historic buildings – currently vacant or underutilized - be reviewed in conjunction with the proposed work-live Matrix and assessed for feasibility of future work-live projects. Each site has been analyzed according to the requirements listed in the Matrix. The three sites each highlight unique work-live strategies.

311/313 S. 7th Street

BACKGROUND/BUILDING ATTRIBUTES

This two-story unreinforced masonry building was originally built in 1900 as a warehouse. The 70-foot by 45-foot structure is on the corner of S. 7th Street and Court C. The street frontage is on a steep incline, effectively enabling direct entry to both floors. The floors (3,000 sf each) are internally separate and effectively two distinct spaces. Both floors have approximately twelve-foot ceilings. A one-story garage is connected to the rear of the building with room for at least five vehicles, the garage doors open to Court C.



The lower floor is a rough, unfinished space with raw exposed timber columns, beams and joists. The entry door is on the corner and there is a sliding garage door on the east wall. The upper floor is a more finished space but is still quite raw. The tenant is a skateboard shop, they use the front 1,000 square feet for retail sales and the rear area for a small indoor skate park and storage.

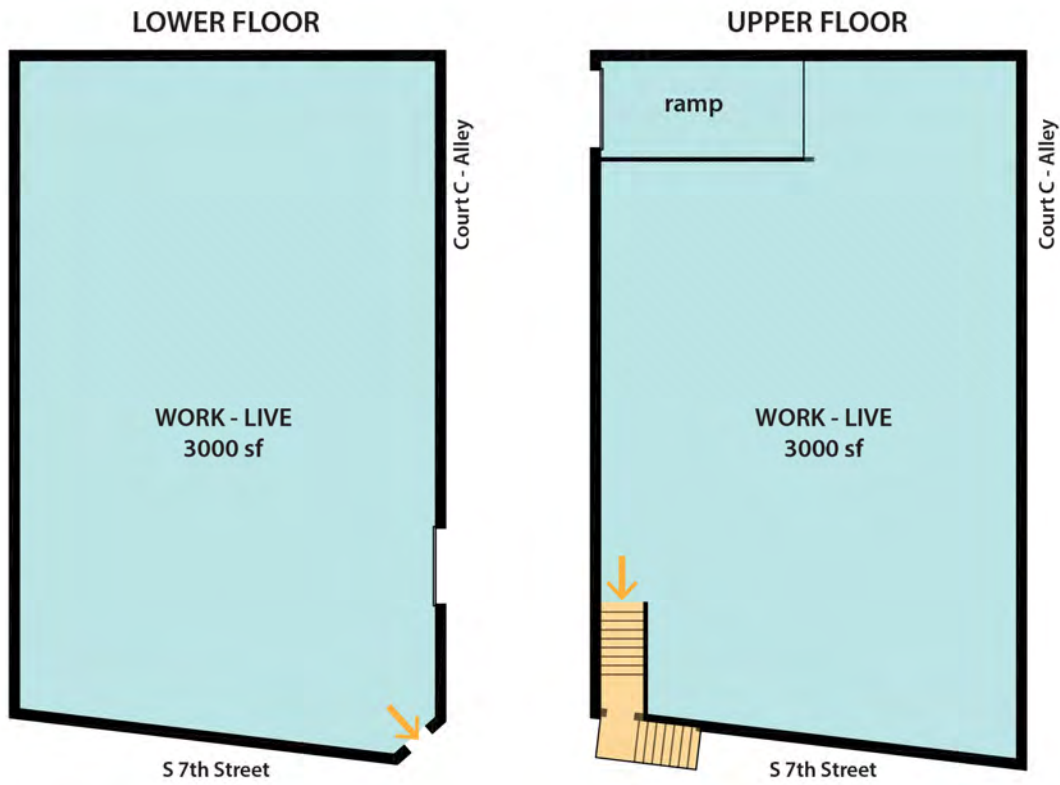
The upper floor entry is on S. 7th Street and up a short flight of stairs. The most distinctive aspect of the upper floor is a vehicle ramp on the north side that exits to a narrow driveway on the west. The tenant is a photography studio. Both tenants pay well below market value.

WORK-LIVE CODE ANALYSIS

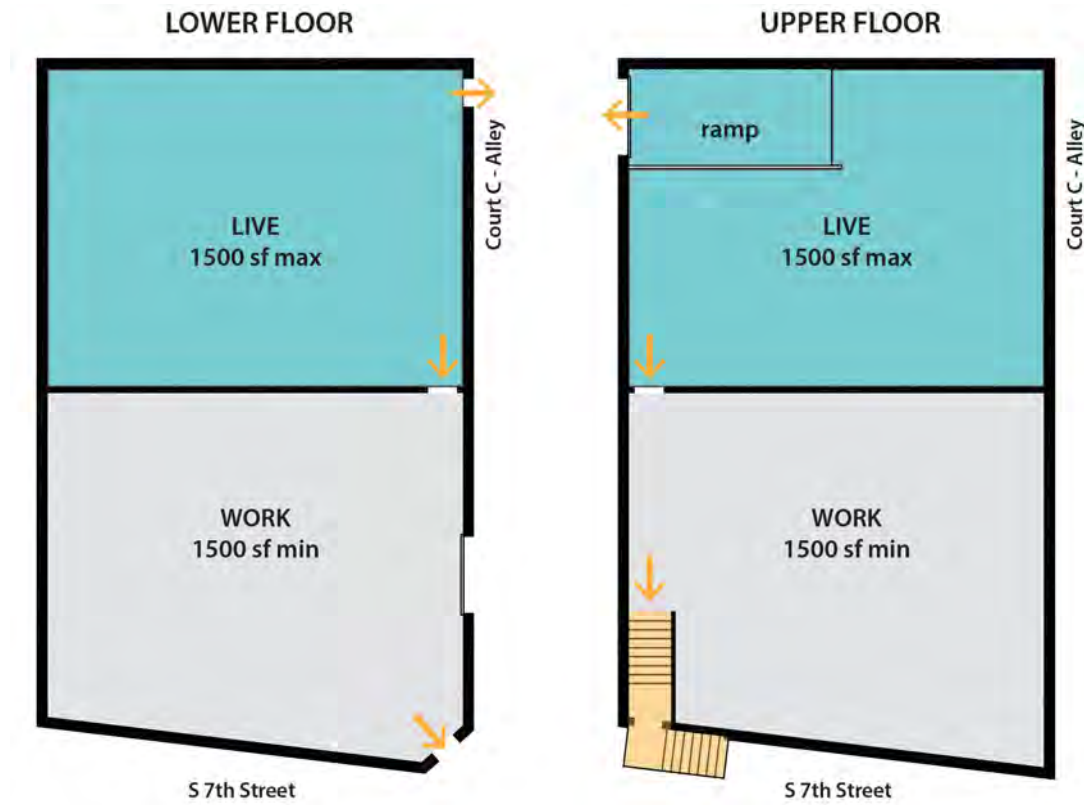
Both floors of the building are viable candidates for work-live use. They meet the requirement of "M" or "B" occupancy classification, and are large spaces that have historically been unable to obtain market rate leases. The distinct floors could be independently adapted for work-live or remodeled concurrently.

