

MANUFACTURED INTERIOR FINISH SYSTEM

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Application No. 62/767,326, entitled “Manufactured Interior Finish System,” filed on November 14, 2018, which is incorporated herein by reference in its entirety.

BACKGROUND

[0002] Conventional construction is conducted in the field at the building job site. People in various trades (e.g., carpenters, electricians, and plumbers) measure, cut, and install material as though each unit were one-of-a-kind. Furthermore, activities performed by the trades are arranged in a linear sequence. The result is a time-consuming process that increases the risk of waste, installation imperfections, and cost overruns.

[0003] Traditional building construction continues to be more and more expensive and more and more complex. Changing codes, changing environments, and new technology have all made building a building more complex than it was 10 or more years ago. In addition, trade labor availability is being reduced significantly. As more and more craftsmen retire, fewer and fewer younger workers may be choosing the construction industry as a career, leaving the construction industry largely lacking in skilled and able men and women to do the growing amount of construction work.

SUMMARY

[0004] Some implementations can include a manufactured interior wall finish system and a manufactured ceiling finish system.

[0005] In some implementations, a manufactured ceiling finish system can include at least one ceiling channel fastened to a ceiling side of a ceiling/floor panel, and at least one ceiling panel clip configured to engage the at least one ceiling channel. The manufactured ceiling finish system can also include at least one ceiling grid rail configured to engage the at least one ceiling panel clip, and at least one acoustical ceiling panel configured to engage the at least one ceiling grid rail.

[0006] In some implementations, the at least one ceiling channel can include a lengthwise planar aperture configured to slidably receive the at least one ceiling panel clip, and wherein the at least one ceiling panel clip can include a planar portion configured to be inserted into the lengthwise planar aperture of the at least one ceiling channel. In some implementations, the at least one ceiling panel clip can be configured to be secured in place within the lengthwise planar aperture of the at least one ceiling channel via a fastener inserted through the at least one ceiling panel clip and into the at least one ceiling channel.

[0007] In some implementations, the at least one ceiling panel clip can include a ceiling panel clip aperture configured to receive a ceiling grid rail protrusion of the at least one ceiling grid rail. In some implementations, the at least one ceiling grid rail includes a first acoustical ceiling tile retention section and a second acoustical ceiling tile retention section.

[0008] In some implementations, the at least one ceiling grid rail can include a ceiling track that extends from a distal end of the at least one ceiling grid rail beyond a first acoustical ceiling tile retention section and a second acoustical ceiling tile retention section. In some implementations, the at least one ceiling grid rail includes at least one electrical power conductor.

[0009] Some implementations can include a manufactured interior bathroom wall finish system including a solid surface base member attached to a bottommost metal hat channel, and a plurality of first extrusions each having a first opening configured to engage a

corresponding metal hat channel and a second opening configured to receive a second extrusion. The manufactured interior bathroom wall finish system can also include a plurality of second extrusions each configured to be inserted into a respective second opening of a corresponding one of the plurality of first extrusions and configured to be fastened to the respective one of the plurality of the first extrusions via a fastener. The manufactured interior bathroom wall finish system can further include a plurality of solid surface wall panels each having a bottom edge configured to be inserted into a first aperture of a lower one of the plurality of second extrusions and having a top edge configured to be inserted into a second aperture of an upper one of the plurality of second extrusions, wherein the plurality of solid surface wall panels are assembled in a bottom to top order such that the upper one of the plurality of second extrusions secures a lower adjacent solid surface panel as the manufactured interior bathroom wall finish system is installed. The manufactured interior bathroom wall finish system can also include a solid surface top member attached to a topmost metal hat channel.

[0010] In some implementations, the solid surface base member and the solid surface top member are formed from an aluminum composite material. In some implementations, the solid surface wall panels are formed from quartzite.

[0011] In some implementations, each of the plurality of first extrusions include a plurality of continuous seals attached to a respective one of the plurality of first extrusions, wherein the plurality of continuous seals can be arranged so as to form a seal when solid surface wall panels are installed adjacent to the respective one of the plurality of first extrusions. In some implementations, the plurality of continuous seals can include a first seal disposed adjacent to a top edge of a respective one of the plurality of first extrusions, a second seal disposed adjacent a midpoint of the respective one of the plurality of first extrusions, and a third seal disposed adjacent a bottom edge of the respective one of the plurality of first extrusions, and

wherein, when the manufactured interior bathroom wall finish system is installed, the first seal is arranged to contact an upper solid surface panel and the second and third seals are arranged to contact a lower solid surface panel relative to the respective one of the plurality of first extrusions.

[0012] Some implementations can include a manufactured interior bathroom wall finish system including a solid surface base member attached to a bottommost metal hat channel, and a plurality of first extrusions each having a first opening configured to engage a corresponding metal hat channel and a second opening configured to receive a second extrusion. The manufactured interior bathroom wall finish system can include a plurality of second extrusions each configured to be inserted into a respective second opening of a corresponding one of the plurality of first extrusions and configured to be fastened to the respective one of the plurality of the first extrusions via a fastener, each second extrusion having a downward facing aperture.

[0013] The manufactured interior bathroom wall finish system can include a plurality of third extrusions each configured to engage a respective first extrusion and a respective second extrusion, each third extrusion having an upward facing aperture, and a plurality of solid surface wall panels each having a bottom edge configured to be inserted into an upward facing aperture of a lower one of the plurality of third extrusions and having a top edge configured to be inserted into a downward facing aperture of an upper one of the plurality of second extrusions, wherein the plurality of solid surface wall panels are assembled in a bottom to top order such that the upper one of the plurality of second extrusions secures a lower adjacent solid surface panel as the manufactured interior bathroom wall finish system is installed. The manufactured interior bathroom wall finish system can include a solid surface top member attached to a topmost metal hat channel.

