

Modwell Spatial Real Estate Standards

Manual for operating within a spatial real estate ecosystem

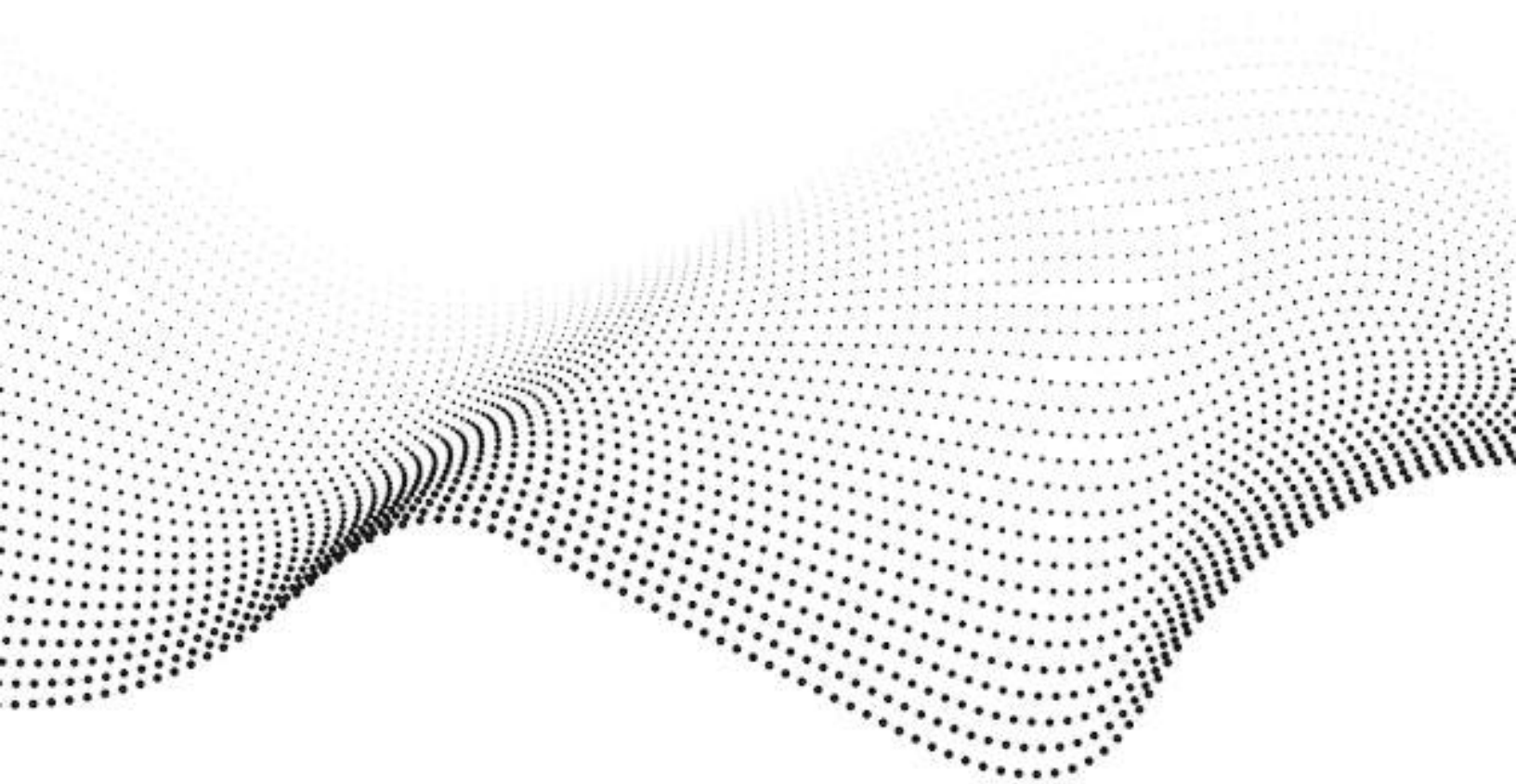




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1.0 Introduction

Welcome to "Modwells Spatial Computing Standards: Redefining Real Estate in the Digital Age." In this comprehensive guide, we delve into the transformative power of spatial computing technologies in the realm of real estate. From 3D listings to augmented reality (AR) standards, from virtual commerce to advertising regulations, this book is your roadmap to navigating the exciting frontier where technology meets property.

3D Single Family Listings

Chapter 1 explores the evolution of 3D single-family listings, providing insights into how spatial computing is revolutionizing the way homes are presented and marketed to prospective buyers.

3D Multi Family Listings

In Chapter 2, we delve into the world of 3D multi-family listings, examining how spatial computing technologies are reshaping the way developers showcase apartments, condominiums, and other multi-unit properties.

3D Geospatial Location(s)

Chapter 3 focuses on the integration of 3D geospatial location data into real estate listings, offering a deep dive into how this technology enhances the understanding of a property's surroundings and its proximity to key amenities and attractions.



1.1 Introduction

3D Neighborhoods (Cities)

In Chapter 4, we explore the concept of 3D neighborhoods and cities, highlighting how spatial computing enables users to virtually explore and interact with entire urban environments, providing valuable insights for both buyers and investors.

3D Asset Types

Chapter 5 examines the diverse range of asset types that make up the broad and varying spatial computing experiences, from residential and commercial properties to industrial sites and vacant land, showcasing the versatility and applicability of these tools / file types across various sectors of the real estate industry.

3D Syndication

Chapter 6 delves into the role of 3D syndication in real estate marketing, illustrating the importance of seamless distribution and sharing of property listings across multiple platforms and channels to maximize exposure, engagement, and user experience consistency.

3D IP Rights

In Chapter 7, we address the complex landscape of intellectual property (IP) rights in the context of 3D real estate assets, exploring the legal and ethical considerations surrounding the creation, ownership, and usage of spatial computing content.



1.2 Introduction

AR Listing Standards

Chapter 8 introduces augmented reality (AR) listing standards, examining how this emerging technology is reshaping the way properties are experienced and evaluated, and outlining best practices for integrating AR into real estate marketing strategies.

Spatial Computing Listing Standards

Chapter 9 outlines spatial computing listing standards, providing a framework for the creation, management, and dissemination of 3D real estate content, and setting guidelines for ensuring accuracy, consistency, and interoperability across platforms.

Advertising Rules and Regulations

Chapter 10 navigates the complex landscape of advertising rules and regulations in the context of spatial computing technologies, addressing key considerations related to transparency, consumer protection, and compliance with industry standards and guidelines.