311/313 S 7th Street could be developed into multiple work-live configurations. Either floor is capable of being any combination of: a single unseparated unit, a single separated unit, or a pair of unseparated units.

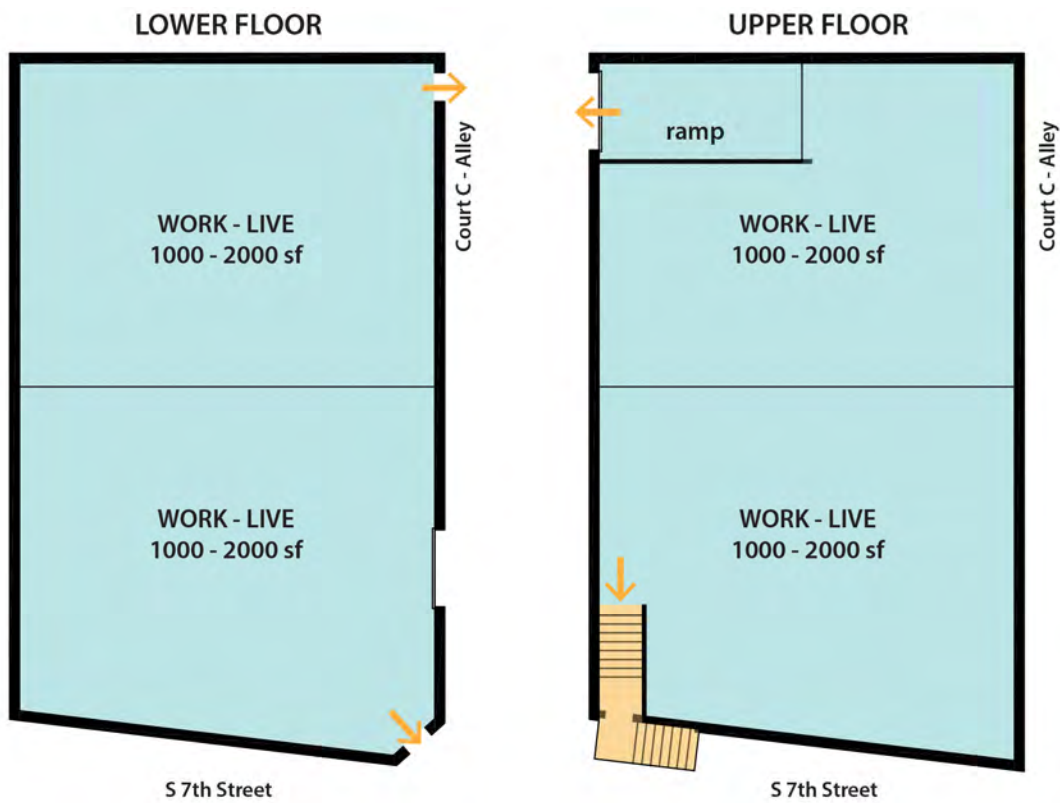
SINGLE UNSEPARATED UNIT



SINGLE SEPARATED UNIT



PAIR OF UNSEPARATED UNITS



311/313 S. 7TH STREET - WORK-LIVE MATRIX
 UNSEPARATED USE

#	Issue	Work/Live Types	Comments	Existing Code Reference
		Unseparated		
1	Maximum Unit Size	3,000 sf	OK Units range from 1,000-3,000 sf	IBC 419.1.1.1
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	OK Max residential portion range from 500 sf to 1,500 sf	IBC 419.1.1.2
3	Separation between Units	Separation per IBC; use most restrictive fire-rating requirements if multiple occupancies occupy same space	OK No separation required	IBC 420.1, IBC 508.3.3, IBC 708.3
4	Sprinklers	Always required for unseparated work-live units Exception 1: For up to (4) four unit projects a 13R system is allowable with additional restrictions (see also Fire Alarms and Exit/Egresses for exception)	The building is not sprinklered. Four or less units are proposed, a 13R system is allowable. If the maximum units will be one or two units a 13D system is allowed.	IBC 419.5
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC.	No existing fire alarm system. Meet requirements of IEBC	IBC 419.5
6	Mezzanines and Sleeping Lofts	Per IBC	OK Ceilings are too low for mezzanines or sleeping lofts	IBC 505
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	Work restricted to a single floor will not cross the alteration level 3 threshold. No seismic upgrades would be required. Work on both floors concurrently would trigger alteration level 3 and may require seismic upgrades.	IBC 1613.1, IEBC Appendix A (for URM buildings)
8	Hazardous Materials	Per IFC	OK No hazardous occupancy anticipated	IFC
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45	OK New interior partitions can meet STC 50. Sound transmission through floors may require sound mitigation at the second floor.	IBC 1207
10	Employee and Public Access	<5 non-residential employees	OK No business uses expected to require >5 non-residential employees	IBC 419.1.1.4
11	Reoccurring Inspections	Frequency per City policy for entire work-live unit	OK	Tacoma Municipal Fire Code
12	Guardrails	Per IBC for entire work-live unit 42" guardrails required	OK No guardrails anticipated	IBC 1013, R312.1
13	Plumbing	Per UPC	OK Kitchen and restrooms anticipated	IBC 419.9