[0014] In some implementations, the solid surface base member and the solid surface top member are formed from an aluminum composite material. In some implementations, the solid surface wall panels are formed from quartzite.

[0015] In some implementations, each of the plurality of first extrusions can include a plurality of continuous seals attached to a respective one of the plurality of first extrusions, wherein the plurality of continuous seals are arranged so as to form a seal when solid surface wall panels are installed adjacent to the respective one of the plurality of first extrusions. In some implementations, the plurality of continuous seals can include a first seal disposed adjacent to a top edge of a respective one of the plurality of first extrusions, a second seal disposed adjacent a bottom edge of the respective one of the plurality of first extrusions, and wherein, when the manufactured interior bathroom wall finish system is installed, the first seal is arranged to contact an upper solid surface panel and the second seal is arranged to contact a lower solid surface panel relative to the respective one of the plurality of first extrusions.

[0016] Some implementations can include a manufactured interior wall finish system including a solid surface base member attached to a bottommost metal hat channel, and a plurality of first longitudinal members each having a first opening configured to engage a corresponding metal hat channel, and having a second opening configured to receive a second extrusion. The manufactured interior wall finish system can also include a plurality of second longitudinal members each configured to be inserted into a respective second opening of a corresponding one of the plurality of first longitudinal members. The manufactured interior wall finish system can further include a plurality of wall panels each having a bottom edge configured to be inserted into an upward facing aperture formed by an upper horizontal surface of a portion of an adjacent lower first longitudinal member and an upper vertical portion of an adjacent lower second longitudinal member, and having a top edge configured

to be inserted into a downward facing aperture formed by a lower horizontal surface of a portion of an adjacent upper first longitudinal member and a lower vertical portion of an adjacent upper second longitudinal member. The manufactured interior wall finish system can include a solid surface top member attached to a topmost metal hat channel.

[0017] In some implementations, the plurality of first longitudinal members can include a plurality of third openings formed therein, wherein the third openings are each configured to receive a vertical member and are spaced along the plurality of first longitudinal members at a given interval, and wherein the second longitudinal members are formed to have a length that permits the second longitudinal members to fit within the given interval between adjacent third openings. In some implementations, the plurality of first longitudinal members can include an extrusion. In some implementations, the plurality of first longitudinal members can include a pultrusion.

[0018] In some implementations, the plurality of second longitudinal members can include an extrusion. In some implementations, the plurality of second longitudinal members can include a pultrusion. In some implementations, the solid surface base member and the solid surface top member are formed from an aluminum composite material. In some implementations, the wall panels are formed from a wood composite material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. 1 is a top view of an example manufactured ceiling finish system in accordance with some implementations.

[0020] FIG. 2A is a diagram of a cross section of an example ceiling channel in accordance with some implementations.

[0021] FIG. 2B is a diagram of a cross section of an example ceiling panel grid and light rail clip and rail in accordance with some implementations.

[0022] FIG. 3 is a diagram of a cross section of an example ceiling channel in accordance with some implementations.

[0023] FIG. 4 is a diagram of a cross section of a ceiling panel clip in accordance with some implementations.

[0024] FIG. 5 is a diagram of a cross section of a ceiling panel grid and light rail in accordance with some implementations.

[0025] FIG. 6 is a diagram of an example manufactured ceiling finish system in accordance with some implementations.

[0026] FIG. 7 is a diagram of an example bathroom having a bathroom interior wall finish system in accordance with some implementations.

[0027] FIG. 8 is a diagram of a cross section of a wall having the bathroom interior wall finish system in accordance with some implementations.

[0028] FIG. 9A is a cross sectional diagram of an example first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0029] FIG. 9B is a diagram of a cross section of an example extrusion/pultrusion for a first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0030] FIG. 9C is a diagram of a cross section of an example closure extrusion for a first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0031] FIG. 10A is a cross sectional diagram of an example second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0032] FIG. 10B is a diagram of a cross section of an example extrusion/pultrusion for a second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0033] FIG. 10C is a diagram of a cross section of an example first closure extrusion member for a second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0034] FIG. 10D is a diagram of a cross section of an example second closure extrusion member for a second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0035] FIG. 11 is a diagram showing a cutaway view of a wall with an example first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0036] FIG. 12 is a diagram showing a cutaway view of a wall with an example second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0037] FIG. 13 is a diagram of an example kitchen showing a manufactured wood interior wall finish system in accordance with some implementations.

[0038] FIG. 14 is a diagram showing a cross-sectional view of a wall having a manufactured wood interior wall finish system in accordance with some implementations.

[0039] FIG. 15A is a diagram showing cross-section detail of a manufactured wood interior wall finish system in accordance with some implementations.

[0040] FIG. 15B is a diagram showing top view detail of a manufactured wood interior wall finish system in accordance with some implementations.

[0041] FIG. 16A is a diagram showing a cross-section of an example extrusion/pultrusion for a manufactured wood interior wall finish system in accordance with some implementations.

[0042] FIG. 16B is a diagram showing a cross-section of an example closure extrusion for a manufactured wood interior wall finish system in accordance with some implementations.

[0043] FIG. 17 is a diagram showing a cutaway view of a wall with an example manufactured wood interior wall finish system in accordance with some implementations.

DETAILED DESCRIPTION

[0044] In the following detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. The aspects of the present disclosure, as generally described herein, and illustrated in the Figures, can be arranged, substituted, combined, separated, and designed in a wide variety of different configurations, all of which are contemplated herein.

[0045] This disclosure is drawn, inter alia, to methods, systems, products, devices, and/or apparatuses generally related to a manufactured interior wall finish system and a manufactured ceiling finish system. The embodiments address, among other things, the factors described above and other considerations that are pushing more and more of the construction processes to be completed off-site and to happen in more of a manufacturing environment than a construction site environment.

