



US 20090145050A1

(19) **United States**(12) **Patent Application Publication**
Dugand(10) **Pub. No.: US 2009/0145050 A1**(43) **Pub. Date: Jun. 11, 2009**(54) **SELF-CONTAINED AND EXPANDABLE
FURNITURE SYSTEM HOSTING
STATE-OF-THE-ART TECHNOLOGY****Publication Classification**(51) **Int. Cl.**
E04H 1/00

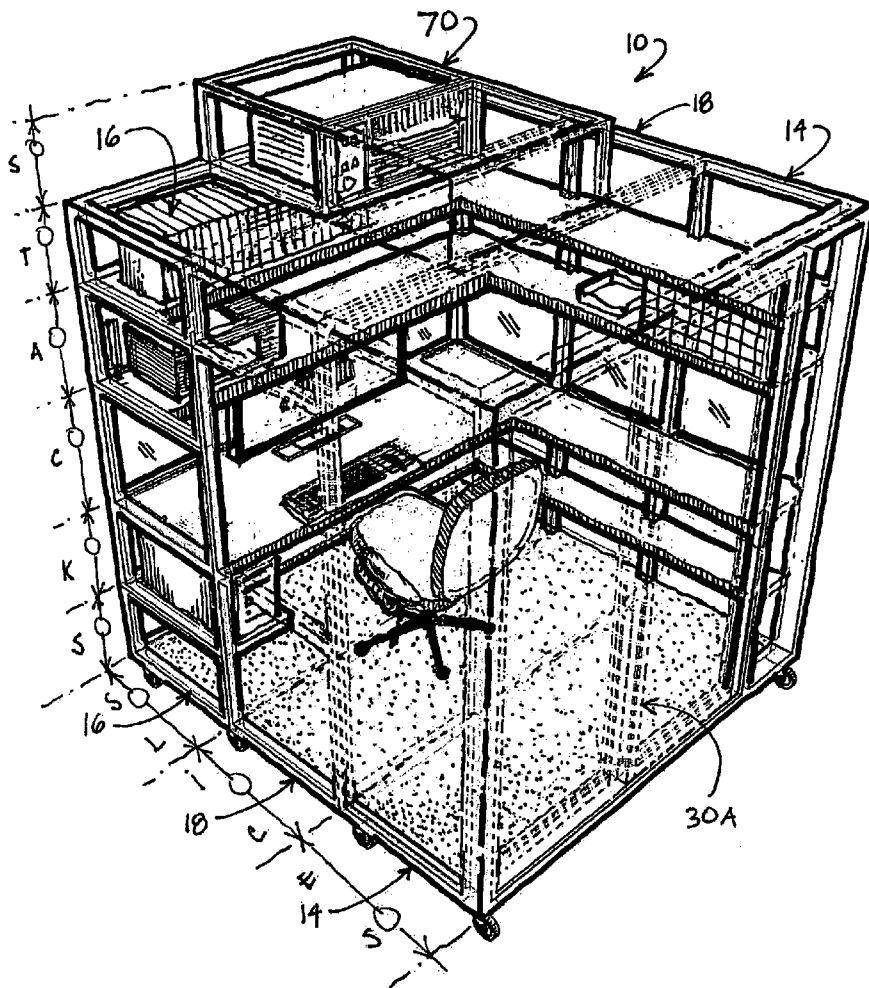
(2006.01)