311/313 S. 7TH STREET - WORK-LIVE MATRIX
SEPARATED USE

#	Issue	Work/Live Types	Comments	Existing Code Reference
		Separated		
1	Maximum Unit Size	3,000 sf	OK	IBC 419.1.1.1
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	OK Max residential portion is 1,500 sf	IBC 419.1.1.2
3	Separation between Units	Separation per IBC for each use type	OK No separation required between R and M or B occupancy classifications	IBC 420.1, IBC 508.3.3, IBC 708.3
4	Sprinklers	Always required for the residential portion of work-live units Exception 2: For (1-2) unit projects, may use 13D system with additional restrictions (see also <i>Fire Alarms and Exit/Egresses</i> for exception)	The building is not sprinklered. Only two units are proposed, a 13D system is allowable. Only the residential portions of units must be sprinklered.	IBC 419.5
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	No existing fire alarm system. Meet requirements of IEBC	IBC 419.5
6	Mezzanines and Sleeping Lofts	Per IBC. Residential use only permissible in residential portion of unit	OK Ceilings are too low for mezzanines or sleeping lofts	IBC 505
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	Work restricted to a single floor will not cross the alteration level 3 threshold. No seismic upgrades would be required. Work on both floors concurrently would trigger alteration level 3 and may require seismic upgrades.	IBC 1613.1, IEBC Appendix A (for URM buildings)
8	Hazardous Materials	Per IFC	OK No hazardous occupancy anticipated	IFC
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45.	OK New interior partitions can meet STC 50. Sound transmission through floors may require sound mitigation at the second floor.	IBC 1207
10	Employee and Public Access	<5 non-residential employees	OK No business uses expected to require >5 non-residential employees	IBC 419.1.1.4
11	Reoccurring Inspections	Frequency per City policy for commercial portion of work-live unit	OK	Tacoma Municipal Fire Code
12	Guardrails	Per IRC in residential portion of work-live unit - 36" guardrails allowable; per IBC in commercial portion unit - 42" guardrails required	OK No guardrails anticipated	IBC 1013, R312.1
13	Plumbing	Per UPC	OK Kitchen and restrooms anticipated	IBC 419.9

OLD CITY HALL

625 Commerce Street

BACKGROUND

Old City Hall is a Tacoma landmark and one of the city's most important structures. The Italian Renaissance building was designed by E.A. Heatherton and opened in 1892-3 as the offices for the Tacoma Chamber of Commerce who later swapped properties with the municipal government. City government moved out in 1959 and the building was nearly demolished in 1973. A major renovation in the early 1980's transformed the property into retail, restaurants, and commercial office space. The vitality of the project waned by the mid-nineties eventually leading to a sale to a residential developer in 2005. The last remaining tenants moved out and interior demolition began just as the recession hit and the project stalled. The building remains vacant and has been declared a derelict property by the City of Tacoma.