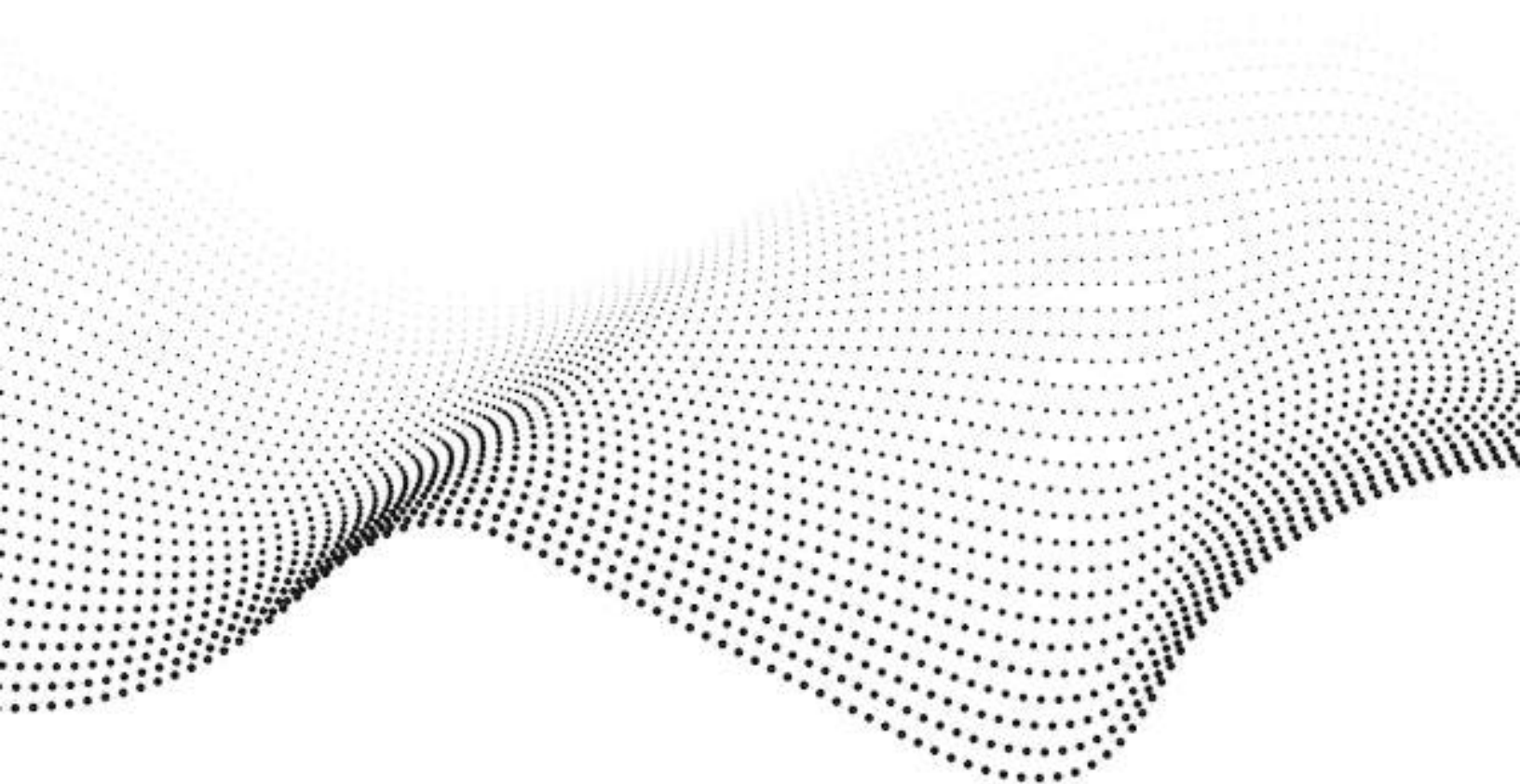


1.3 Introduction

Virtual Commerce

Finally, Chapter 11 explores the emerging frontier of virtual commerce in real estate, examining how spatial computing is enabling immersive, interactive, and transactional experiences that redefine the way properties are bought, sold, and furnished in the digital age.

Join us on a journey into the future of real estate, where spatial computing technologies are transforming the way we explore, evaluate, and interact with the built environment.





2.0 3D Single Family Listings

Documenting a 3D Single Family Home

In this section, we delve into the comprehensive process of capturing and documenting a 3D representation of a single-family home. Documenting a property in three dimensions requires meticulous attention to detail to accurately capture its dimensions, features, and layout.

To begin, the process typically involves utilizing specialized 3D scanning equipment or software to capture detailed measurements and data points of the home's interior and exterior. This may include capturing the dimensions of each room, the layout of the floor plan, and the placement of key features such as windows, doors, and fixtures.

Additionally, high-resolution photographs and videos are often taken to provide visual context and enhance the overall documentation / presentation of the property. These images can be seamlessly integrated into the 3D model to provide viewers with a comprehensive understanding of the home's aesthetics and design elements.

Throughout the documentation process, it's essential to ensure accuracy and completeness. This may involve double-checking measurements, verifying the placement of features, and capturing multiple perspectives to provide a comprehensive view of the property.

Once the documentation process is complete, the 3D representation of the single-family home serves as a valuable tool for prospective buyers, enabling them to virtually explore the property in immersive detail before scheduling an in-person viewing.



2.1 3D Single Family Listings

Scaling a 3D Single Family Home

Scaling a 3D model accurately is paramount to ensuring viewers can perceive spatial relationships with precision, aiding them in making well-informed decisions about the property. Achieving this requires meticulous attention to detail, particularly regarding the specific sizes and suggestions for different viewing devices.

When scaling a 3D model, it's crucial to ensure it accurately mirrors the proportions and dimensions of the actual property. This may entail referencing architectural drawings or blueprints to verify measurements, guaranteeing the model faithfully represents the home's layout and features.

Furthermore, it's essential to consider the scale of the model relative to the viewing environment. For instance, if the 3D model is intended for viewing on a computer screen or mobile device, it should be scaled appropriately to ensure optimal viewing without sacrificing detail. Similarly, for virtual reality (VR) or augmented reality (AR) experiences, the model may need to be adjusted to provide an immersive and realistic portrayal of the property, ultimately enriching the overall property-buying experience.



2.2 3D Single Family Listings

Publishing a 3D Single Family Home

Publishing a 3D representation of a property is essential for ensuring accessibility and consistency, allowing prospective buyers to explore the home virtually from anywhere at any time.

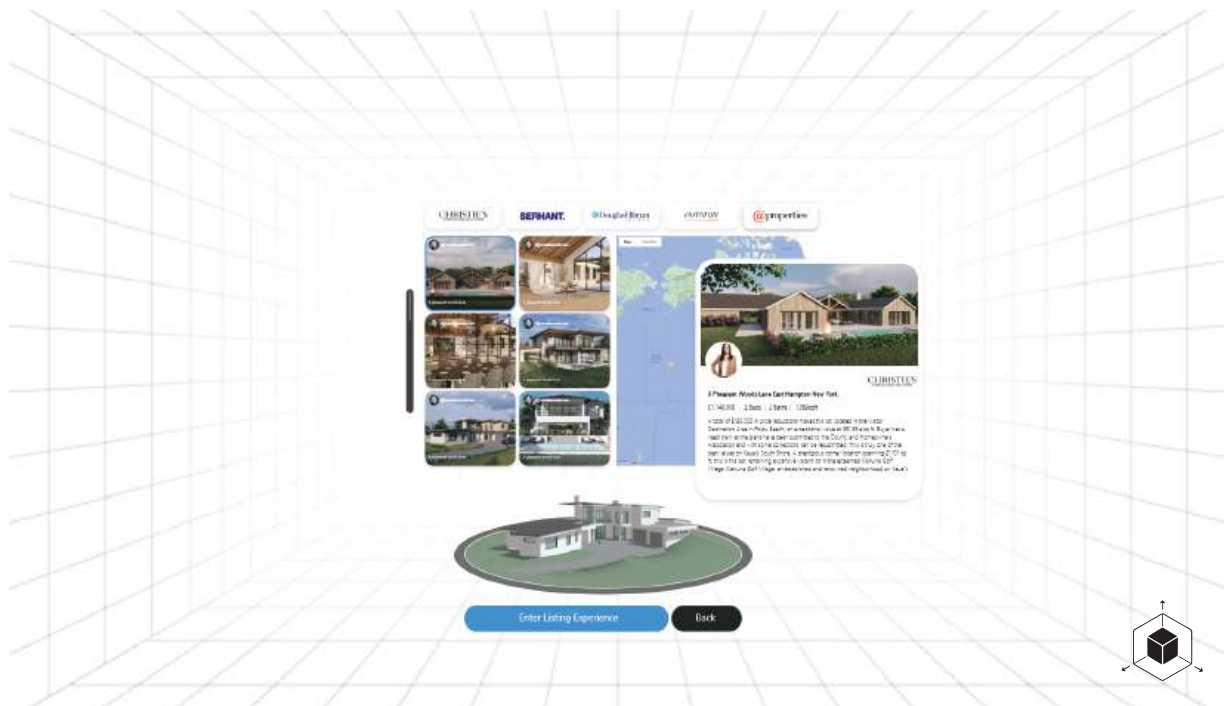
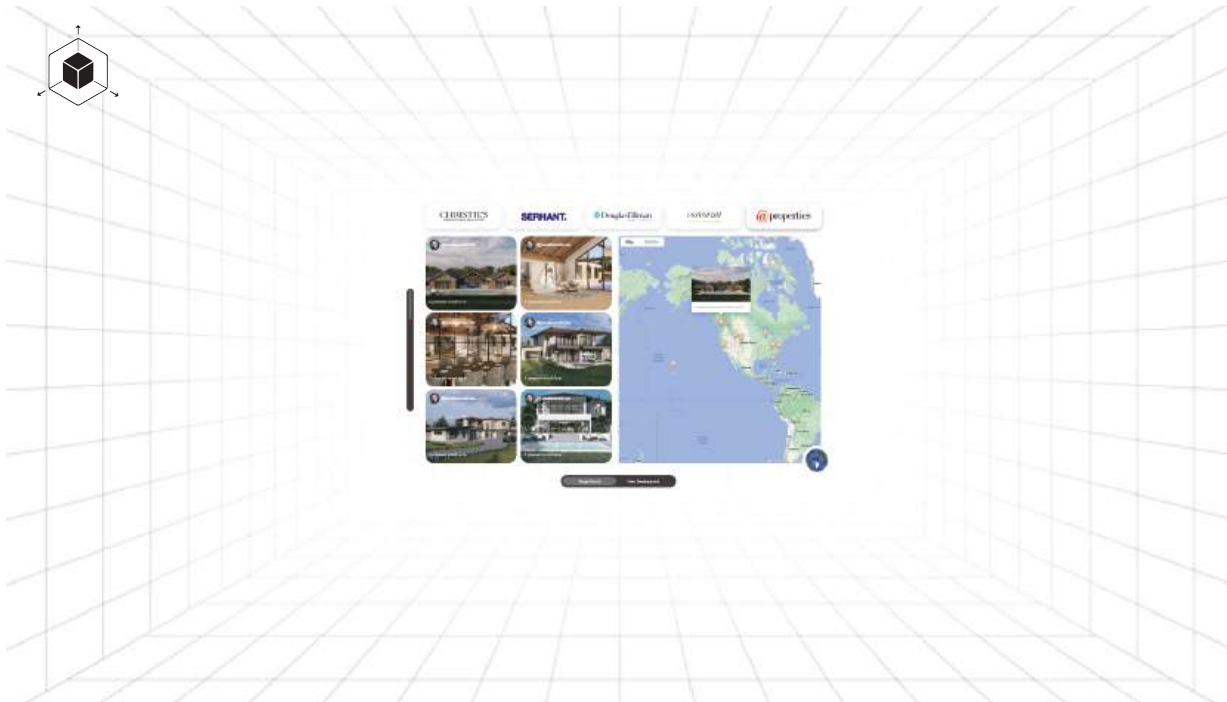
When publishing a 3D single-family home listing, it's essential to choose platforms that support immersive 3D experiences and provide robust features for interacting with the model. This may include popular real estate websites, virtual tour platforms, or dedicated 3D modeling platforms.