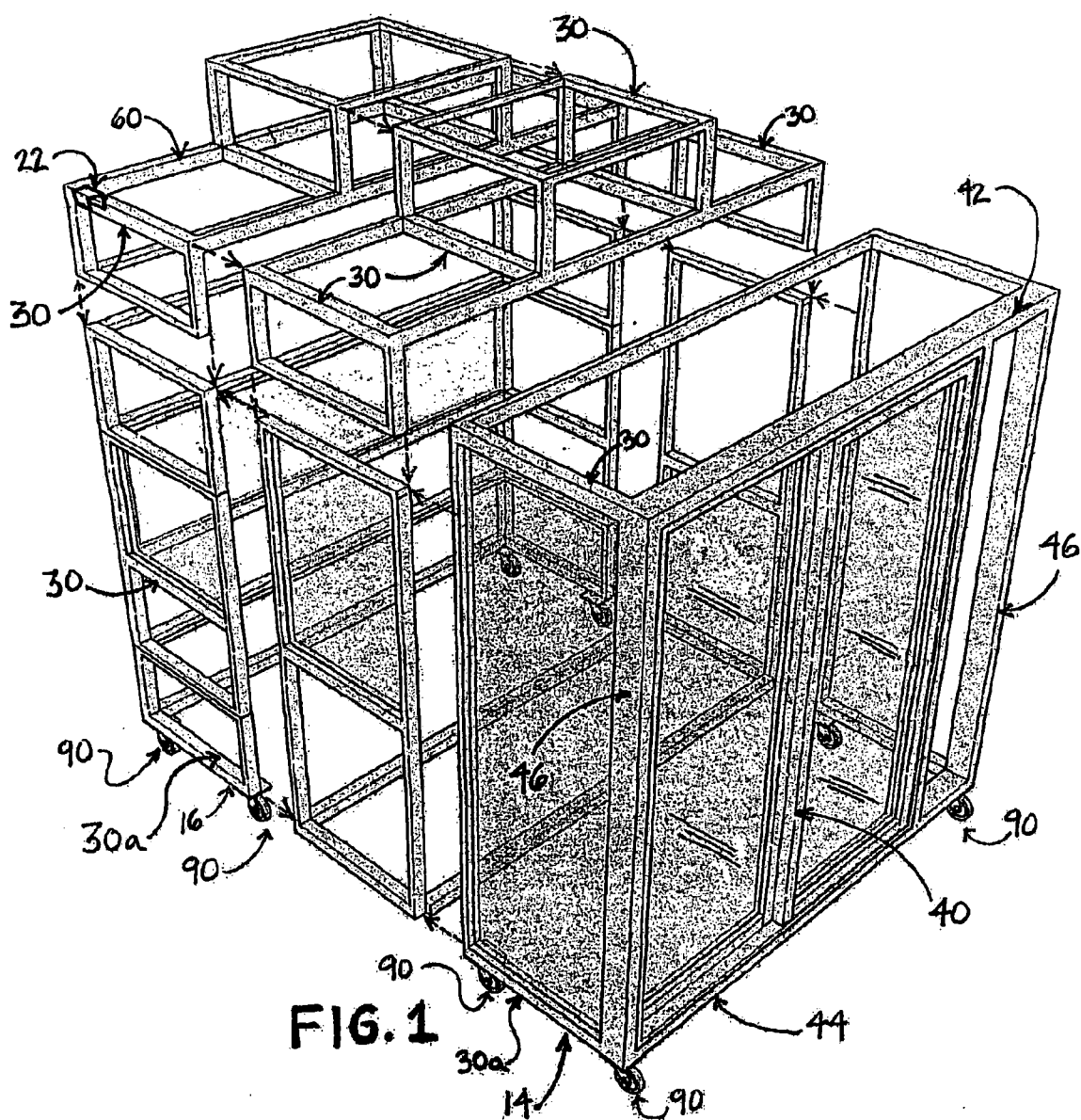
(52) **U.S. Cl.** **52/36.1; 52/36.2**(57) **ABSTRACT**(76) **Inventor:** **Ronald Dugand**, Coconut Creek,
FL (US)

Correspondence Address:

ROBERT M. DOWNEY, P.A.**6751 N. FEDERAL HWY., SUITE 300**
BOCA RATON, FL 33487 (US)(21) **Appl. No.:** **12/313,916**(22) **Filed:** **Nov. 25, 2008****Related U.S. Application Data**(63) Continuation-in-part of application No. 11/271,619,
filed on Nov. 9, 2005, now abandoned.(60) Provisional application No. 60/626,668, filed on Nov.
10, 2004.

A self-contained plug-and-play furniture system is ready to host state-of-the-art technology within a portable, autonomous and expandable structure so that a person may work, play and communicate at optimum efficiency. The assembly of the system begins with a primary unit including a desk work station. The primary unit is fully equipped for electric power, voice and data connection and includes multiple power outlets, as well as data and voice outlets. The primary unit is expandable both vertically and horizontally by attaching prefabricated sections, as needed, including a sliding door section that completes assembly of an interior environment of the furniture system. Insulated wall, ceiling and floor panels fit within openings of the exterior frame structures of the primary unit and prefabricated sections to provide privacy and, when fully assembled, to enclose the interior environment. An air conditioner unit with remote control mounts on top of the ceiling for controlling the climate of the enclosed interior environment. Wheels on the primary unit and the base of attached prefabricated sections promote portability.