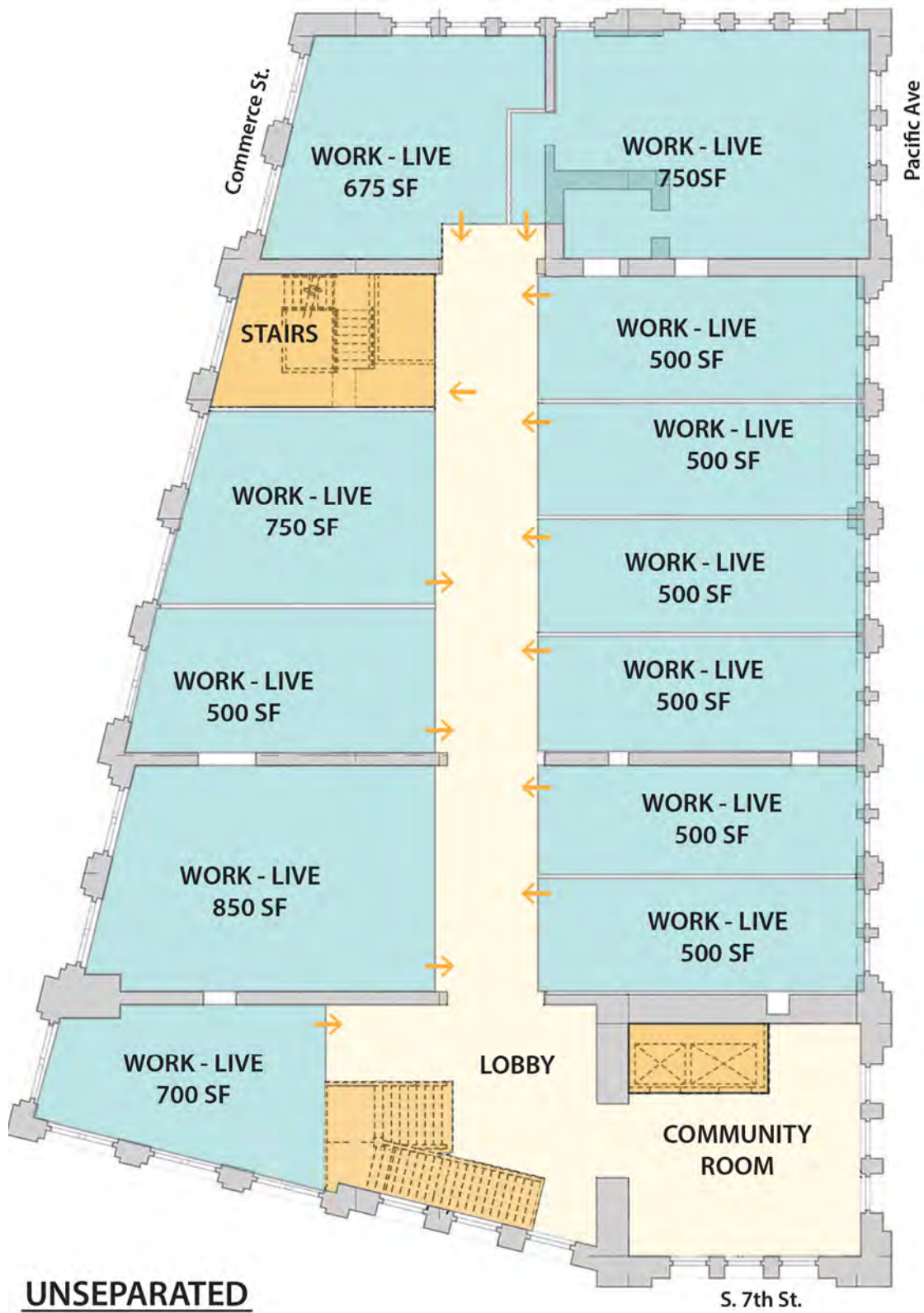
BUILDING ATTRIBUTES

Old City Hall is a five-story unreinforced masonry building with a four-story clock tower, a partial basement, and a rooftop greenhouse that was added in the renovation. Mezzanines were added during the renovation within the five high-volume spaces of each floor. As currently configured the building has interior gross area of 63,700 square feet. The interior and exterior character of the building is grand, with large expanses of buff colored brick, large windows, intricate wood window casings, and detailed main staircase.

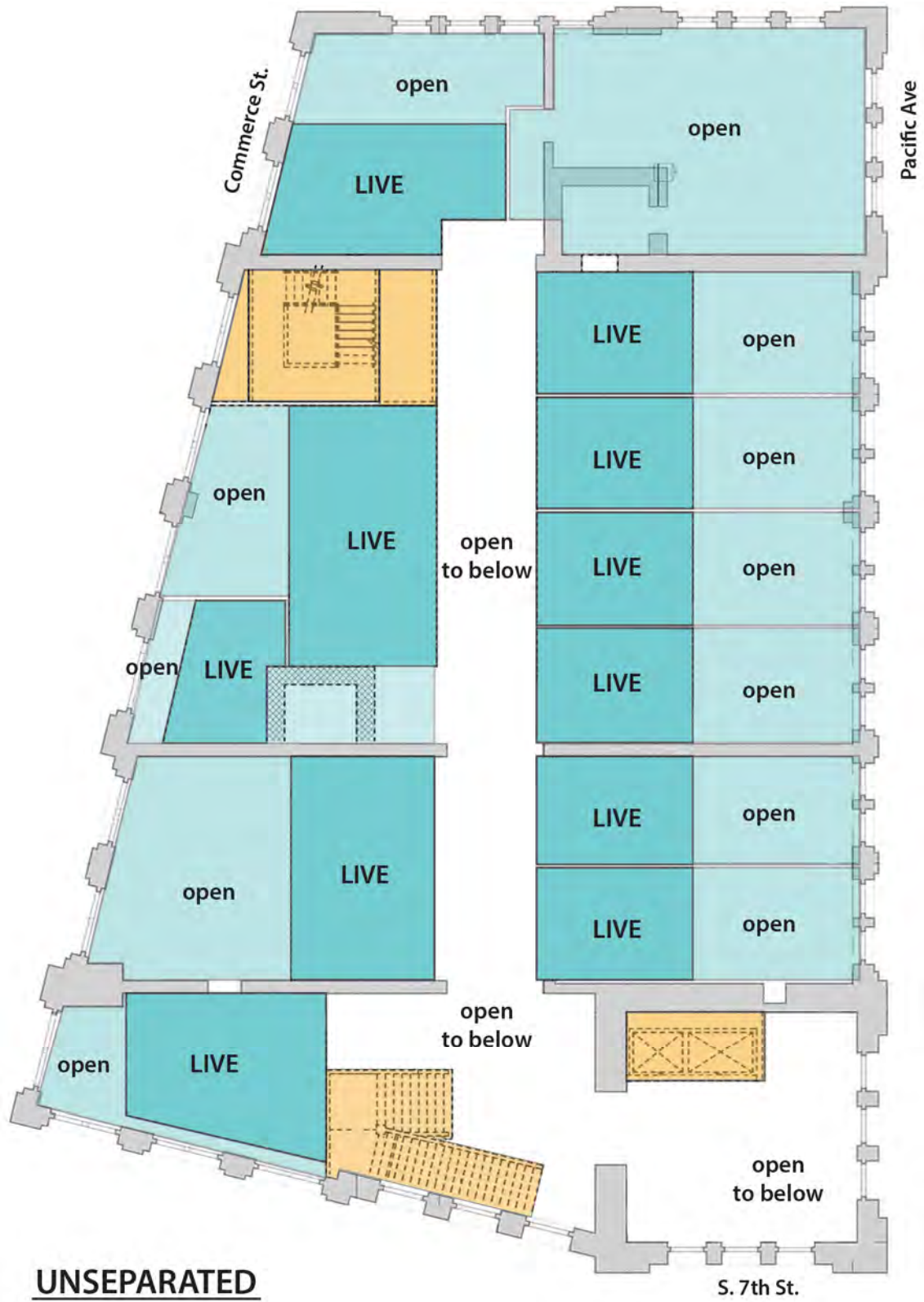
Each 8,000 square foot floor plate has a full-height 750 square foot wide central circulation hallway and a 1,200 square foot lobby with elevators and grand staircase. The available tenant area is approximately 6,050 square feet with an additional 3,000 square feet of mezzanine above, configured in long and narrow tenant spaces in the shape of the letter "U". The floor plans are inefficient by contemporary BOMA standards; primarily due to oversized circulation and lobbies.