[0046] In some embodiments, a building may have units, residences, rooms, etc. that have interior walls and ceilings. In some embodiments, when the building is being constructed, the manufactured interior wall finish system and the manufactured ceiling finish system may be installed. The manufactured interior wall finish system and the manufactured ceiling finish system may provide a portion of an interior of the building. In some embodiments, the manufactured interior wall finish system and the manufactured ceiling finish system may be coupled to one or more structural frame members of the building. In some embodiments, the manufactured interior wall finish system and the manufactured ceiling finish system may be attached to interior walls (e.g., demising walls), ceiling/floor panels, and/or structural frame members. In some implementations, the manufactured interior wall finish system and the manufactured ceiling finish system is constructed to be installed in a building without requiring tools, for example the manufactured interior wall finish system and the manufactured ceiling finish system can be installed by hand in a building.

[0047] In some embodiments, the material composition of the manufactured interior wall finish system and the manufactured ceiling finish system may include steel. In some embodiments, it may include aluminum. In still other embodiments, the manufactured interior wall finish system and the manufactured ceiling finish system may be made from a variety of building suitable materials ranging from metals and/or metal alloys, to wood and wood polymer composites (WPC), wood based products (lignin), other organic building materials (bamboo) to organic polymers (plastics), to hybrid materials, earthen materials such as ceramics, or any other suitable materials or combinations thereof. In some embodiments, cement or other pourable or moldable building materials may also be used. In other embodiments, any combination of suitable building material may be combined by using one building material for some elements of the manufactured interior wall finish system and manufactured ceiling finish system and other building materials for other elements of the

manufactured interior wall finish system and manufactured ceiling finish system. Selection of any material may be made from a reference of material options (such as those provided for in the International Building Code), or selected based on the knowledge of those of ordinary skill in the art when determining load bearing requirements for the structures to be built. Larger and/or taller structures may have greater physical strength requirements than smaller and/or shorter buildings. Adjustments in building materials to accommodate size of structure, load, and environmental stresses can determine optimal economical choices of building materials used for components in the manufactured interior wall finish system and manufactured ceiling finish system described herein. Availability of various building materials in different parts of the world may also affect selection of materials for building the system described herein. Adoption of the International Building Code or similar code may also affect choice of materials.

[0048] Any reference herein to “metal” includes any construction grade metals or metal alloys as may be suitable for fabrication and/or construction of the manufactured interior wall finish system and the manufactured ceiling finish system and components described herein. Any reference to “wood” includes wood, wood laminated products, wood pressed products, wood polymer composites (WPCs), bamboo or bamboo related products, lignin products and any plant derived product, whether chemically treated, refined, processed or simply harvested from a plant. Any reference herein to “concrete” includes any construction grade curable composite that includes cement, water, and a granular aggregate. Granular aggregates may include sand, gravel, polymers, ash and/or other minerals.

[0049] Some implementations can permit users to finish an apartment or hotel with a kit of manufactured components that can help reduce labor costs, reduce time for completion, and reduce first cost. Some implementations of a manufactured finish wall system include a kit of components that are sufficiently flexible to meet many different requirements, e.g., the same

system can be used to make bedroom walls, living room walls, kitchen walls, and bathroom walls.

[0050] Some implementations of the manufactured systems described herein can meet the above requirements, among other things. In some implementations, a foundation of the finishes can include a cold formed steel hat channel that can be attached to any standard wall (e.g., a demising wall). The face of the hat channel can carry a simple aluminum extrusion or fiberglass reinforced pultrusion. A pultrusion is a member having a constant cross section and formed by a continuous process for manufacture of composite materials with constant cross-section, where the process involves the pulling of material. The extrusion or pultrusion can permit a very wide range of finishes to be attached to the wall and removed from the wall, and can provide a finish system that can be repaired with few or no tools. In some implementations, a closure extrusion simply captures the panel edge and snaps into the hat channel extrusion. In some implementations, panels can be various sizes and thicknesses. In some implementations, the wall system can include shelf brackets. In some implementations, the same extrusion and pultrusion slightly modified can be used in the bathroom for shower walls, bathroom walls, etc.

[0051] Some implementations can include a flexible design that accommodates many different finish material types. For example, wood, metal, and quartzite all can be accommodated. Some implementations can include low cost standardized components.

[0052] Using an implementation, apartment or hotel room walls can be finished with a few different configurations resulting in large scale, low cost manufacturing techniques. In some implementations, wet or dry systems allow shower walls and living room walls to be accommodated with the same standardized components.

[0053] Some implementations can provide a flexible configuration that permits high walls (e.g., 20 feet high) and very long walls to be finished with the same system. Some

implementations permit simple repair of damaged panels using a process that can include removing the snap closure extrusion (no tools required), replacing the panel, and then snapping the panel extrusion back in place.

[0054] Some implementations can include an accessible design that permits electrical devices, plumbing pipes, and HVAC duct work to be easily accessed behind the finished panel system. In some implementations, the snap closure angles can include drilled holes (e.g., at 12 inches on center) to permit hanging televisions, paintings, etc. Some implementations can include a vertical shelf extrusion that permits placement of shelving, cabinets, and countertops.

[0055] As designers and builders search for lower cost ways to meet the built environment needs of people, one of the potential solutions is an integrated solution. An integrated solution can include two (or more) components that are traditionally separate products and installations to be integrated into one product solution. Some implementations of the manufactured ceiling finish system described herein is an integrated solution that uses the same support to hold ceiling panels, to provide electrical power, and to support ceiling light fixtures. By integrating low voltage wiring into the ceiling support system of the manufactured ceiling finish system, multiple traditional systems can be reduced or eliminated.

[0056] By mounting ceiling channels on a normal ceiling and using the combination ceiling grid and light rail, some implementations can quickly provide a high-quality acoustical ceiling with flexible possibilities for adding lighting fixtures anywhere along the light rail. The ceiling grid light rail can be held in place by a ceiling panel clip. This clip can permit the installer to move the rail to the desired location quickly and secure the rail in place.