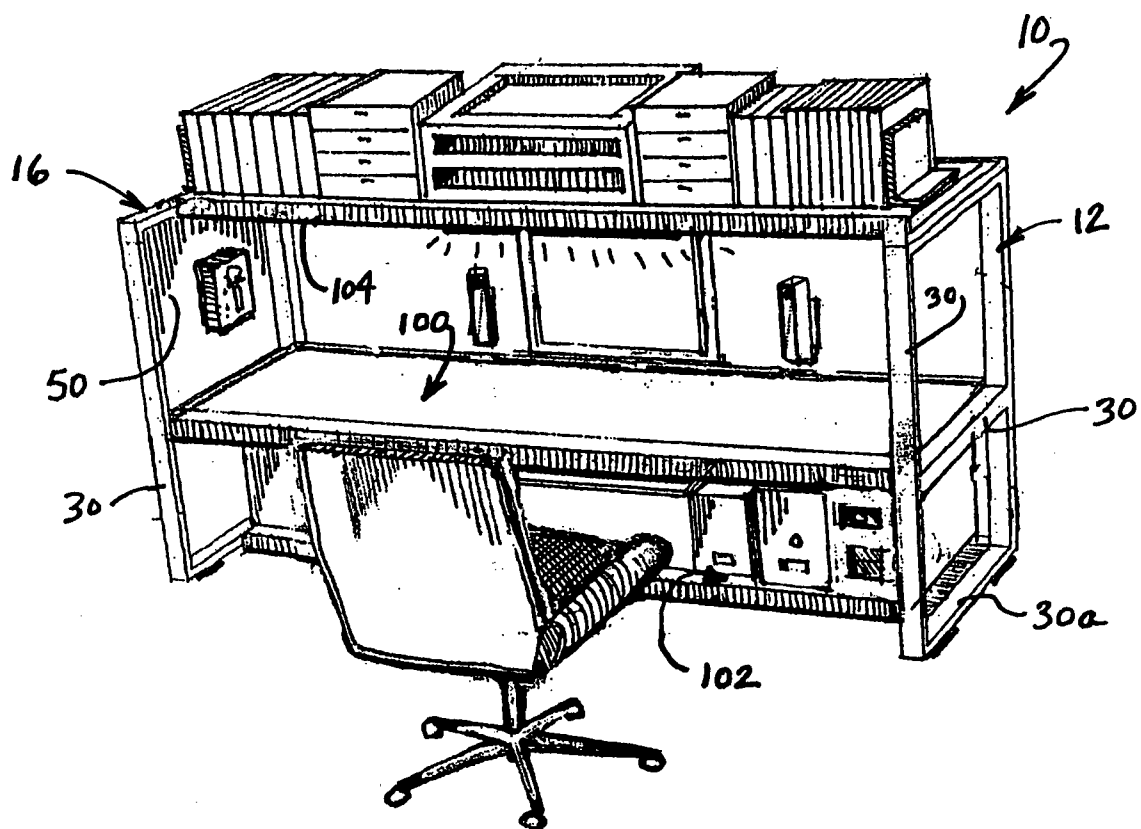
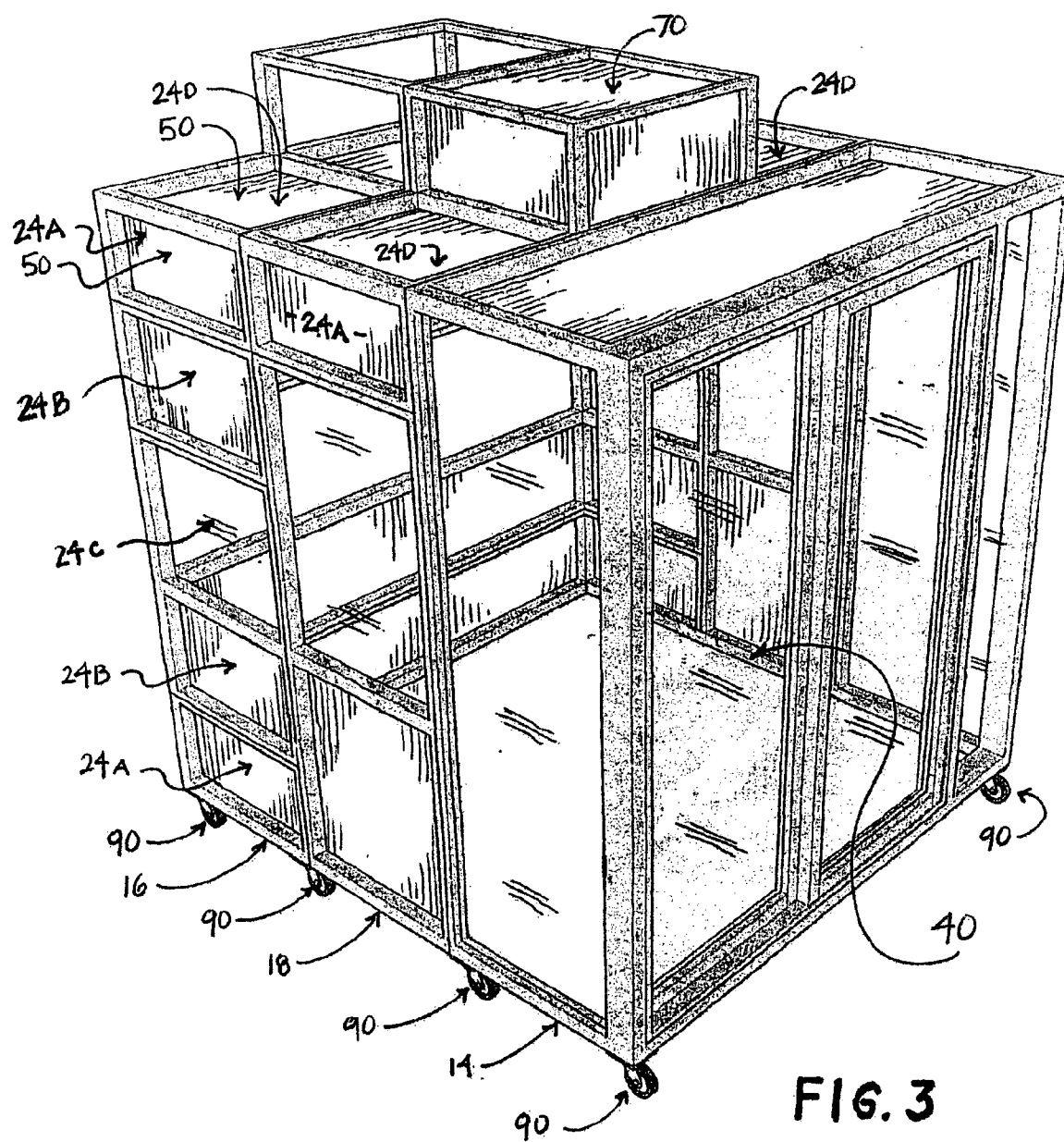