The building is an ideal candidate for work-live uses. The same attributes that are challenging for commercial use are ideal for residential spaces. Unit depths of 20-30 feet are appropriate for residential use and the long spaces are easily subdivided. High volumes are ideal for loft style units with office and entertaining functions on the main floor and bedrooms above. A typical floor could accommodate up to 12 work-live units between 500 square feet and 850 square feet. Larger units are possible if market conditions would support higher rents, with no less than six units per floor.

TYPICAL FLOOR PLAN



TYPICAL MEZZANINE PLAN



WORK-LIVE CODE ANALYSIS

Loft style work-live units are an unseparated unit configuration with the business and residential uses sharing the same space. For the purposes of this study a typical unit would include main floor spaces of a kitchen, ½ bath, and an open area for business activities and the bedroom and full bathroom on the upper level mezzanine.

#	Issue	Work/Live Types	Comments	Existing Code Reference
		Unseparated		
1	Maximum Unit Size	3,000 sf	OK Units range from 500-1000 sf	IBC 419.1.1.1
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	OK Mezzanine residential area < 50%	IBC 419.1.1.2
3	Separation between Units	Separation per IBC; use most restrictive fire-rating requirements if multiple occupancies occupy same space	OK No separation required	IBC 420.1, IBC 508.3.3, IBC 708.3
4	Sprinklers	Always required for unseparated work-live units Exception 1: For up to (4) four unit projects a 13R system is allowable with additional restrictions (see also Fire Alarms and Exit/Egresses for exception)	OK The building has a full NFPA 13 sprinkler system installed. Upgrades to egress and fire protection systems will be required for any project meeting IEBC thresholds for alteration level 3. Expected scope includes: fire enclosure of secondary stairway, standpipe upgrades to wet manual type, sprinkler freeze protection in attic, adding fire alarm and notification.	IBC 419.5
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	No existing fire alarm system. Meet requirements of IEBC	IBC 419.5
6	Mezzanines and Sleeping Lofts	Per IBC	OK Existing mezzanine floors to be reused. Some mezzanine area will be removed to increase areas of full height space.	IBC 505
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	IEBC requires roof diaphragm to be tied to exterior walls and parapet bracing for alteration level 3 improvements. The tower may also require seismic reinforcing in any major renovation.	IBC 1613.1, IEBC Appendix A (for URM buildings)
8	Hazardous Materials	Per IFC	OK No hazardous occupancy anticipated	IFC
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45	OK New interior partitions can meet STC 50. Sound transmission through floors may require improvements to plank wood flooring	IBC 1207
10	Employee and Public Access	<5 non-residential employees	OK No business uses expected for >5 non-residential employees	IBC 419.1.1.4
11	Reoccurring Inspections	Frequency per City policy for entire work-live unit	OK	Tacoma Municipal Fire Code
12	Guardrails	Per IBC for entire work-live unit 42" guardrails required	OK Guardrails expected at mezzanine edges	IBC 1013, R312.1
13	Plumbing	Per UPC	OK Kitchen and restrooms anticipated	IBC 419.9

VALHALLA HALL

1216 Martin Luther King Jr. Way

BACKGROUND / BUILDING ATTRIBUTES

Valhalla Hall was built in 1906 as a Swedish-American social hall in what is now the Hilltop Business District in the MLK Mixed-Use Center. The building is a 3-story wood framed structure that fully utilizes its 50-foot by 130-foot middle-block lot (6,500 gross square feet). The building organization is typical of historic social halls and fraternal organizations with main floor retail that generates revenue to support social activities on the upper floors.



The main retail level has 18-foot ceilings and is bisected by a wall to create two retail spaces (M occupancy) that are roughly 24-feet wide by 128-feet deep (3,072 square feet). The upper floors are accessible through a street level door in the middle of the building between the retail areas and a single flight of stairs to the 2nd floor. The upper floors do not have a secondary egress route. The upper levels were dedicated to community spaces (A-3 occupancy) and are not candidates for work-live use.

The building was owned by the Swedish Order of Valhalla until 1998 when it was sold to a Tacoma non-profit organization that planned to transform the building into a student center for underprivileged youths. Funding fell through and the project stalled. The building has remained vacant since and has become a neighborhood eyesore.

WORK-LIVE CODE ANALYSIS

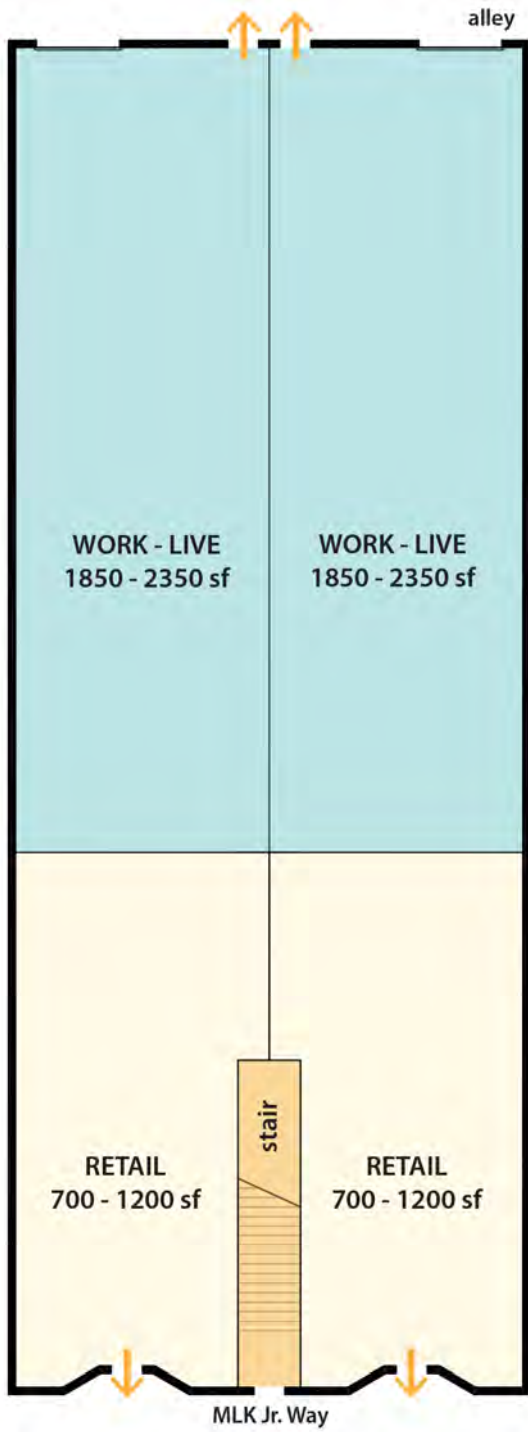
The street level of Valhalla Hall is the only portion of the building that has an occupancy classification of Mercantile "M" or Business "B" and is therefore the only floor that can become work-live units. The upper levels could also support residential uses but would require a change of use.