Additionally, it's important to optimize the 3D model for compatibility with different devices and viewing environments. This may involve optimizing file sizes, ensuring compatibility with web browsers and mobile devices, and providing options for viewing the model in VR or AR.

By successfully publishing the 3D single-family home listing across multiple platforms, sellers can maximize exposure and reach a broader audience of potential buyers, ensure accessibility and consistency in the presentation of the property, ultimately increasing the likelihood of a successful sale.



2.3 3D Single Family Listings





2.4 3D Single Family Listings





3.0 3D Multi Family Listings

Documenting a 3D Multi Family Building

Capturing and documenting 3D representations of multi-family buildings also requires meticulous attention to detail considering the many intricacies of shared spaces, unit layouts, and building amenities. Procedures for this task involve employing advanced technologies such as LiDAR, photogrammetry, and robust Building Information Modeling software to accurately capture the physical attributes of the building.

Documenting shared spaces involves capturing communal areas such as lobbies, corridors, gyms, and recreational areas, ensuring that each space is represented accurately and realistically.

Unit layouts, including floor plans and interior features, must also be documented comprehensively to provide potential buyers or renters with an immersive understanding of the property unit itself within context of the full building.

Furthermore, including the amenities such as swimming pools, parking facilities, and outdoor spaces to the 3D Multi family Listing will add value to the marketing representation, showcasing the full range of offerings available within the building.



3.1 3D Multi Family Listings

Scaling a 3D Multi Family Building

Accurately scaling multi-family building models is also essential to ensure that they reflect real-world proportions and facilitate accurate spatial visualization.

Techniques for scaling these more intricate assets involve leveraging reference data such as architectural surveys or on site geographic measurements to calibrate the model to real-world dimensions.

Scaling considerations for Multi Family Buildings extend beyond individual units to encompass the entire building structure, including common areas and amenities. Ensuring consistency in scale throughout the model enhances the viewer's ability to perceive spatial relationships accurately, facilitating a more realistic experience.

Lastly, adjusting the level of detail and resolution based on the intended use case will allow for optimized performance of your visualization. It is important to note, different types of program within the building may benefit from different scales and detail.



3.2 3D Multi Family Listings

Publishing a Multi Family Building

Publishing and disseminating 3D multi-family building listings require careful consideration of best practices to maximize exposure and engagement. Leveraging online platforms, portals, and other digital marketing tools can significantly enhance the visibility of the property and attract potential buyers or renters.

Best practices for publishing involve showcasing the 3D representation across various channels with an interactive user experiences designed to allow viewers to explore the property and all of its components in unison.

Once published it is also important to ensure that the 3D representation is accessible on multiple devices, including smartphones, tablets, and desktop computers, so that the users consumption is not limited to one medium. This will required several differentiated model optomizations, however by adopting this multi-channel multi-device approach to publishing, real estate professionals will find better success showcasing multi-family buildings to qualified leads.



3.3 3D Multi Family Listings





3.4 3D Multi Family Listings





4.0 3D Geospatial Location(S)

Documenting 3D Geospatial Locations

In this section, we explore the intricacies of documenting and capturing 3D representations of geospatial locations, focusing on specific sites within broader cities, neighborhoods, or regions. Documenting a singular 3D geospatial location (site) entails a comprehensive understanding of the surrounding terrain, and geographic features brought together to create an immersive and accurate representation.

To initiate the process, once again advanced technologies such as LiDAR, photogrammetry and BIM Software in concert with Geospatial softwares are employed for data collection. These collective methods allow for the precise capture of the terrain elevation, building structure(s), vegetation, and other geographic features, ensuring a detailed and true-to-life representation of the (site) environment.

In addition to capturing physical attributes, it's crucial to document key points of interest within the geospatial location which may include but are not limited to bodies of water, natural preserves, public spaces, and planned urban or suburban developments, providing viewers with up to date accurate context.

Furthermore, documenting a 3D geospatial (site) location involves accounting for spatial relationships and scale. Accurate capturing of distances and proportions will enables viewers to navigate the virtual environment confidently, ultimately augmenting many of the in person visits that may otherwise be required.



4.1 3D Geospatial Location(S)

Scaling 3D Geospatial Locations

Scaling a 3D geospatial (Site) location model accurately is essential to ensure it accurately represents real-world dimensions and enables effective spatial analysis. Various methods can be employed to achieve accuracy and consistency in scaling, tailored to the specific locale being represented.

One approach is to utilize reference data such as GIS (Geographic Information System) datasets or surveyed ground control points to calibrate the model to real-world coordinates. Aligning the 3D model with known geographic coordinates allows viewers to assess distances, areas, and volumes accurately within the virtual environment, enhancing the overall realism of the representation.

Additionally, considering the required level of detail for the specific application is vital. Urban master plans or sites, for instance, may require higher precision than a land parcel made visible for marketing, sales and educational purposes.

Adjusting the level of detail and resolution of your Geospatial (sites) Locations will optimize the 3D model for the differentiated intended use case so that your 3D Geospatial Sites can be visible not only with heavy compute power but also on desktop, mobile, (AR), and (VR) devices.



4.2 3D Geospatial Location(S)

Publishing 3D Geospatial Locations

Publishing a 3D geospatial location model involves making it accessible and usable for various applications, including design collaboration, property sales considerations, environmental assessments, and more.

A common method for publishing 3D geospatial location models is through virtual globe applications or web based cloud environments, both of which allow users to interact with the model in a user friendly browser or spatial application.

Considerations should be made for interoperability and data standards to ensure compatibility with different software and systems. Adhering to open standards such as CityGML, OBJ, or USDZ facilitates seamless integration of the 3D geospatial location model into the many existing workflows and applications, promoting accessibility and collaboration among stakeholders.

Overall, documenting, scaling, and publishing 3D geospatial location models involves a meticulous process to create accessible, usable, and interoperable representations of specific locales within broader environments, but when done correctly, a well-documented and accurately scaled 3D geospatial location model provides highly valuable insights and context for every analysis.