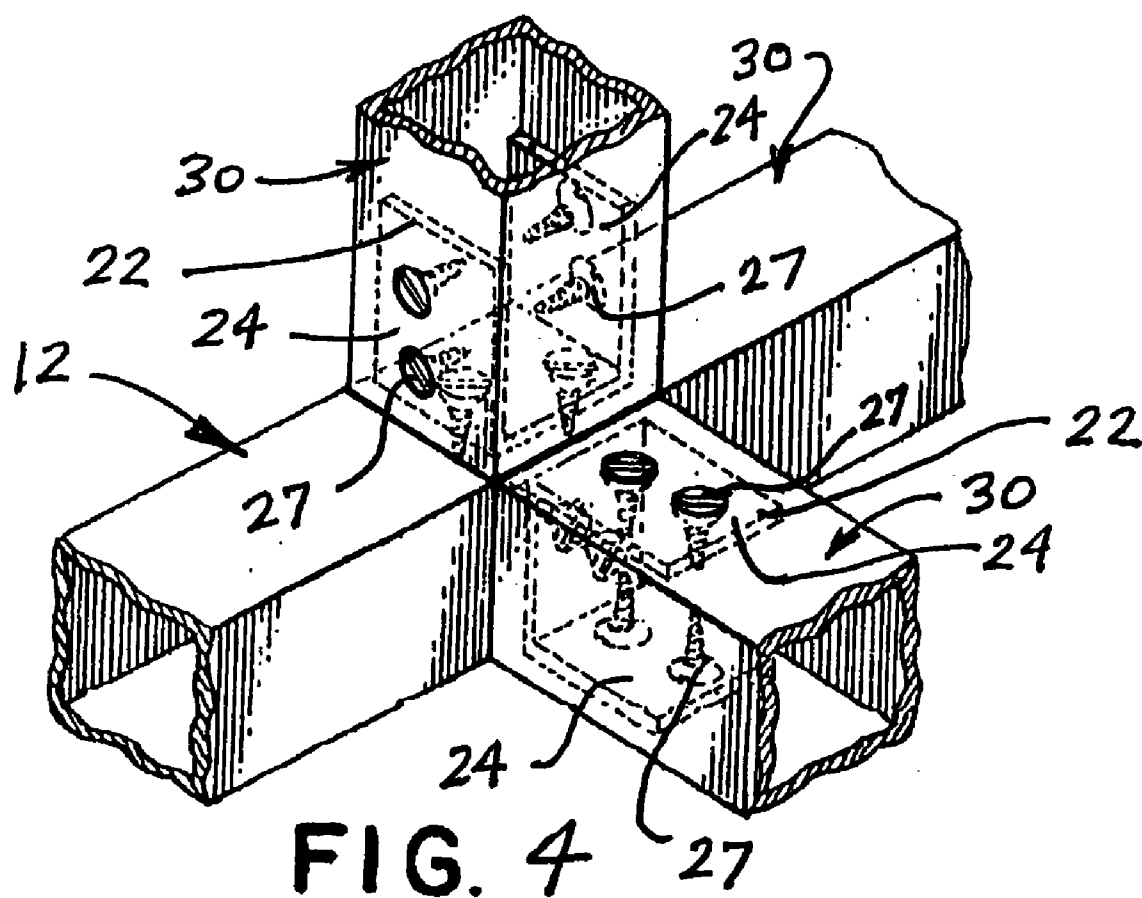