The retail floor of Valhalla Hall is a strong candidate for work-live use. The two 3,000 square foot retail spaces are very deep (128 feet) with windows restricted to the street and alley. The Hilltop Business District has a soft retail market and there are few, if any, retail businesses that require such large retail space. The typical size for retail is 1,000-1,200 square feet. A building owner may have to discount the lease or shorten the space to attract a tenant at a competitive price.

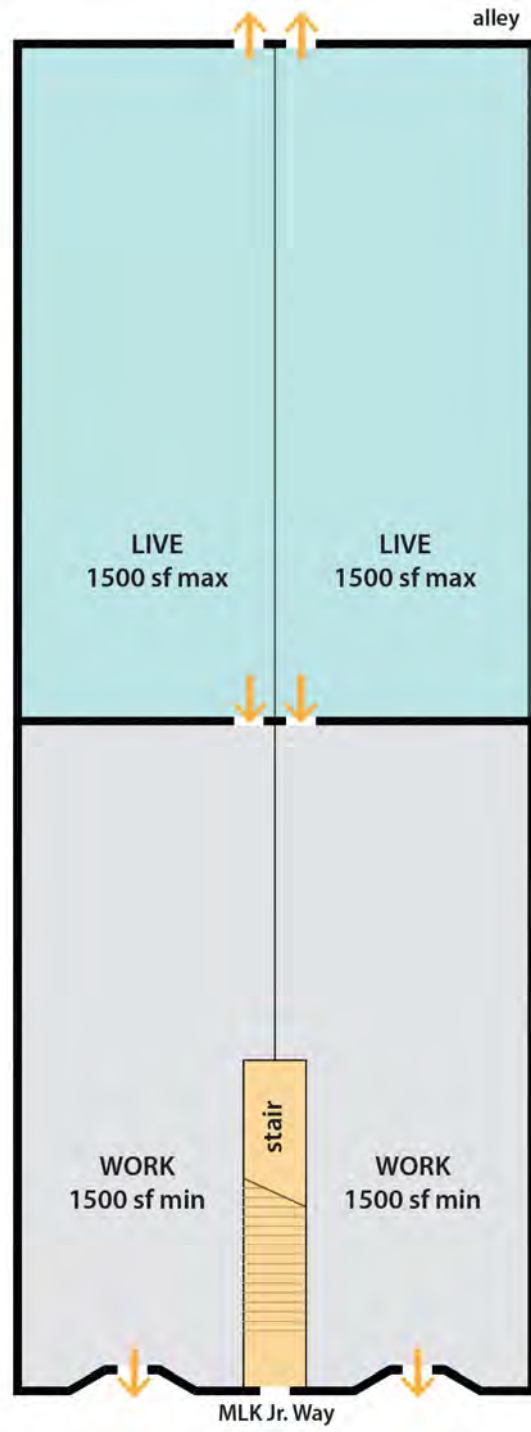
Both types of work-live are viable at Valhalla Hall. An unseparated unit configuration is possible by dividing the first floor into street and alley sides. The street side would remain retail space, each between 700-1200 square feet. The remaining alley side would be converted to large work-live units between 1850-2350 square feet each, accessible from the alley. These units would be ideal for artists or other businesses with infrequent visitors that would benefit from large studio space. The unseparated configuration would support four tenants on a single floor, each paying market rates.

The separated unit configuration is similar to the unseparated unit with the exception that the street side of the building would be the business function with the residential portion behind. In the separated configuration the retail unit would need to be at least 1,500 square feet. The units could be internally connected with a door in the dividing wall, or fully separate.

FLOOR PLANS



UNSEPARATED



SEPARATED

VALHALLA HALL - WORK-LIVE MATRIX
UNSEPARATED USE

#	Issue	Work/Live Types	Comments	Existing Code Reference
		Unseparated		
1	Maximum Unit Size	3,000 sf	OK Units range from 1,850-2,350 sf	IBC 419.1.1.1
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	OK Max residential portion range from 925 sf to 1,175 sf	IBC 419.1.1.2
3	Separation between Units	Separation per IBC; use most restrictive fire-rating requirements if multiple occupancies occupy same space	OK No separation required	IBC 420.1, IBC 508.3.3, IBC 708.3
4	Sprinklers	Always required for unseparated work-live units Exception 1: For up to (4) four unit projects a 13R system is allowable with additional restrictions (see also Fire Alarms and Exit/Egresses for exception)	The building is not sprinklered. Less than four units are proposed, a 13R system is allowable. If residential or work-live units are proposed for upper floors then the sprinkler connection and riser must be sized for a full NFPA 13 system, but only the 13R sprinkler within the work-live units is required at this time.	IBC 419.5
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	No existing fire alarm system. Meet requirements of IEBC	IBC 419.5
6	Mezzanines and Sleeping Lofts	Per IBC. Residential use only permissible in residential portion of unit	OK Mezzanines are not necessary but allowable if they meet the requirements of the IBC	IBC 505
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	Work restricted to the first floor does not cross alteration level 3 threshold. No seismic upgrades are expected for this wood frame building.	IBC 1613.1, IEBC Appendix A (for URM buildings)
8	Hazardous Materials	Per IFC	OK No hazardous materials anticipated	IFC
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45	OK New interior partitions can meet STC 50. Sound transmission through floors may require sound mitigation at the ceiling.	IBC 1207
10	Employee and Public Access	<5 non-residential employees	OK No business uses expected for >5 non-residential employees in work-live portion	IBC 419.1.1.4
11	Reoccurring Inspections	Frequency per City policy for entire work-live unit	OK	Tacoma Municipal Fire Code
12	Guardrails	Per IBC for entire work-live unit 42" guardrails required	OK No guardrails anticipated	IBC 1013, R312.1
13	Plumbing	Per UPC	OK Kitchen and restrooms anticipated	IBC 419.9