[0057] In some implementations, acoustical ceiling panels can be located between the rails by rotating the ceiling grid track to accommodate each next acoustical ceiling panel. The

procedures for completing a ceiling mounting, including light fixtures, can take just a few minutes.

[0058] In some implementations, ceiling channels can be mounted to a traditional ceiling or mounted to a prefabricated floor/ceiling panel at the factory. In some implementations, field installed ceiling grid and/or light rails are cut to length at a factory and contain low voltage conductors that permit light fixtures to be clipped onto the light rails anywhere along the length of the light rails.

[0059] In some implementations, acoustical ceiling panels can be easily removed in minutes and replaced if damaged. In some implementations, installation of the ceiling grid and light rail using the ceiling panel clips can be done quickly and at low cost compared with conventional ceiling finish and lighting systems.

[0060] Some implementations can include a flexible configuration layout that permits the ceiling system to be used in many different configurations and sizes. Living rooms, bedrooms, kitchens, and bathrooms can be finished using implementations of the system described herein.

[0061] Some implementations provide for flexible light fixture locations. Some implementations can accommodate various types of acoustical panels. Some implementations permit quick and easy access to ceiling wiring and utilities.

[0062] Manufactured Ceiling Finish System

[0063] Turning now to the drawings, FIGS. 1-6 show diagrams of one or more example implementations of a manufactured ceiling finish system in accordance with some implementations.

[0064] FIG. 1 is a top view of an example manufactured ceiling finish system in accordance with some implementations. The manufactured ceiling finish system includes a plurality of

ceiling channels 102 fastened to a ceiling side of a ceiling/floor panel (as shown in FIGS. 2A and 2B). The manufactured ceiling finish system also includes a plurality of ceiling panel grid and light rails 104 connected to the plurality of ceiling channels 102. A plurality of acoustical ceiling panels 106 are supported by the plurality of ceiling panel grid and light rails 104.

[0065] The top view of FIG. 1 also shows other components of an apartment or building unit such as a door panel track 108, a floor panel edge 110 and 112, a window wall track 114, and a roller shade 116.

[0066] FIG. 2A shows a cross section of a ceiling channel 102 along the axis shown in FIG. 1 at 2A. FIG. 2B shows a cross section of a ceiling panel grid and light rail 104 along the axis 2B shown in FIG. 1.

[0067] As shown in FIG. 2B, the manufactured ceiling finish system also includes at least one ceiling panel grid and light rail clip 202 configured to engage the at least one ceiling channel 102. For example, the at least one ceiling channel 102 can include a lengthwise planar aperture 310 (shown in FIG. 3) configured to slidably receive the at least one ceiling panel grid and light rail clip 202, and wherein the at least one ceiling panel grid and light rail clip 202 includes a planar portion 402 (shown in FIG. 4) configured to be inserted into the lengthwise planar aperture 310 of the at least one ceiling channel 102. FIG. 2B also shows a ceiling grid rail 104 configured to engage the ceiling panel grid and light rail clip 202. An acoustical ceiling panel 106 is configured to engage and be secured in place and supported by the at least one ceiling grid rail 104.

[0068] FIG. 3 is a diagram of a cross section of an example ceiling channel 102 in accordance with some implementations. The ceiling channel 102 includes a lengthwise planar aperture 310 configured to slidably receive a ceiling panel grid and light rail clip 202. FIG. 3 also shows flanges 302 and 304 that extend from the ceiling channel 102 and permit the

ceiling channel to be attached to the ceiling using one or more fasteners (e.g., screws). The lengthwise planar aperture 310 is formed by first and second aperture sides 306 and 308, which define the width and height of the lengthwise planar aperture 310. The length of the lengthwise planar aperture is defined by the length of the ceiling channel 102.

[0069] FIG. 4 is a diagram of a cross section of a ceiling panel grid and light rail clip 202 in accordance with some implementations. The ceiling panel grid and light rail clip 202 includes a planar portion 402 and 404 configured to be inserted into, and engage, the lengthwise planar aperture 310 (e.g., engage the first and second aperture sides 306 and 308) of the ceiling channel 102. The ceiling panel grid and light rail clip 202 includes a ceiling panel clip aperture 406 configured to receive a ceiling panel grid and light rail clip protrusion 502 (shown in FIG. 5) of the one ceiling grid rail 104. The ceiling panel grid and light rail clip 202 can be secured in place within the lengthwise planar aperture 310 of the ceiling channel 102 via a fastener 204 (shown in FIG. 2) inserted through the at least one ceiling panel grid and light rail clip 202 and into the at least one ceiling channel 102.

[0070] FIG. 5 is a diagram of a cross section of an example ceiling panel grid and light rail 104 in accordance with some implementations. The ceiling grid rail 104 includes a first acoustical ceiling tile retention section formed by 504, 508, and 512; and a second acoustical ceiling tile retention section formed by 506, 510, and 514. The first acoustical ceiling tile retention section and the second acoustical ceiling tile retention section are formed to receive, retain and support a respective acoustical ceiling tile.

[0071] The ceiling grid rail 104 includes a ceiling track 516 extending from a distal end of the ceiling grid rail 104 beyond a first acoustical ceiling tile retention section and a second acoustical ceiling tile retention section. The ceiling grid rail 104 can include at least one electrical power conductor. For example, one or more power conductors can be provided on one or both sides of ceiling track 516 to permit a light fixture to receive power from the

ceiling grid rail 104. The electrical power can be supplied to the conductors on the ceiling grid rails 104 to permit a light fixture to be placed anywhere along the ceiling grid rail and receive power from the electrical power conductors. Because electrical power conductors may be exposed or partially exposed on the ceiling grid rails 104, a low voltage electrical system may be used for safety.