FIG. 2





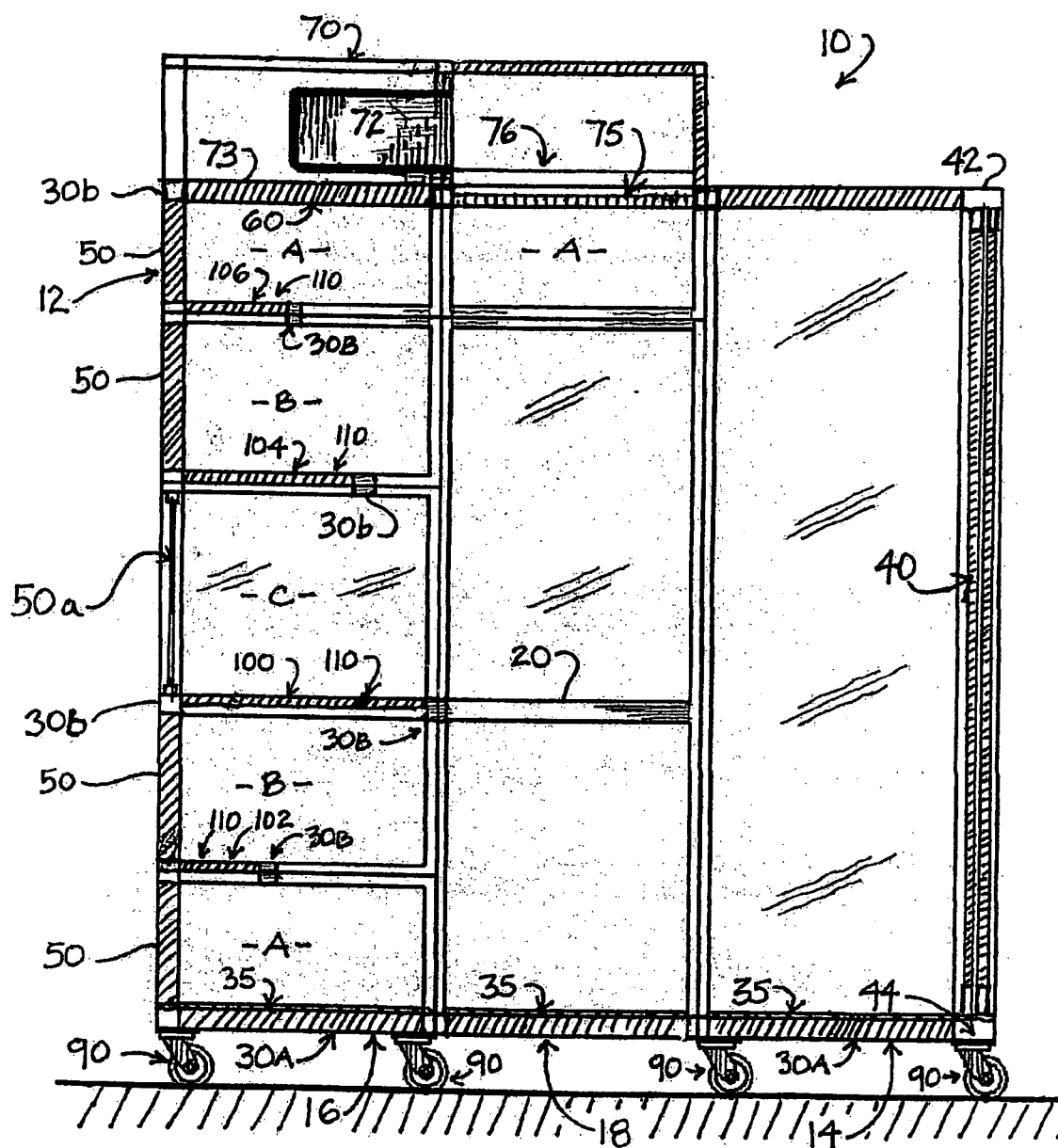


FIG. 5