VALHALLA HALL - WORK-LIVE MATRIX
SEPARATED USE

#	Issue	Work/Live Types	Comments	Existing Code Reference
		Separated		
1	Maximum Unit Size	3,000 sf	Unit sizes will meet restrictions once the sprinkler riser room, electrical room, and refuse areas are included.	IBC 419.1.1.1
2	Maximum Residential Portion Size	50% of unit (<1,500 sf at max size)	OK Max residential portion is 1,500 sf	IBC 419.1.1.2
3	Separation between Units	Separation per IBC for each use type	OK No separation required between R and M or B occupancy classifications	IBC 420.1, IBC 508.3.3, IBC 708.3
4	Sprinklers	Always required for the residential portion of work-live units Exception 2: For (1-2) unit projects, may use 13D system with additional restrictions (see also <i>Fire Alarms and Exit/Egresses</i> for exception)	The building is not sprinklered. Only two units are proposed, a 13-D system is allowable. If residential or work-live units are proposed for upper floors then the sprinkler connection and riser must be sized for a full NFPA 13 system. Only the 13D sprinkler within the live portion of the units are required at this time.	IBC 419.5
5	Fire Alarms	Full fire-alarm system for all new construction per IFC and IBC. Fire alarm system for renovations per IEBC	No existing fire alarm system. Meet requirements of IEBC	IBC 419.5
6	Mezzanines and Sleeping Lofts	Per IBC. Residential use only permissible in residential portion of unit	OK Mezzanines are not necessary but allowable if they meet the requirements of the IBC. Mezzanines would increase the residential area and may require work area to be increased to maintain the <50% restriction.	IBC 505
7	Seismic Standards	Per IBC for new construction; per IEBC for existing construction and renovations	Work restricted to the first floor does not cross alteration level 3 threshold. No seismic upgrades are expected for this wood frame building.	IBC 1613.1, IEBC Appendix A (for URM buildings)
8	Hazardous Materials	Per IFC	OK No hazardous occupancy anticipated	IFC
9	Noise and Sound Transmission, Sound Mitigation	Minimum: STC 50/IIC50; CNEL 45.	OK New interior partitions can meet STC 50. Sound transmission through floors may require sound mitigation at the ceiling.	IBC 1207
10	Employee and Public Access	<5 non-residential employees	OK No business uses expected for >5 non-residential employees	IBC 419.1.1.4
11	Reoccurring Inspections	Frequency per City policy for commercial portion of work-live unit	OK	Tacoma Municipal Fire Code
12	Guardrails	Per IRC in residential portion of work-live unit - 36" guardrails allowable; per IBC in commercial portion unit - 42" guardrails required	OK No guardrails anticipated	IBC 1013, R312.1
13	Plumbing	Per UPC	OK Kitchen and restrooms anticipated	IBC 419.9

RECOMMENDATIONS FOR IMPLEMENTATION

The information in this report are observations and recommendations for the consideration of the City of Tacoma's staff. To further the Work-Live discussion within the City, and to move towards the implementation of proposals included in this report, BLRB recommends the following next steps:

1. Review proposed Work-Live Matrix with other departments within the City of Tacoma as necessary and approve contents for future use by the Building Department as a supplemental document for parties interested in work-live development within the city.
2. Draft and approve amended code language to the Tacoma Municipal Building Code to incorporate Work-Live Matrix provisions as necessary into the code. This may include amendments to IBC Section 419, the International Building Code, the International Existing Building Code, and the International Fire Code.
3. Review Tacoma Municipal Land Use Code for any revisions that may be necessary to align the Zoning Code with the Building Code, as it pertains to work-live development.
4. Review and train Planning and Development Services staff and associated departments on amendments made to the Tacoma Municipal Building and Land Use codes as they pertain to work-live projects, as well as use of the Work-Live Matrix.
5. Update the Work-Live Matrix, building code and land use code as necessary to incorporate "lessons learned" through implementation of the new work-live code. Intend for the Work-Live code and Matrix to be living documents.

It is our hope that this study becomes the stepping-stone to successful work/live development in the City of Tacoma, invigorating these existing vacant buildings once again and bringing life to the neighborhoods they live in.

APPENDIX A: TACOMA MUNICIPAL CODE - SECTION 13.06A.050.E

The text below is taken directly from the Tacoma Municipal Code, Title 13, Section 13.06.050.E. It has not been altered for this report.