[0072] FIG. 6 is a diagram of an example manufactured ceiling finish system in accordance with some implementations. Specifically, FIG. 6 shows an example arrangement of the ceiling channels 102, ceiling grid rails 104, acoustical ceiling panels 106, and ceiling panel grid and light rail clips 202.

[0073] Manufactured Bathroom Wall Finish System

[0074] FIGS. 7-12 show diagrams of an example implementation of a manufactured bathroom wall finish system in accordance with some implementations.

[0075] FIG. 7 is a diagram of an example bathroom 700 having a bathroom interior wall finish system in accordance with some implementations. The bathroom 700 includes a solid surface top member 702 (e.g., an aluminum composite material or other suitable material), lights 704, a fan 706, a shower head 708, a shower control 710, a plurality of second extrusion members 712, and a plurality of solid surface wall panels 714 (e.g., quartzite panels).

[0076] FIG. 8 is a diagram of a cross section of a wall having the bathroom interior wall finish system in accordance with some implementations. FIG. 8 shows an acoustical ceiling panel 802 (e.g., similar to acoustical ceiling panel 106 or a different type of ceiling panel for a shower or bathroom environment), a solid surface top panel 702, a plurality of metal hat channels 804, a plurality of solid surface wall panels 714, a demising wall system 810, a

plurality of second extrusion members 712, a solid surface base 806 (e.g., an aluminum composite material panel), and a solid surface shower pan 808.

[0077] FIG. 9A is a cross sectional diagram of an example first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations. Each of the plurality of second extrusions 712 is supported by a first extrusion 910 shown in FIG. 9B. The first extrusion 910 can include three continuous seals (904, 906, and 908) mounted to it. The continuous seal can be formed from rubber or other suitable elastomeric material.

[0078] The plurality of continuous seals (904, 906, and 908) attached to a respective one of the first extrusions 910 are arranged to form a seal when solid surface wall panels (e.g., 714) are installed adjacent to the respective first extrusion 910.

[0079] The continuous seals (904, 906, and 908) include a first seal 904 disposed adjacent to a top edge of a respective first extrusion 910, a second seal 906 disposed adjacent a midpoint of the respective first extrusion 910, and a third seal 908 disposed adjacent a bottom edge of the respective first extrusion 910. The seals 904 and 908 may be made of rubber or other suitable sealant material. When the manufactured interior bathroom wall finish system is installed, the first seal is arranged to contact an upper solid surface panel 714A and the second and third seals are arranged to contact a lower solid surface panel 714B relative to the respective first extrusion 910.

[0080] The solid surface wall panel 714A has a bottom edge configured to be inserted into a first aperture 918 (shown in FIG. 9C) of a second extrusion 712 and having a top edge (e.g., the top edge of 714B) configured to be inserted into a second aperture 922 (shown in FIG. 9C) of a second extrusion 712. The plurality of solid surface wall panels (e.g., 714A, 714B) are assembled in a bottom to top order such that the upper second extrusion (e.g., 712)

secures a lower adjacent solid surface panel (at its top edge) as the manufactured interior bathroom wall finish system is installed.

[0081] FIG. 9B is a diagram of a cross section of an example first extrusion/pultrusion 910 (or first extrusion) for a first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations. The first extrusion 910 includes a first opening 914 configured to engage a corresponding metal hat channel 902 and a second opening 912 configured to receive the second extrusion 712.

[0082] FIG. 9C is a diagram of a cross section of an example second extrusion 712 for a first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations. The manufactured bathroom interior wall finish system includes a plurality of second extrusions each configured to be inserted into a respective second opening of a corresponding one of the first extrusions (e.g., surface 916 of second extrusion 712 is configured to be inserted into opening 912 of first extrusion 910) and configured to be fastened to the first extrusion 910 via a fastener 905 (shown in FIG. 9A). The second extrusion 712 includes a horizontal extension 920 that extends beyond a plane formed by the solid surface wall panels. The horizontal extension 920 can be used to attach shelves or other fixtures to the wall.

[0083] FIGS. 10A-10D are cross sectional diagrams of an example second embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations.

[0084] The second embodiment can include a plurality of extrusions/pultrusions that can be used in place of extrusions 910 and 712. The plurality of extrusions in the second embodiment can include three extrusions: a first extrusion 1003, a second extrusion 1004, and a third extrusion 1006.

[0085] The first extrusion 1003 includes a first opening 1010 configured to engage a

corresponding metal hat channel 1002 and a second opening 1012 configured to receive a corresponding member 1014 of the second extrusion 1004, and a third extrusion 1006. The second embodiment can include a plurality of second extrusions 1004 each configured to be inserted into a respective second opening 1012 of a corresponding one of a plurality of first extrusions 1003 and configured to be fastened to the corresponding one of the plurality of first extrusions 1003 via a first fastener 1007 (shown in FIG. 10A), with each second extrusion 1004 having a downward facing aperture 1022 (shown in FIG. 10C).

[0086] The second embodiment can also include a plurality of third extrusions 1006 each configured to engage a respective first extrusion 1003 and a respective second extrusions 1004, each third extrusion 1006 having an upward facing aperture 1024. The third extrusions 1006 can be secured via a second fastener 1005 (shown in FIG. 12). The third extrusions 1006 have a member 1018 that is configured to engage the second extrusions 1004 at aperture 1016 of the second extrusion. The third extrusions 1006 have a member 1020 that is configured to engage a corresponding surface of the first extrusion 1003 when the first, second, and third extrusions are assembled.

[0087] A plurality of solid surface wall panels (e.g., 714A, 714B) can each include a bottom edge configured to be inserted into an upward facing aperture 1024 of a lower one of the plurality of third extrusions 1006 and have a top edge configured to be inserted into a downward facing aperture 1022 of an upper one of the plurality of second extrusions 1004. The plurality of solid surface wall panels may be assembled in a bottom to top order such that the upper one of the plurality of second extrusions 1004 secures a lower adjacent solid surface panel as the manufactured interior bathroom wall finish system is installed.