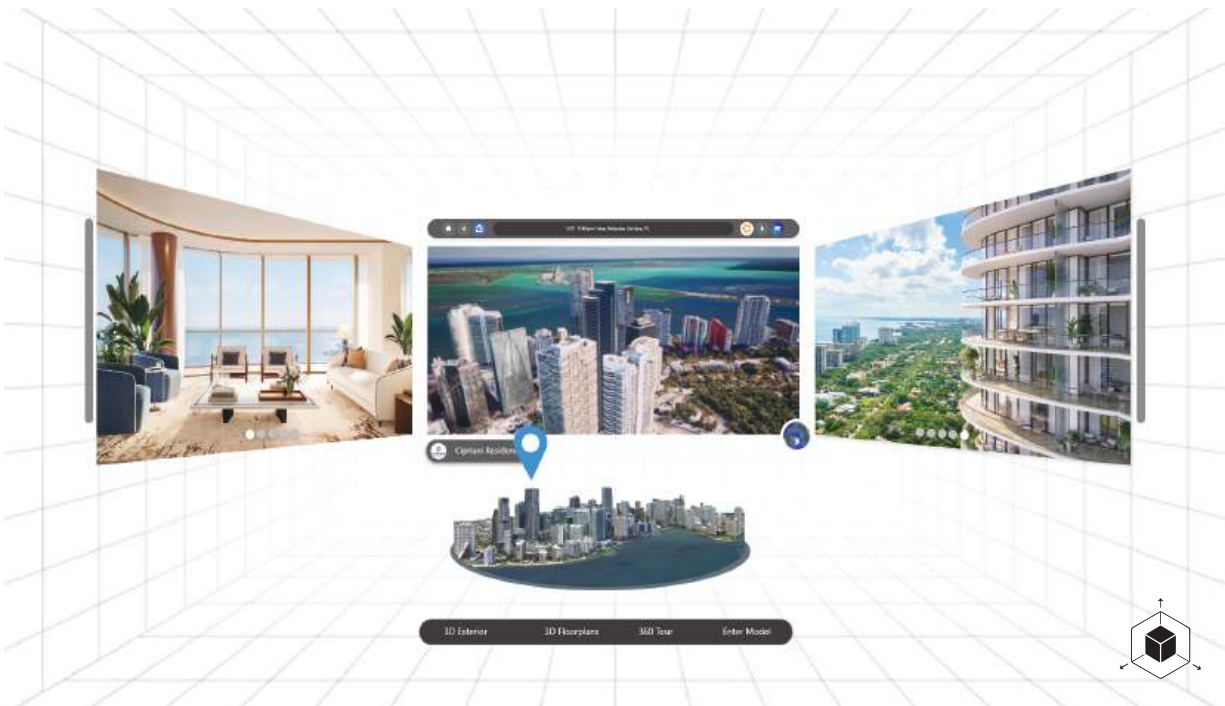
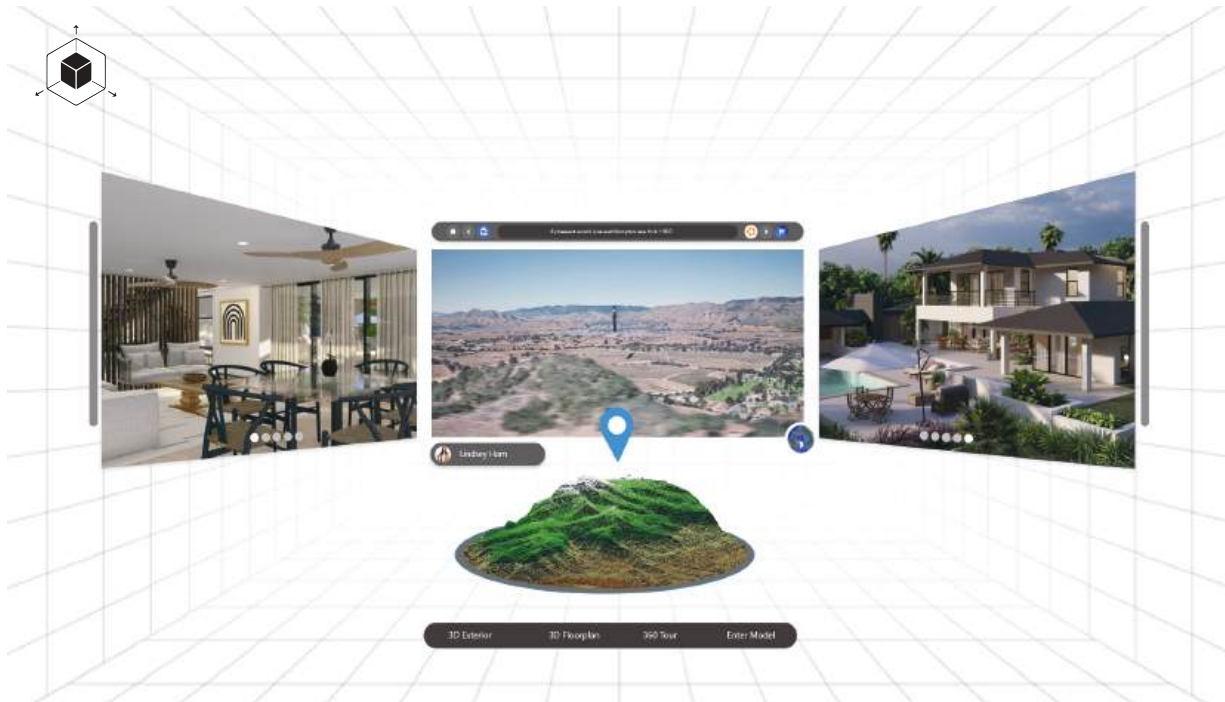


4.3 3D Geospatial Location(S)





4.4 3D Geospatial Location(S)





5.0 3D Geospatial Neighborhoods (Cities)

Chapter: Navigating 3D Neighborhoods

In this chapter, we explore the intricate process of documenting, scaling, and publishing 3D representations of neighborhoods or cities. Building upon the foundation laid in the preceding chapter on 3D Geolocations within 3D Cities, neighborhoods or regions, we delve deeper into the complexities of capturing and presenting entire urban / suburban environments in three dimensions.

Documenting a 3D Neighborhood

Documenting a 3D neighborhood involves capturing a comprehensive representation of buildings, infrastructure, and natural elements within a defined geographic area. To achieve this, we deploy the same advanced technologies such as LiDAR, Photogrammetry, BIM Softwares and Geospatial Data collection used on geospatial sites in a broader and more all encompassing manner.

Procedures for documenting a 3D neighborhood typically begin with the collection of spatial data, including building footprints, road networks, and elevation information. High-resolution imagery and aerial photography are then used to supplement the data, providing additional context and detail to the 3D model.

This holistic approach ensures that the 3D representation accurately reflects the unique character and identity of the entire neighborhood, city, region.



5.1 3D Geospatial Neighborhoods (Cities)

Scaling 3D Neighborhood Tiles

Scaling 3D neighborhood models into manageable tiles is vital for efficient storage, transmission, and rendering, especially when dealing with vast urban environments. One effective method involves dividing the neighborhood into smaller sections or tiles, each representing a subset of the overall 3D model.

An innovative approach to this process involves organizing the tiles based on geographical boundaries, such as zip codes. By leveraging zip codes, developers can create a structured grid system that aligns with real-world administrative divisions, facilitating easier navigation and management of the 3D model.

Each tile within the grid represents a specific zip code area, allowing users to explore the neighborhood in granular detail. This approach not only enhances the organization and accessibility of the 3D model but also enables users to focus on specific areas of interest within the neighborhood.

Furthermore, considerations must be made for optimizing the level of detail and resolution of each tile. Tiles representing densely populated or highly detailed areas may require higher levels of detail to accurately capture the nuances of the urban environment. Conversely, tiles covering less populated or less detailed regions can be optimized for efficiency to reduce storage and processing requirements.

By dynamically adjusting the level of detail based on the intended use case, developers can ensure smooth rendering and optimal performance across different viewing distances and devices.



5.2 3D Geospatial Neighborhoods (Cities)

Publishing a 3D Neighborhood (City)

Publishing and sharing 3D neighborhood or city models demands careful consideration of best practices to enable seamless navigation and immersive virtual exploration. Due to the immense amount of detail contained within these 3D tiles, efficient distribution often relies on heavy gaming engines.

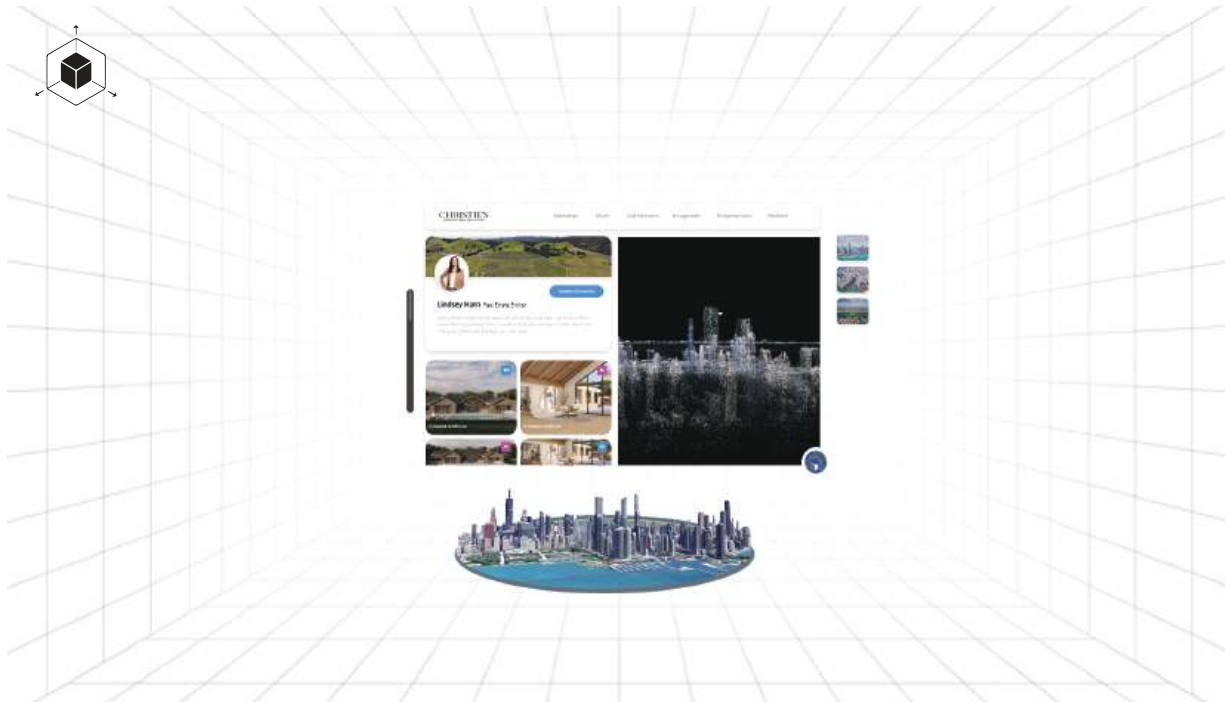
Gaming engines offer users a high-fidelity environment to interact with the 3D model, providing robust tools for navigation, exploration, and analysis. Incorporating features such as search functionality, annotations, and overlays also enhances the user experience, fostering deeper engagement with the neighborhood model.