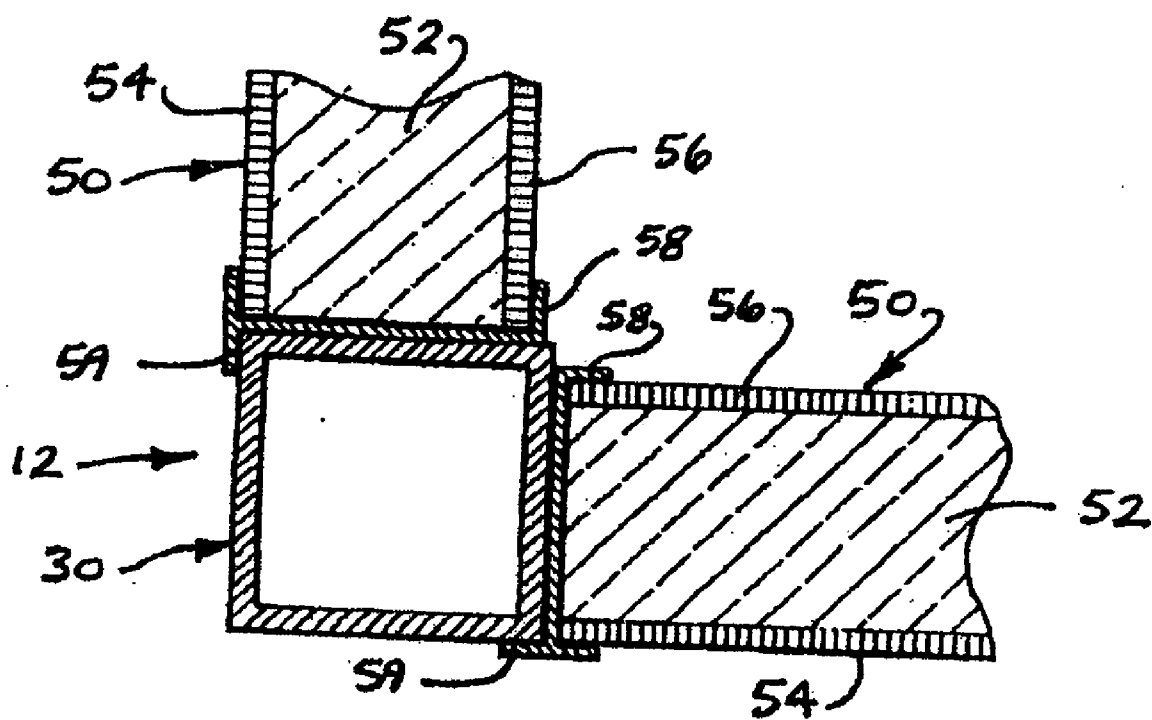


FIG. 6