[0088] Each of the plurality of first extrusions 1003 includes a continuous seal 1008 attached to a respective one of the plurality of first extrusions 1003 and arranged so as to form a seal when solid surface wall panels are installed adjacent to the respective one of the plurality of

first extrusions 1003. The seal 1008 may be made of rubber or other suitable material.

[0089] FIG. 11 is a diagram showing a cutaway view of a wall with an example first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations. FIG. 11 shows the demising wall system 810, the metal hat channel 902, the solid surface wall panels 714, the first extrusion 910, the second extrusion 712, the fastener 905, and the continuous seals 904 and 908.

[0090] FIG. 12 is a diagram showing a cutaway view of a wall with an example first embodiment of a manufactured bathroom interior wall finish system in accordance with some implementations. FIG. 12 shows the demising wall system 810, the solid surface wall panels 712, the metal hat channel 1002, the base (or first) extrusion 1003, the second extrusion 1004, the second fastener 1005, the third extrusion 1006, the first fastener 1007, and the continuous seal 1008.

[0091] Manufactured Wood Interior Wall Finish System

[0092] FIGS. 13-17 show diagrams of an example implementation of a manufactured kitchen or room wall finish system in accordance with some implementations. The manufactured kitchen or room wall finish system of FIG. 13 includes a solid surface top member 1302, a plurality of vertical members 1304, a plurality of second longitudinal members 1306, a plurality of wall panels 1308, and a solid surface base member 1310.

[0093] FIG. 14 shows a wall section having a plurality of acoustical ceiling panels 1402, a top member 1302, a plurality of metal hat channels 1404, a plurality of removable wall panels 1308 (e.g., having veneer finish on both sides), a demising wall system 1406, a plurality of second longitudinal members 1306, and a solid surface base member 1310.

[0094] FIG. 15A is a diagram showing cross-section detail of a manufactured wood interior wall finish system in accordance with some implementations. A first extrusion (or pultrusion) 1502 is attached to a metal hat channel 1404.

[0095] Referring to FIGS. 15A, 15B, 16A, and 16B, a plurality of wall panels (1308A, 1308B) each have a bottom edge configured to be inserted into an upward facing aperture formed by an upper horizontal surface 1604 of a portion of an adjacent lower first longitudinal member 1502 and an upper vertical portion 1610 of an adjacent lower second longitudinal member, and have a top edge configured to be inserted into a downward facing aperture formed by a lower horizontal surface 1605 of a portion of an adjacent upper first longitudinal member 1502 and a lower vertical portion 1614 of an adjacent upper second longitudinal member.

[0096] FIG. 15B is a diagram showing top view detail of a manufactured wood interior wall finish system in accordance with some implementations. FIG. 15B shows third openings 1504 formed in the plurality of first longitudinal members 1502, with the third openings 1504 each configured to receive a vertical member 1304 and spaced along the plurality of first longitudinal members 1502 at a given interval. The second longitudinal members 1306 are formed to have a length that permits the second longitudinal members 1306 to fit within the given interval between adjacent third openings 1504.

[0097] FIG. 16A is a diagram showing a cross-section of an example extrusion/pultrusion for a manufactured wood interior wall finish system in accordance with some implementations. FIG. 16A shows a first longitudinal member 1502 (or first extrusion) having a first opening 1602 configured to engage a corresponding metal hat channel (e.g., 1404), a second opening (1606) configured to receive an end 1608 of a second longitudinal member 1306.

[0098] FIG. 16B is a diagram showing a cross-section of an example closure extrusion (or second longitudinal member) for a manufactured wood interior wall finish system in accordance with some implementations. FIG. 16 B shows a second longitudinal member 1306 configured to be inserted into a respective second opening 1606 of a corresponding one of the plurality of first longitudinal members 1502. The second longitudinal member 1306

includes a rail 1612 that extends beyond a plane defined by the wall panels when the wall panels are installed. The rail 1612 can be used to mount or hang items. The rail 1612 can reduce a need to make holes in the walls panels to place items on a wall.

[0099] In some implementations, the solid surface top member and the solid surface base member are formed from an aluminum composite material. In some implementations, the wall panels are formed from a wood composite material that can optionally include post consumer recycled material.

[0100] FIG. 17 is a diagram showing a cutaway view of a wall with an example manufactured wood interior wall finish system in accordance with some implementations. Showing the demising wall system 1406, the metal hat channel 1404 (e.g., 2 x 2 3/4 horizontal metal hat channel), the plurality of first longitudinal members 1502 (e.g., a continuous pultrusion), the plurality of second longitudinal members 1306 (e.g., anodized aluminum extrusion), the vertical member 1304 (e.g., anodized aluminum shelf bracket), the wall panels 1308, and continuous gaskets/isolators 1702, which in some implementations can be formed from rubber or other elastomeric material.

[0100] The manufactured interior wall finish system and the manufactured ceiling finish system may be attached to the frame of a building, for example to a demising wall, ceiling/floor panel, or an internal or external structural frame. For example, the manufactured interior wall finish system and the manufactured ceiling finish system may be attached to one or more demising walls and/or floor panels within a building. Generally, any mechanism may be used to attach the manufactured interior wall finish system and the manufactured ceiling finish system to the building. Any type of fastener may generally be used.

[0101] One or more components of the manufactured interior wall finish system and the manufactured ceiling finish system described herein may be fabricated off-site in a factory or manufacturing facility and transported to the project jobsite for installation in a building. The

manufactured interior wall finish system and the manufactured ceiling finish system components may be fabricated in various sizes. At the building site, the manufactured interior wall finish system and the manufactured ceiling finish system may be attached to structural frame members, floor and ceiling panels, end walls, demising walls, utility panels, building utilities, or any combination thereof. The structural frame members, panels or walls may provide support the manufactured interior wall finish system and the manufactured ceiling finish system.