E. Work-Live.

1. Purpose and Intent: The purpose of this Section is to assist with the revitalization of Downtown Tacoma and with the implementation of the City's Comprehensive Plan by facilitating the conversion of older, economically distressed, or historically significant buildings to work-live units. This will help to reduce vacant space as well as preserve Downtown's architectural and cultural past and encourage the development of a work-live and residential community Downtown, thus creating a more balanced ratio between housing and jobs in the region's primary employment center. This revitalization will also facilitate the development of a "24-hour city" and encourage mixed commercial and residential uses in order to improve air quality and reduce vehicle trips and vehicle miles traveled by locating residents, jobs, hotels and transit services near each other. Adding a minor residential component to an existing or historic building does not trigger change of use requirements under the City's Land-use codes.

a. A work-live unit is a combined living and work unit that includes a kitchen and a bathroom. The residential portion of the unit, including the sleeping area, kitchen, bathroom, and closet areas, occupies no more than 33 percent of the total floor area of the legal non-residential use, and the living space is not separated from the work space. It must be located within buildings lawfully in existence on September 25, 2012 in Downtown.

b. The requirements for the "work-live" units are as follows:

i. The residential use must be clearly incidental and subordinate to the work space.

ii. Buildings containing "work-live" units shall not generate additional impacts to any greater extent than what is usually experienced in the surrounding area.

iii. The Director may attach additional conditions to permits that are required for "work-live" units to ensure that the criteria set forth above are met.

c. For the purposes of this chapter, a historic building is defined as follows: Any building or structure that is listed in the State or National Register of Historic Places; or designated as a City Landmark under Chapter 13.07 of the Tacoma Municipal Code; or certified as a contributing resource within a National Register or Tacoma Register historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Register of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer, or with an opinion from the Tacoma Historic Preservation Officer that the property appears to meet the criteria for designation as a local landmark listed in Chapter 13.07 of the Tacoma Municipal Code.

d. No additional parking spaces are required.

e. Up to 10% of new floor area may be added, either internally or externally, for the purposes of creating living or working space without triggering a change in use.

f. External additions are exempt from all prescriptive design standards contained within TMC 13.06.300 and TMC 13.06A, but external additions shall be in conformance with the character of the existing building.

g. Non-conforming floor area, Floor Area Ratio (FAR), setbacks, height, and site landscaping are "grandparented in", meaning that a variance is not required for development that does not increase the degree of non-conformity.

h. Mezzanine spaces may be added so long as they do not exceed a 10% increase in floor area or one third the area of the floor below.

i. New roof structures shall not be considered as adding new floor area or trigger change of use requirements provided that: such structures are not used for living or working quarters; and, such structures are used solely for accessory uses or in conjunction with open space amenities.

j. Adding a "work-live" unit is not subject to density requirements in the underlying zone.

k. These provisions do not extend to adaptive reuses that involve more than 20 dwelling units or more than 12,000 square feet of commercial space in a particular building.

f. Marijuana uses (marijuana producer, marijuana processor, and marijuana retailer). Marijuana retailers shall be allowed in all downtown districts, subject to the additional requirements contained in Section 13.06.565. Marijuana producers and marijuana processors shall be prohibited in all downtown districts.

(Ord. 28230 Ex. E; passed Jul. 22, 2014: Ord. 28182 Ex. A; passed Nov. 5, 2013: Ord. 28157 Ex. G; passed Jun. 25, 2013: Ord. 28088 Ex. B; passed Sept. 25, 2012: Ord. 27539 § 21; passed Oct. 31, 2006: Ord. 27245 § 23; passed Jun. 22, 2004: Ord. 26556 § 28; passed Dec. 14, 1999)

END OF SECTION

APPENDIX B: 2012 INTERNATIONAL BUILDING CODE - SECTION 419

The text below is taken directly from the 2012 International Building Code, Section 419. It has not been altered for this report.

SECTION 419 LIVE/WORK UNITS

419.1 General.

A live/work unit shall comply with Sections 419.1 through [419.9](#).

Exception: Dwelling or sleeping units that include an office that is less than 10 percent of the area of the dwelling unit are permitted to be classified as dwelling units with accessory occupancies in accordance with [Section 508.2](#).

419.1.1 Limitations.

The following shall apply to all live/work areas:

1. The live/work unit is permitted to be not greater than 3,000 square feet (279 m²) in area;
2. The nonresidential area is permitted to be not more than 50 percent of the area of each live/work unit;
3. The nonresidential area function shall be limited to the first or main floor only of the live/work unit; and
4. Not more than five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.

419.2 Occupancies.

Live/work units shall be classified as a Group R-2 occupancy. Separation requirements found in [Sections 420](#) and [508](#) shall not apply within the live/work unit where the live/work unit is in compliance with [Section 419](#). Nonresidential uses which would otherwise be classified as either a Group H or S occupancy shall not be permitted in a live/work unit.

Exception: Storage shall be permitted in the live/work unit provided the aggregate area of storage in the nonresidential portion of the live/work unit shall be limited to 10 percent of the space dedicated to nonresidential activities.

419.3 Means of egress.

Except as modified by this section, the means of egress components for a live/work unit shall be designed in accordance with [Chapter 10](#) for the function served.

419.3.1 Egress capacity.

The egress capacity for each element of the live/work unit shall be based on the occupant load for the function served in accordance with Table 1004.1.1.

419.3.2 Spiral stairways.

Spiral stairways that conform to the requirements of [Section 1009.12](#) shall be permitted.

419.4 Vertical openings.

Floor openings between floor levels of a live/work unit are permitted without enclosure.

[F] 419.5 Fire protection.

The live/work unit shall be provided with a monitored fire alarm system where required by [Section 907.2.9](#) and an automatic sprinkler system in accordance with [Section 903.2.8](#).

419.6 Structural.

Floor loading for the areas within a live/work unit shall be designed to conform to Table 1607.1 based on the function within the space.

419.7 Accessibility.

Accessibility shall be designed in accordance with [Chapter 11](#) for the function served.

419.8 Ventilation.

The applicable ventilation requirements of the International Mechanical Code shall apply to each area within the live/work unit for the function within that space.

419.9 Plumbing facilities.

The nonresidential area of the live/work unit shall be provided with minimum plumbing facilities as specified by [Chapter 29](#), based on the function of the nonresidential area. Where the nonresidential area of the live/work unit is required to be accessible by [Section 1103.2.13](#), the plumbing fixtures specified by [Chapter 29](#) shall be accessible.

END OF SECTION