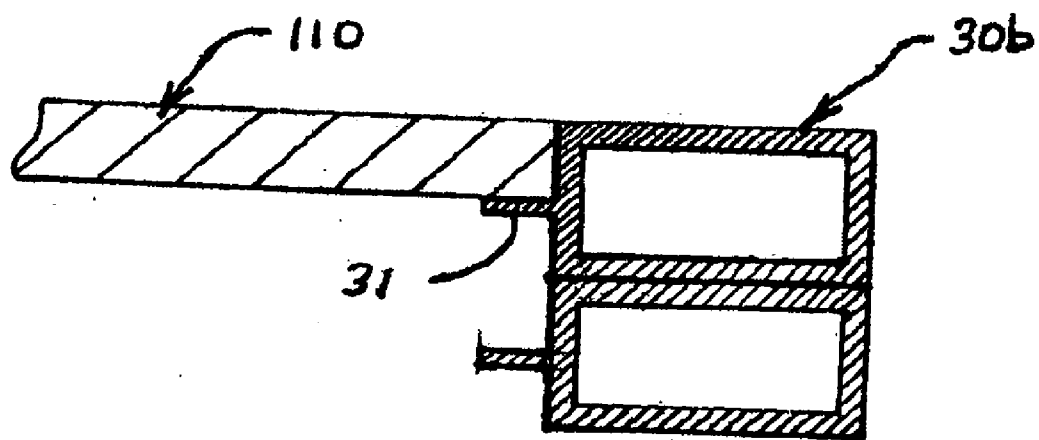


FIG. 7

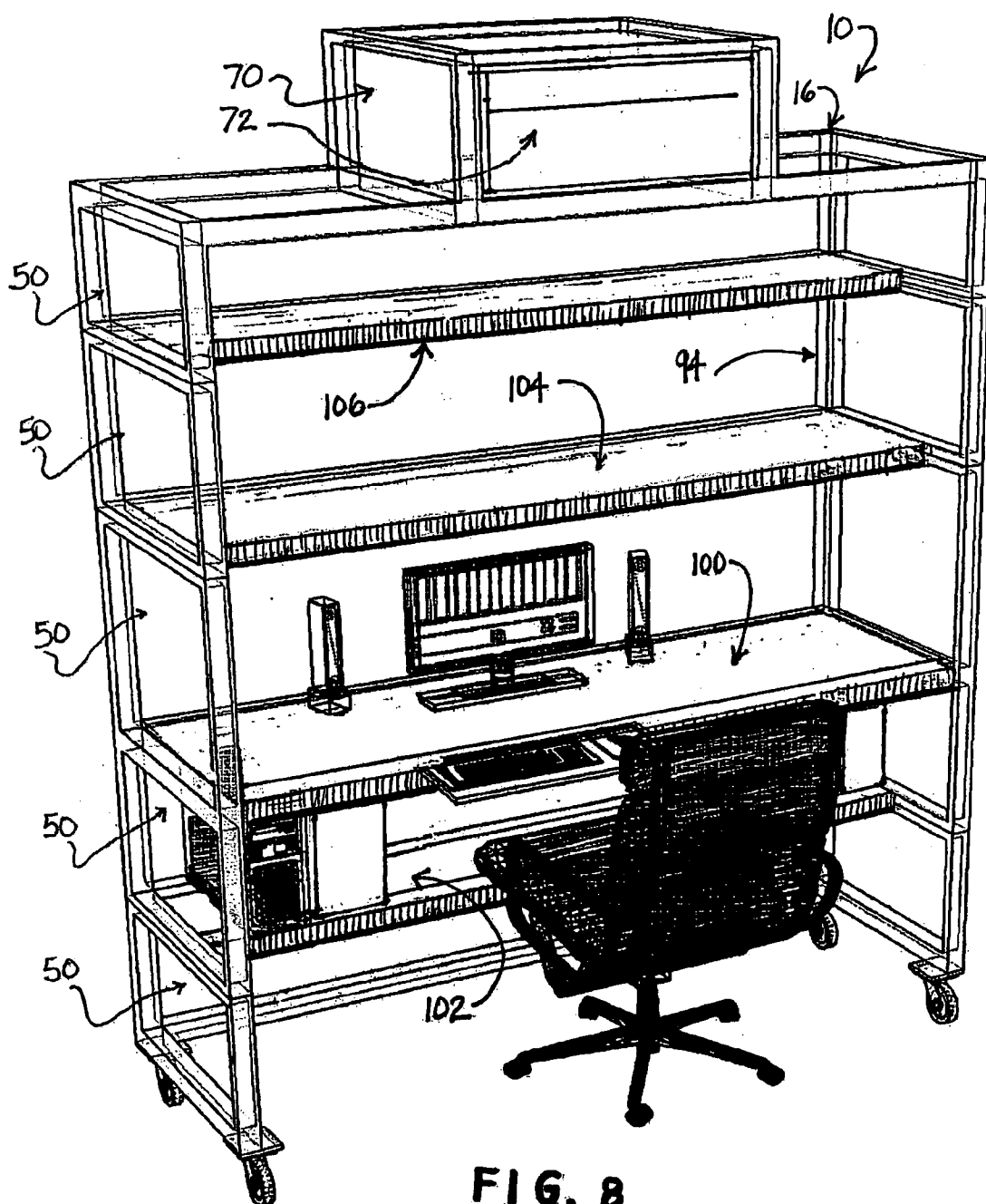