[0102] The examples provided herein are for explanatory purposes only and should not be considered to limit the scope of the disclosure. Each example embodiment may be practical for a particular environment such as urban mixed-use developments, low-rise residential units, and/or remote communities. Materials and dimensions for individual elements may be configured to comply with one or more of the following building codes: fire, energy, handicap, life-safety, and acoustical (impact and ambient noise transfer) without departing from the scope of the principles of the disclosure. The elements and/or system may also be configured to comply with social and/or religious codes as desired. For example, materials, systems, methods, and/or apparatuses may be configured to comply with the International Building Code as it has been adopted in a jurisdiction.

[0103] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and embodiments can be made without departing from its spirit and scope. Functionally equivalent methods and apparatuses within the scope of the disclosure, in addition to those enumerated herein, are possible from the foregoing descriptions. Such modifications and embodiments are intended to fall within the scope of the appended claims. The present disclosure is to be limited only by the terms of the appended claims, along with the full scope of equivalents to which such claims are entitled. This disclosure is not limited

to particular methods, which can, of course, vary. The terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting.

[0104] With respect to the use of substantially any plural and/or singular terms herein, the terms can be translated from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0105] In general, terms used herein, and especially in the appended claims (e.g., bodies of the appended claims) are generally intended as “open” terms (e.g., the term “including” should be interpreted as “including but not limited to,” the term “having” should be interpreted as “having at least,” the term “includes” should be interpreted as “includes but is not limited to,” etc.).

[0106] If a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation, no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases “at least one” and “one or more” to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles “a” or “an” limits any particular claim containing such introduced claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases “one or more” or “at least one” and indefinite articles such as “a” or “an” (e.g., “a” and/or “an” should be interpreted to mean “at least one” or “one or more”); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, such recitation should be interpreted to mean at least the recited number (e.g., the bare recitation of “two recitations,” without other modifiers, means at least two recitations, or two or more recitations).

[0107] Furthermore, in those instances where a convention analogous to “at least one of A, B, and C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., “a system having at least one of A, B, and C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to “at least one of A, B, or C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., “a system having at least one of A, B, or C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). Virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase “A or B” will be understood to include the possibilities of “A” or “B” or “A and B.”

[0108] In addition, where features or aspects of the disclosure are described in terms of Markush groups, the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

[0109] For any and all purposes, such as in terms of providing a written description, all ranges disclosed herein also encompass any and all possible subranges and combinations of subranges thereof. Any listed range can be easily recognized as sufficiently describing and enabling the same range being broken down into at least equal halves, thirds, quarters, fifths, tenths, etc. As a non-limiting example, each range discussed herein can be readily broken down into a lower third, middle third and upper third, etc. All language such as “up to,” “at least,” “greater than,” “less than,” and the like include the number recited and refer to ranges which can be subsequently broken down into subranges as discussed above. Finally, a range

includes each individual member. Thus, for example, a group having 1-3 items refers to groups having 1, 2, or 3 items. Similarly, a group having 1-5 items refers to groups having 1, 2, 3, 4, or 5 items, and so forth.

[0110] The herein described subject matter sometimes illustrates different components contained within, or connected with, different other components. Such depicted architectures are merely embodiments, and in fact many other architectures can be implemented which achieve the same functionality. In a conceptual sense, any arrangement of components to achieve the same functionality is effectively “associated” such that the desired functionality is achieved. Hence, any two components herein combined to achieve a particular functionality can be seen as “associated with” each other such that the desired functionality is achieved, irrespective of architectures or intermedial components. Likewise, any two components so associated can also be viewed as being “operably connected”, or “operably coupled”, to each other to achieve the desired functionality, and any two components capable of being so associated can also be viewed as being “operably couplable”, to each other to achieve the desired functionality. Specific embodiments of operably couplable include but are not limited to physically mateable and/or physically interacting components.

[0111] While various aspects and embodiments have been disclosed herein, other aspects and embodiments are possible. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting.

CLAIMS

What is claimed is:

1. A manufactured ceiling finish system, comprising:

at least one ceiling channel fastened to a ceiling side of a ceiling/floor panel;

at least one ceiling panel clip configured to engage the at least one ceiling channel;

at least one ceiling grid rail configured to engage the at least one ceiling panel clip;

and

at least one acoustical ceiling panel configured to engage the at least one ceiling grid rail.

2. The manufactured ceiling finish system of claim 1, wherein the at least one ceiling channel includes a lengthwise planar aperture configured to slidably receive the at least one ceiling panel clip, and wherein the at least one ceiling panel clip includes a planar portion configured to be inserted into the lengthwise planar aperture of the at least one ceiling channel.

3. The manufactured ceiling finish system of claim 2, wherein the at least one ceiling panel clip is configured to be secured in place within the lengthwise planar aperture of the at least one ceiling channel via a fastener inserted through the at least one ceiling panel clip and into the at least one ceiling channel.

4. The manufactured ceiling finish system of claim 1, wherein the at least one ceiling panel clip includes a ceiling panel clip aperture configured to receive a ceiling grid rail protrusion of the at least one ceiling grid rail.

5. The manufactured ceiling finish system of claim 1, wherein the at least one ceiling grid rail

includes a first acoustical ceiling tile retention section and a second acoustical ceiling tile retention section.

6. The manufactured ceiling finish system of claim 1, wherein the at least one ceiling grid rail includes a ceiling track that extends from a distal end of the at least one ceiling grid rail beyond a first acoustical ceiling tile retention section and a second acoustical ceiling tile retention section.

7. The manufactured ceiling finish system of claim 1, wherein the at least one ceiling grid rail includes at least one electrical power conductor.