When publishing 3D neighborhood models, it's crucial to optimize file formats for efficient transmission and compatibility with different devices and gaming engines. Additionally, adhering to open standards for interoperability ensures seamless integration across various platforms engines, and applications.

Overall, documenting, scaling, and publishing 3D neighborhood models require a multifaceted approach that balances accuracy, efficiency, and usability. By following established guidelines, developers can create immersive and engaging experiences that empower users to explore and interact with urban environments in unparalleled ways.

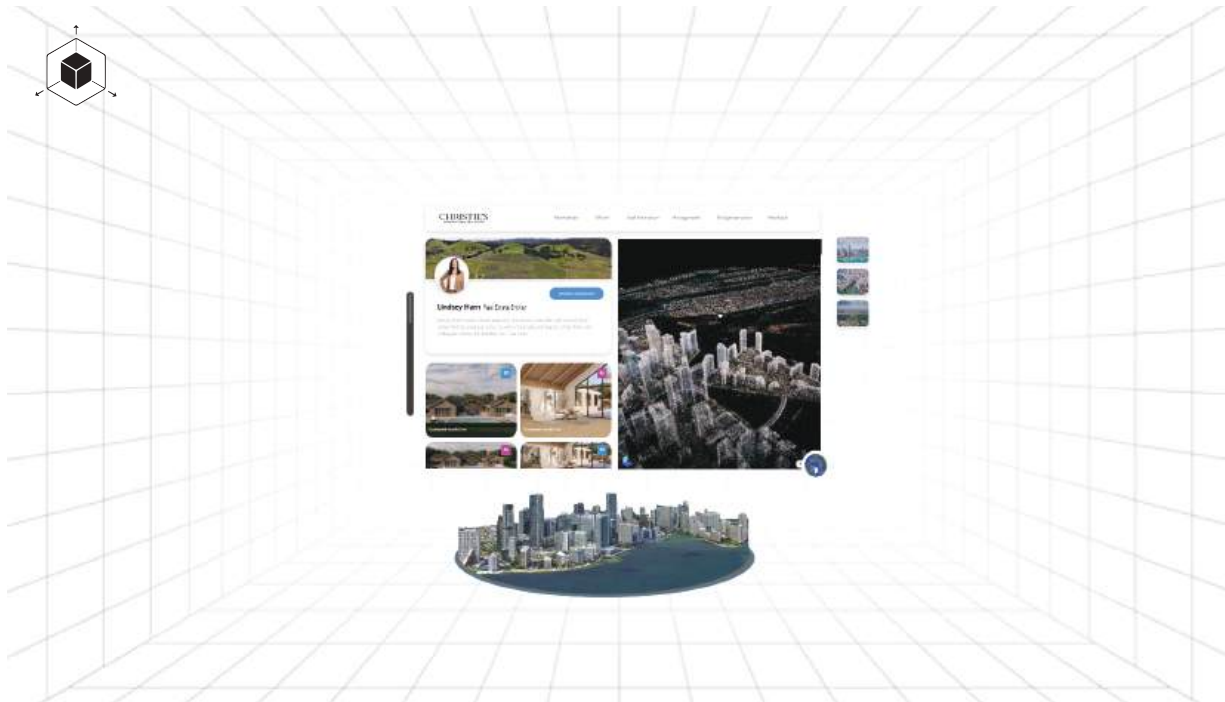


5.3 3D Geospatial Neighborhoods (Cities)





5.4 3D Geospatial Neighborhoods (Cities)





6.0 3D Asset Types

Chapter: Exploring 3D Asset Types

In this chapter, we delve into the diverse world of 3D asset types, exploring the intricacies of interoperability, the groundbreaking USDZ file format, and strategies for achieving cross-device success.

Understanding Interoperability

Interoperability is essential for seamless communication and compatibility across different platforms and software tools. In Laimons terms, Interoperability represents the ability for 3D assets, to move around the internet or softwares correctly like a PDF for 2D content, ensuring that designers and developers can effectively collaborate in 3D.

Various formats, such as OBJ, FBX, GLTF, and USDZ, serve as industry standards for exchanging 3D assets between different software applications and platforms.

Understanding these formats and their capabilities enables creators to work efficiently and ensures that their creations can be easily integrated into a wide range of workflows and environments.

By adhering to interoperability standards, designers and developers can avoid compatibility issues and streamline their production pipelines, ultimately fostering greater innovation and collaboration within the 3D community.



6.1 3D Asset Types

Breaking Down Open USDZ

The USDZ file format, originally developed by Pixar and adopted by the industry, has revolutionized the distribution, viewing, and collaboration of 3D content, particularly in augmented reality (AR) and virtual reality (VR) applications.

The USDZ is a compressed file format optimized for sharing and viewing 3D content on mobile devices, AR platforms, and the web. By encapsulating 3D models, textures, and animations into a single file, USDZ simplifies the process of distributing and experiencing immersive content, making it accessible to a broader audience.

With support from major technology companies such as Apple and Adobe, and Nvidia USDZ has become a standard format for AR content creation and consumption.

Its versatility and compatibility across different platforms empower creators to truly deliver the immersive experiences the market demands while also allowing individuals to build on top of one another.

For more details on the USDZ file format you can go to the [OpenUSD](https://openusd.org/) website to review updates and specifications.



6.2 3D Asset Types

Cross Device Success

A truly robust 3D immersive real estate experience is not achievable without first accomplishing compatibility across-device success. We can not determine the way in which the consumer interacts with the real estate market, all we can do is put forth the experiences.

With that in mind, your 3D assets will require careful optimization and diversification to ensure a consistent performance and user experience across the variety of platforms and devices.

Optimization techniques play a pivotal role in enhancing the performance of 3D assets across these different devices. Formats such as GLTF or GLB are particularly effective for this purpose, as they efficiently reduce file size while maintaining visual fidelity.

Furthermore, optimizing assets for specific platforms and devices enables creators to capitalize on the unique capabilities of each platform. For example, certain devices may offer advanced rendering capabilities or support for specific features. By tailoring assets to leverage these specific capabilities, creators can deliver immersive experiences that resonate with users on their preferred devices.

While USDZ is emerging as a standard format for 3D Content, it's essential to recognize the continued importance of formats like GLTF and GLB, particularly for transforming complex RVT, SKP, OBJ, FBX BIM models into lightweight files suitable for viewing in all environments. Leveraging these formats ensures compatibility across the broad range of devices and softwares as discussed.



7.0 3D Syndication

Maximizing Exposure through 3D Syndication

In this chapter, we delve into the realm of 3D syndication, exploring strategies for expanding the reach of your immersive listings and maximizing visibility across various platforms and devices while ensuring compliance with rules and regulations.

Associating Your Listings with MLS and Brokerage Structures

Integrating 3D listings with Multiple Listing Services (MLS) is a potent strategy for increasing exposure and attracting a broader audience of potential buyers and renters. However, it's crucial to ensure that these listings are appropriately associated with the correct real estate agents, teams, or companies within the real estate market structure to maintain accountability and compliance.

The process of accurately associating 3D content with MLS listings data is complex due to the differentiation as mentioned previously among varied experiences and file types. It is highly important to ensure that each 3D experience is correctly attributed to the corresponding property listing to provide potential buyers and renters with a cohesive and accurate representation of the property.

Moreover, aligning 3D listings with team or company profiles within the brokerage structure ensures that each 3D experience is appropriately linked to the responsible real estate agent or team, enabling efficient collaboration and accountability within the marketplace.



7.1 3D Syndication

Compliance with rules and regulations regarding the display and attribution of content is also paramount in the real estate industry. Therefore, each 3D experience should adhere to a set standard of guidelines so that every company platform or other media outlet displays the same type of content ethically and accurately attributed to the appropriate entities, ensuring the consumer has a holistic experience across the sector.

You will find Modwells suggested display standards on the pages to follow.

Pushing Your Content to All Platforms

Distributing 3D content across multiple platforms with the association of MLS data provides yet another challenge as the MLS and the IDX/Data associated with the MLS are non-normalized across every location.

Because of this, it is once again critical that you work with a company that fully understands the rules, regulations, and best practices in the market to ensure you are maintaining compliance with industry regulations.

We emphasize the importance of using one platform that has experience with and is dedicated to the proper integration of data and cross-platform distribution channels to reach users on smartphones, tablets, desktop computers, and virtual reality (VR) headsets in the appropriate manner.

Modwells patented technology can play a large role in this process, ensuring the marketplace standards are met and the consumer experience is appropriately extended into immersive media.



7.2 3D Syndication

Expanding Syndication to Social Media and Publications

In addition to MLS data integration and 3D asset syndicating, 3D immersive content will also make its way into the world of social media and publications. To date, companies such as Snapchat and Instagram already allow for AR activations and the adoption of such technology will only increase over time.

The syndication of immersive real estate content to these outlets will, just like standard video or image content, significantly enhance visibility and engagement and therefore leveraging the interactive nature of these platforms will allow real estate professionals to showcase properties in a captivating and dynamic manner.

Attracting a wider audience of potential buyers and renters from different publications is always a good thing, however it is important that just like with MLS data the market follows a set standard for immersive real estate content in social and publications.

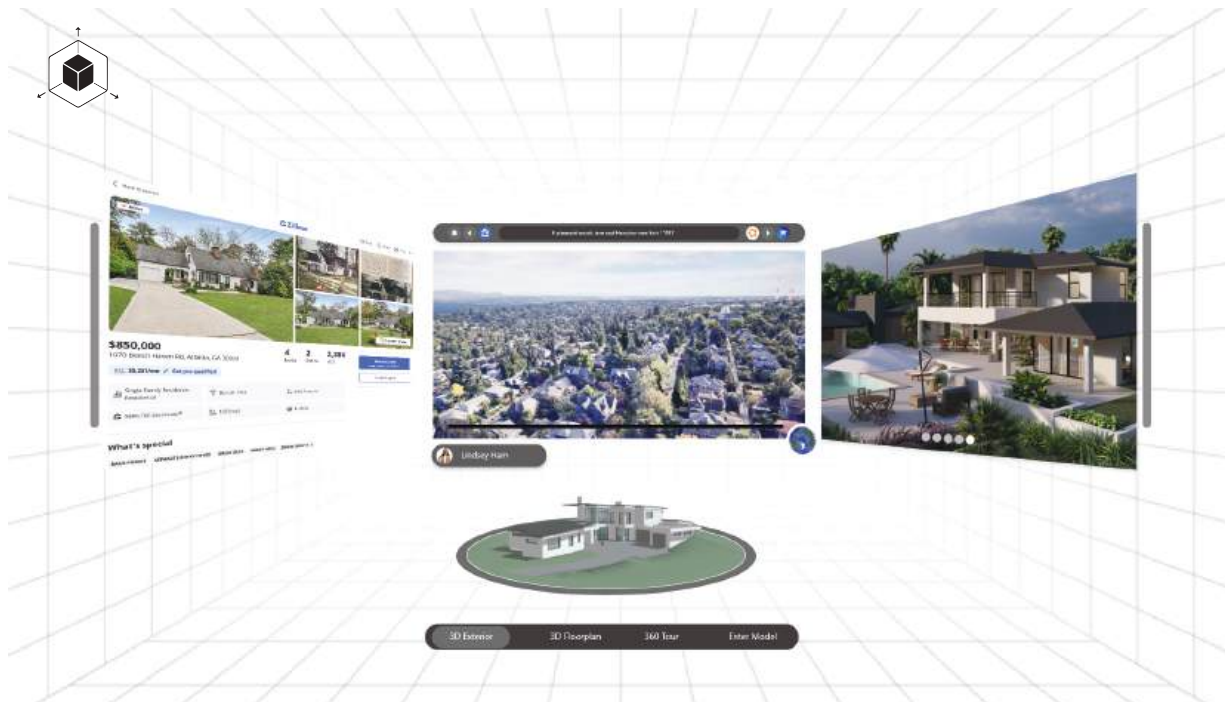
This syndication of immersive real estate content will also extend into real estate publications, digital newsletters, and in-person onsite geospatial activations which all can further amplify exposure.

Ultimately by expanding syndication efforts beyond traditional MLS channels, real estate professionals can continue to maximize exposure and engage with potential buyers and renters across a diverse range of platforms and media outlets, driving increased interest and ultimately facilitating successful transactions.

Partnering with a company that understands how to do this while maintaining the proper rules and regulations will be critical to your success.

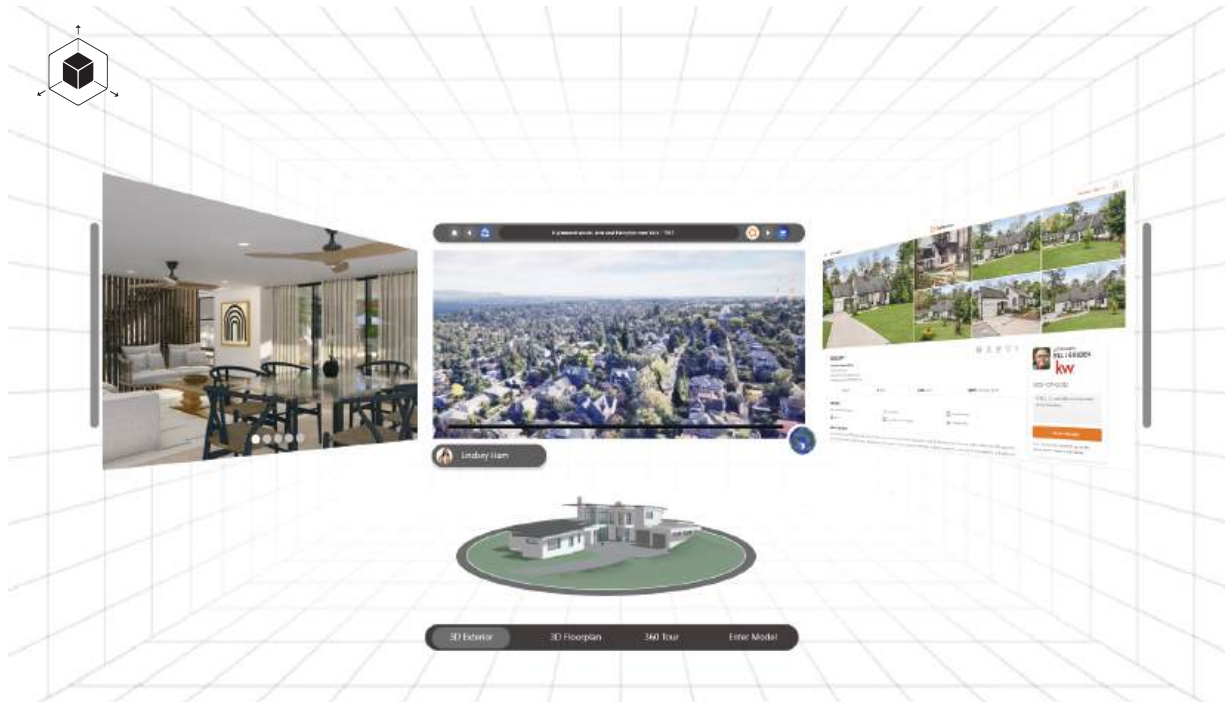


7.3 3D Syndication





7.4 3D Syndication





8.0 AR Listing Standards

Enhancing Engagement and Transparency

In this chapter, we explore the fundamental standards and guidelines for creating and displaying augmented reality (AR) listings. These standards are designed to ensure accuracy, transparency, and immersive experiences across various AR applications.

Scale Requirements

Accurate scaling is essential for seamless integration of 3D models into augmented reality environments, whether for on-site activations or in-room experiences. Scale requirements dictate the need for 3D models to be proportionally accurate relative to real-world dimensions

For on-site AR activations, scale requirements involve creating true-to-life size representations of buildings, amenities, and surroundings. This allows users to experience properties in their actual scale, providing a more immersive and realistic perspective. There are several tools in the market that will allow for AR activations to be placed ontop of real world locations and in doing so scale becomes a real factor.

In contrast, in-room AR experiences may require scaling down models to fit within the user's environment while maintaining proportional accuracy.

On the pages to follow we will illustrate examples of AR experiences that are scaled to different user experience scenarios across different real estate asset types including single famliy and multi family buildings.



8.1 AR Listing Standards

Attribution Requirements

Attribution requirements ensure transparency and recognition for all stakeholders involved in AR listings, including real estate agents, teams brokerages, homeowners, and content creators. Clear attribution is essential for upholding intellectual property rights and maintaining trust within the AR community.

It is our recommendation that the AR listings should attribute the real estate agent, team brokerage, and or homeowner associated with the property.

This helps establish accountability and provides users with essential information about property ownership and representation.

By acknowledging all contributors, AR listings foster transparency and integrity in content creation and distribution.

In order to put forth a standard practice, modwell has partnered with the IAB (interactive Advertising Beuro) to articulate to the market how other industries factor in attribution and recreate similar practice for the real estate sector.

On the pages to follow we will illustrate these attribution suggestions.



8.2 AR Listing Standards

Measuring Engagement

Measuring the user engagement, impressions, and viewership of AR listings is something we all must come to standardize. Tracking these metrics moving forward will provide valuable insights into the effectiveness and impact of AR experiences (listings), helping companies and stakeholders refine their strategies and optimize their digital real estate content for maximum engagement.

Metrics such as impressions, engagement time, and interaction rates offer valuable feedback on user behavior and preferences within your active AR environments. By analyzing these metrics, companies will be able to assess performance, and tailor their AR experiences to meet user needs and expectations effectively.

In order to once again create a standard for measuring AR content, Modwell has partnered with the IAB to bring into the marketplace the standards set forth in media and entertainment in regards to how they assess immersive content.

By following these standards, creators and stakeholders can truly begin to evaluate their consumer/ user experience and drive meaningful interactions in the real estate market.



9.0 Spatial Computing Listing Standards

Elevating Immersion and Transparency

This chapter expands our examination of listing standards into spatial computing environments, where immersive experiences and digital interactions real world assets take center stage. These standards offer guidance on interactivity, attribution, and engagement measurement, ensuring integrity, transparency, and effectiveness in spatial computing across all real estate listings.