8. A manufactured interior bathroom wall finish system, comprising:

- a solid surface base member attached to a bottommost metal hat channel;

- a plurality of first extrusions each having a first opening configured to engage a corresponding metal hat channel and a second opening configured to receive a second extrusion;

- a plurality of second extrusions each configured to be inserted into a respective second opening of a corresponding one of the plurality of first extrusions and configured to be fastened to the respective one of the plurality of the first extrusions via a fastener;

- a plurality of solid surface wall panels each having a bottom edge configured to be inserted into a first aperture of a lower one of the plurality of second extrusions and having a top edge configured to be inserted into a second aperture of an upper one of the plurality of second extrusions, wherein the plurality of solid surface wall panels are assembled in a bottom to top order such that the upper one of the plurality of second extrusions secures a lower adjacent solid surface panel as the manufactured interior bathroom wall finish system

is installed; and

a solid surface top member attached to a topmost metal hat channel.

9. The manufactured interior bathroom wall finish system of claim 8, wherein the solid surface base member and the solid surface top member are formed from an aluminum composite material.

10. The manufactured interior bathroom wall finish system of claim 8, wherein the solid surface wall panels are formed from quartzite.

11. The manufactured interior bathroom wall finish system of claim 8, wherein each of the plurality of first extrusions include a plurality of continuous seals attached to a respective one of the plurality of first extrusions, wherein the plurality of continuous seals are arranged so as to form a seal when solid surface wall panels are installed adjacent to the respective one of the plurality of first extrusions.

12. The manufactured interior bathroom wall finish system of claim 11, wherein the plurality of continuous seals include a first seal disposed adjacent to a top edge of a respective one of the plurality of first extrusions, a second seal disposed adjacent a midpoint of the respective one of the plurality of first extrusions, and a third seal disposed adjacent a bottom edge of the respective one of the plurality of first extrusions, and wherein, when the manufactured interior bathroom wall finish system is installed, the first seal is arranged to contact an upper solid surface panel and the second and third seals are arranged to contact a lower solid surface panel relative to the respective one of the plurality of first extrusions.

13. A manufactured interior bathroom wall finish system, comprising:

a solid surface base member attached to a bottommost metal hat channel;

a plurality of first extrusions each having a first opening configured to engage a corresponding metal hat channel and a second opening configured to receive a second extrusion;

a plurality of second extrusions each configured to be inserted into a respective second opening of a corresponding one of the plurality of first extrusions and configured to be fastened to the respective one of the plurality of the first extrusions via a fastener, each second extrusion having a downward facing aperture;

a plurality of third extrusions each configured to engage a respective first extrusion and a respective second extrusion, each third extrusion having an upward facing aperture;

a plurality of solid surface wall panels each having a bottom edge configured to be inserted into an upward facing aperture of a lower one of the plurality of third extrusions and having a top edge configured to be inserted into a downward facing aperture of an upper one of the plurality of second extrusions, wherein the plurality of solid surface wall panels are assembled in a bottom to top order such that the upper one of the plurality of second extrusions secures a lower adjacent solid surface panel as the manufactured interior bathroom wall finish system is installed; and

a solid surface top member attached to a topmost metal hat channel.

14. The manufactured interior bathroom wall finish system of claim 13, wherein the solid surface base member and the solid surface top member are formed from an aluminum composite material.

15. The manufactured interior bathroom wall finish system of claim 13, wherein the solid surface wall panels are formed from quartzite.

16. The manufactured interior bathroom wall finish system of claim 13, wherein each of the plurality of first extrusions include a plurality of continuous seals attached to a respective one of the plurality of first extrusions, wherein the plurality of continuous seals are arranged so as to form a seal when solid surface wall panels are installed adjacent to the respective one of the plurality of first extrusions.

17. The manufactured interior bathroom wall finish system of claim 16, wherein the plurality of continuous seals include a first seal disposed adjacent to a top edge of a respective one of the plurality of first extrusions, a second seal disposed adjacent a bottom edge of the respective one of the plurality of first extrusions, and wherein, when the manufactured interior bathroom wall finish system is installed, the first seal is arranged to contact an upper solid surface panel and the second seal is arranged to contact a lower solid surface panel relative to the respective one of the plurality of first extrusions.

18. A manufactured interior wall finish system, comprising:

- a solid surface base member attached to a bottommost metal hat channel;

- a plurality of first longitudinal members each having a first opening configured to engage a corresponding metal hat channel, and having a second opening configured to receive a second extrusion;

- a plurality of second longitudinal members each configured to be inserted into a respective second opening of a corresponding one of the plurality of first longitudinal members;

a plurality of wall panels each having a bottom edge configured to be inserted into an upward facing aperture formed by an upper horizontal surface of a portion of an adjacent lower first longitudinal member and an upper vertical portion of an adjacent lower second longitudinal member, and having a top edge configured to be inserted into a downward facing aperture formed by a lower horizontal surface of a portion of an adjacent upper first longitudinal member and a lower vertical portion of an adjacent upper second longitudinal member; and

a solid surface top member attached to a topmost metal hat channel.

19. The manufactured interior wall finish system of claim 18, wherein the plurality of first longitudinal members have a plurality of third openings formed therein, wherein the third openings are each configured to receive a vertical member and are spaced along the plurality of first longitudinal members at a given interval, and wherein the second longitudinal members are formed to have a length that permits the second longitudinal members to fit within the given interval between adjacent third openings.

20. The manufactured interior wall finish system of claim 18, wherein the plurality of first longitudinal members include an extrusion.

21. The manufactured interior wall finish system of claim 18, wherein the plurality of first longitudinal members include a pultrusion.

22. The manufactured interior wall finish system of claim 18, wherein the plurality of second longitudinal members include an extrusion.

23. The manufactured interior wall finish system of claim 18, wherein the plurality of second longitudinal members include a pultrusion.

24. The manufactured interior wall finish system of claim 18, wherein the solid surface base member and the solid surface top member are formed from an aluminum composite material.

25. The manufactured interior wall finish system of claim 18, wherein the wall panels are formed from a wood composite material.