Scale Variability

In spatial computing environments go beyond mere visual representation to enable dynamic interactions with immersive content / experiences.

Accurate and comprehensive 3D Assets will allow for a user to seamlessly navigate and interact with a real estate property, whether they are exploring the exterior or interior of a space.

Spatial computing and its dynamic properties allows users to not only observe but also enter and fully immerse themselves within the 3D asset / environments scaled which can be scaled down or up to real-world proportions.

This interactivity will not only enhance engagement but more importantly it will facilitate a truly meaningful way to experience a physical property digitally.



9.1 Spatial Computing Listing Standards

Attribution Requirements

Attribution requirements in spatial computing listings similar to AR activations are essential for safeguarding intellectual property rights and maintaining accountability across the ecosystem.

Clear attribution ensures that credit is appropriately given to creators, real estate agents, brokerages, and homeowners involved in the creation and dissemination of spatial computing content.

Similar to AR listings, providing transparent attribution to all relevant stakeholders in spatial computing will continue to foster trust and integrity within the real estate community, encouraging collaboration and innovation while protecting intellectual property rights.

By upholding attribution requirements, these stakeholders can ensure that credit is given where it is due and that all parties involved in the creation and potential monetization process associated with the full breadth of the interactive capabilities.

Unlike Augmented Reality Listings, Spatial Computing listings are live and can be extended into many use cases, including but not limited to redesigning in real time and furnishing in real time and more.

As a result attribution and IP ownership is paramount to ensure fair and equitable participation not just in real estate sales but also in architecture interior design and development.



9.2 Spatial Computing Listing Standards

Measurement Requirements

In spatial computing, measurement requirements reflect the dynamic nature of interactive experiences. Rather than solely assessing user engagement, interactivity, and overall experience quality, spatial computing activations are also measured by their visual fidelity and their ability to convert users into active purchasers.

Metrics such as time spent and viewer satisfaction will provide valuable insights into the effectiveness of spatial computing listings; however, the conversion metrics of assets sold with the support of spatial listings will ultimately determine the true effectiveness of your digital sales strategy.

By following the guidelines set forth on the following pages, creators can optimize their spatial computing experiences to deliver maximum impact and engagement, ensuring their digital real estate assets resonate with users.

If done correctly, with all of the interoperability standards followed as discussed in previous chapters, agents, teams, brokerages, and companies will also be able to deploy Virtual AI-enabled 3D real estate assistants into their spatial computing environments as well as 3D products. Your AI-enabled 3D Real Estate Assistant that can be built within your spatial computing listing experiences will also be able to track user engagement and record any meaningful interaction so that it can be acted upon by an agent, team, company, or other.



10.0 Advertising Rules and Regulations

Sponsorships

In the realm of 3D immersive spatial real estate, especially with the maturity of generative AI in the marketplace, sponsorships can take on various forms, leading us into a new world in which brands can participate in real estate in ways that have never been done before. As a result, it is essential for the industry to establish rules and regulations, ensuring transparency and authenticity within 3D content.

Sponsorships in real estate may involve collaborating with brands to showcase properties in dynamic and integrated ways. This collaboration may extend to local businesses showcasing their products within the properties for sale, artists illustrating their content on the walls for sale, or furniture providers and appliance companies contributing to the immersive experience.

Additionally, sponsorships may involve partnerships with the insurance and finance industry, where consumers buying houses in an immersive way may be made aware of these companies.

These partnerships should not only be clearly disclosed to users to maintain trust and compliance with advertising standards but should also follow a protocol set forth by the real estate community to avoid overwhelming the real estate buying and designing process with immersive ads.

Clear disclosures will prevent any potential misinterpretation or confusion regarding the promotion of goods within digital real estate environments, and if done correctly, the consumer will benefit greatly from a more comprehensive and robust experience.



10.1 Advertising Rules and Regulations

Private Vs Public IP

Expanding on the discussion of sponsorships in digital real estate media, it's imperative to grasp the distinction between private and public digital intellectual property (IP).

Similar to how homeowners or property owners decide whether their listings are public or sold privately, they will have the authority to determine whether their 3D digital IP can be associated with branded products or other entities.

This level of control is crucial for maintaining fairness and equity within the market, safeguarding someone else's real estate assets. Drawing parallels from existing practices in the entertainment and digital content industries, such as the public airing of television shows or management of music rights on social platforms, sheds light on the significance of this new concept.

Adhering to regulations regarding the use of private and public digital IP for advertising is essential to ensure fairness, transparency, and homeowners' autonomy over their listings' presentation.

While customized branding and immersive experiences tailored to specific audiences offer valuable opportunities for listings to reach wider audiences and increase property exposure, establishing clear guidelines upfront is vital to protect the rights of IP owners. Modwell has developed a protocol to address these concerns, which can be accessed on modwell.io.



10.2 Advertising Rules and Regulations

Compensation Practices

Once more, expanding on the analogy to streaming television, digital real estate media is poised to embrace similar advertising strategies, seamlessly integrating promotional content into the overall user experience.

Much like streaming platforms intersperse commercials between episodes or during breaks, digital real estate environments may incorporate sponsored content within property showcases or interactive experiences.

These advertisements will be thoughtfully woven into the virtual environment, ensuring they enhance rather than disrupt the user's engagement. By drawing inspiration from successful advertising models in streaming television, digital real estate media can achieve a delicate balance between advertising effectiveness and user satisfaction, thereby enhancing the overall immersive experience for all parties involved.

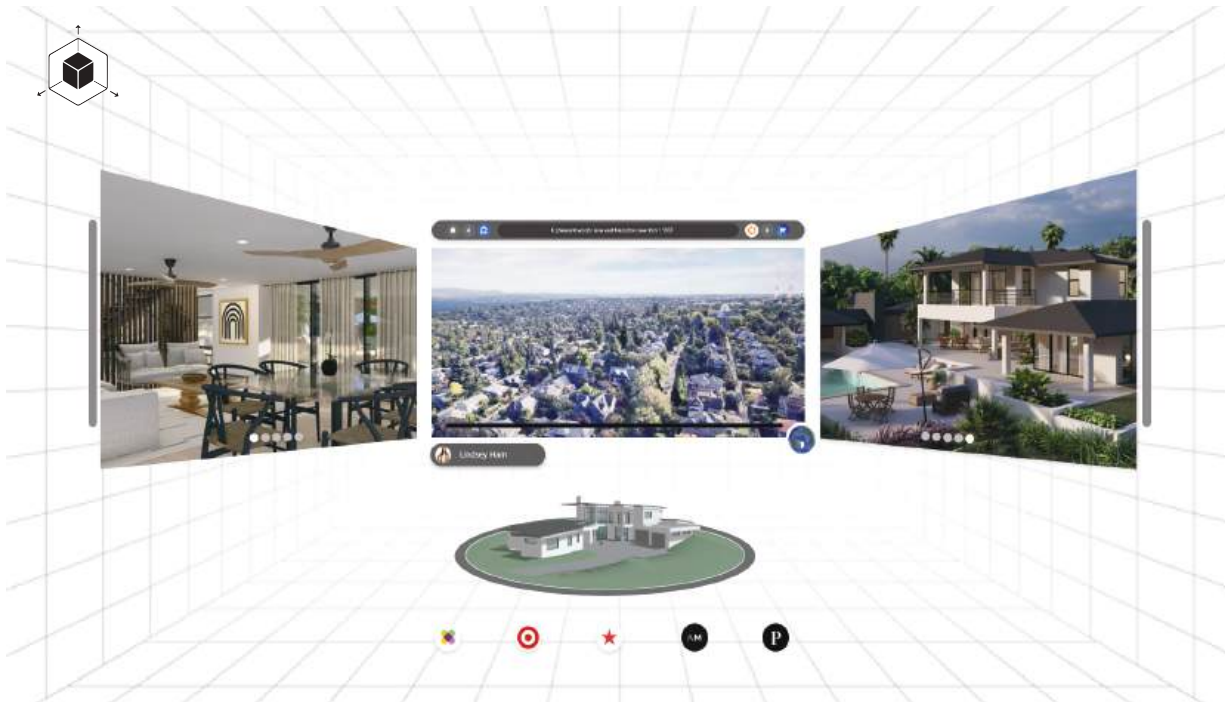
Similar to platforms like YouTube, compensation practices may involve compensating 3D platforms and developers responsible for producing and managing the 3D assets, as well as compensating IP owners whose properties (content) are featured within these environments.

Commission fees may vary within this sector, and users should be informed about any financial arrangements related to the promotion of products within their properties.

When executed correctly, the integration of branded content within real estate can alleviate some of the marketing costs borne by homeowners and consumers, leading to a transformative new experience.

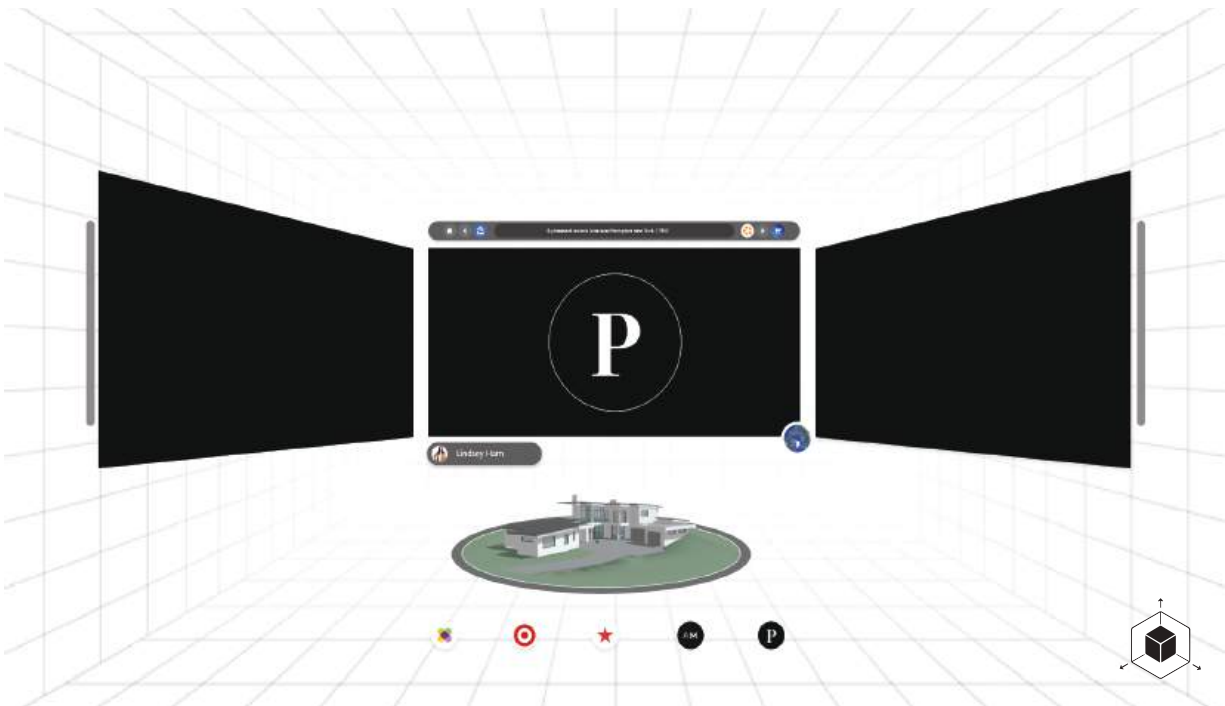
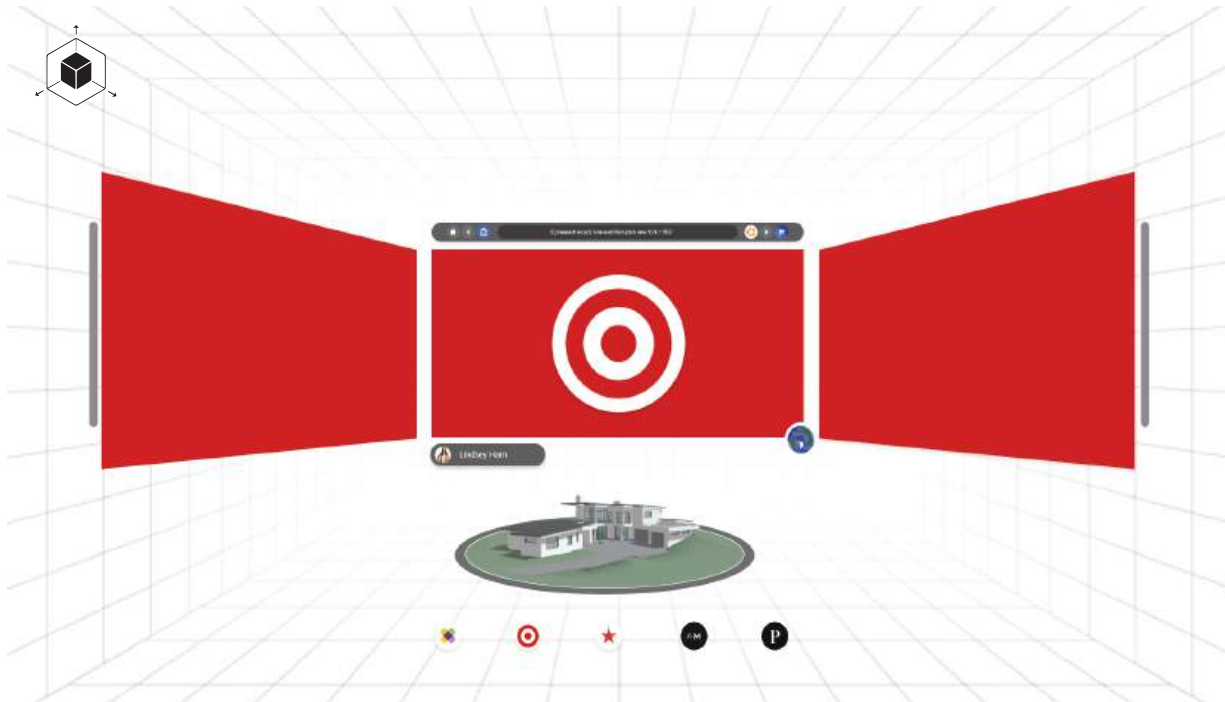


10.3 Advertising Rules and Regulations





10.4 Advertising Rules and Regulations





11.0 Virtual Commerce In Real Estate

Navigating Virtual Commerce in the Era of Spatial Real Estate

In this final chapter we delve into virtual commerce in the era of 3D immersive spatial real estate and how it has the opportunity to revolutionize the way home goods are ultimately bought and sold within the sector. The idea of Virtual commerce is a term and a practice that has been an emerging trend in the E-commerce world, a practice that is well poised to make its way into real estate sales and design.

Expanding E-commerce Horizons

Beyond traditional buying and selling of properties, e-commerce in real estate experiences extends to the purchasing of furniture and home goods within virtual environments, offering consumers an immersive shopping experience like never before. This practice will go hand in hand with the concept of sponsorships in real estate that ultimately will drive brands into the sector.

Virtual Showrooms and Stores:

As we move forward into this new immersive world it is very likely that real estate platforms will begin to feature virtual showrooms or stores where users can browse and experience furniture and home goods.

These virtual spaces can already been seen in the market and will serve as a compliment to immersive listings and geospatial locations while simulating a real-life shopping experiences, and extending user interactions beyond just transactional real estate sales into homeownership.

It will be important to set a standard user interface template for all stores to follow so that there is continuity across the industry.



11.1 Virtual Commerce In Real Estate

Virtual Catalogs:

Similar to traditional E-commerce platforms, Spatial Real Estate platforms will offer virtual catalogs that complement virtual stores showcasing a wide range of furniture and home goods.

Users will be able to browse through these catalogs, which will be updated regularly and full of 3D interactive assets which include detailed descriptions, images, and specifications for each product.

Customization Options:

Additionally Some virtual real estate platforms will also allow users to customize furniture and home goods according to their preferences leveraging AI Render Pipelines to roll out live configurators.

These configurators could allow for the selection of different colors, materials, or styles to match varying aesthetics or their personal tastes.

Virtual Staging:

Virtual try-on features which have been used for several years in the fashion industry will also extend into spatial real estate and enable users to preview furniture and home goods within their own virtual environments before making a purchase.

Leveraging augmented reality or virtual reality technology, users can place virtual items in their homes and see how they fit and complement the space. If done correctly, this practice of virtual commerce will help any brokerage or real estate company maintain a lifetime relationship with their clients.



11.2 Virtual Commerce In Real Estate

IP Rights in Virtual Commerce

In the rapidly evolving landscape of virtual commerce, the importance of respecting intellectual property (IP) rights cannot be overstated. Just as in virtual sponsorships, where permissions are required to feature branded content within virtual environments, virtual commerce must adhere to similar practices. Selling goods within someone's intellectual property, whether it be a virtual property or a branded virtual experience, necessitates obtaining proper permissions and licenses. This ensures that the rights of content creators, property owners, and brands are protected, fostering a fair and ethical marketplace for virtual goods and services.

Conclusion

As we journey through the exploration of immersive media and spatial technology in the real estate sector, it becomes evident that embracing the future holds immense potential for transformative change. By integrating cutting-edge technologies and innovative solutions, the real estate industry can unlock new horizons and redefine the user journey in unprecedented ways.

Embracing immersive media and spatial technology opens doors to enhanced property exploration, more informed decision-making, and personalized experiences for buyers and sellers alike. From virtual property tours to virtual staging services and beyond, the possibilities are endless.

Ultimately, embracing the future of immersive media and spatial technology is not just about adopting new tools and technologies—it's about embracing a mindset of innovation and collaboration. By working together to harness the power of immersive experiences, the real estate industry can pave the way for a brighter, more inclusive future where everyone has the opportunity to find their perfect space and make it their own.



11.3 Virtual Commerce In Real Estate