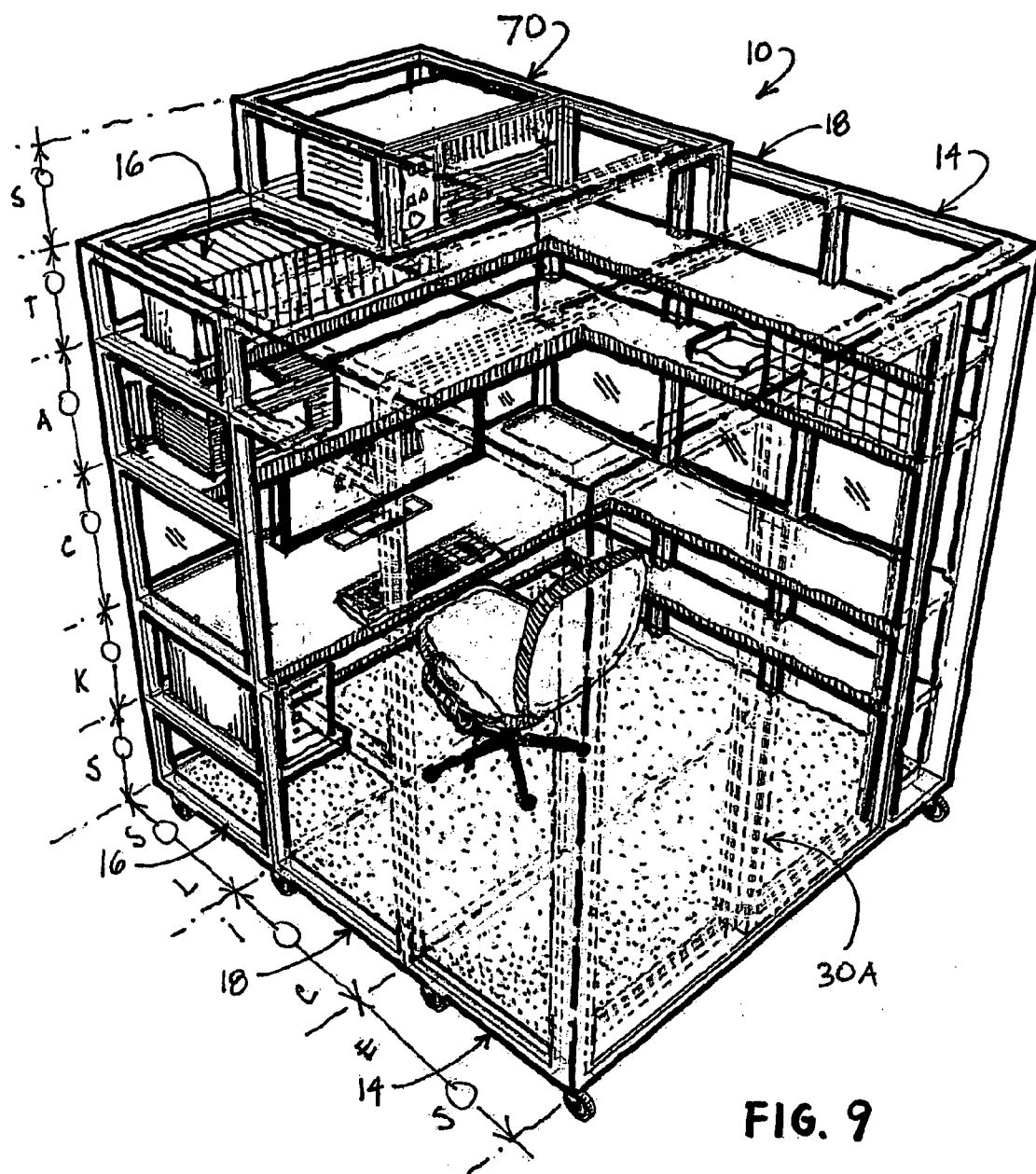


FIG. 8



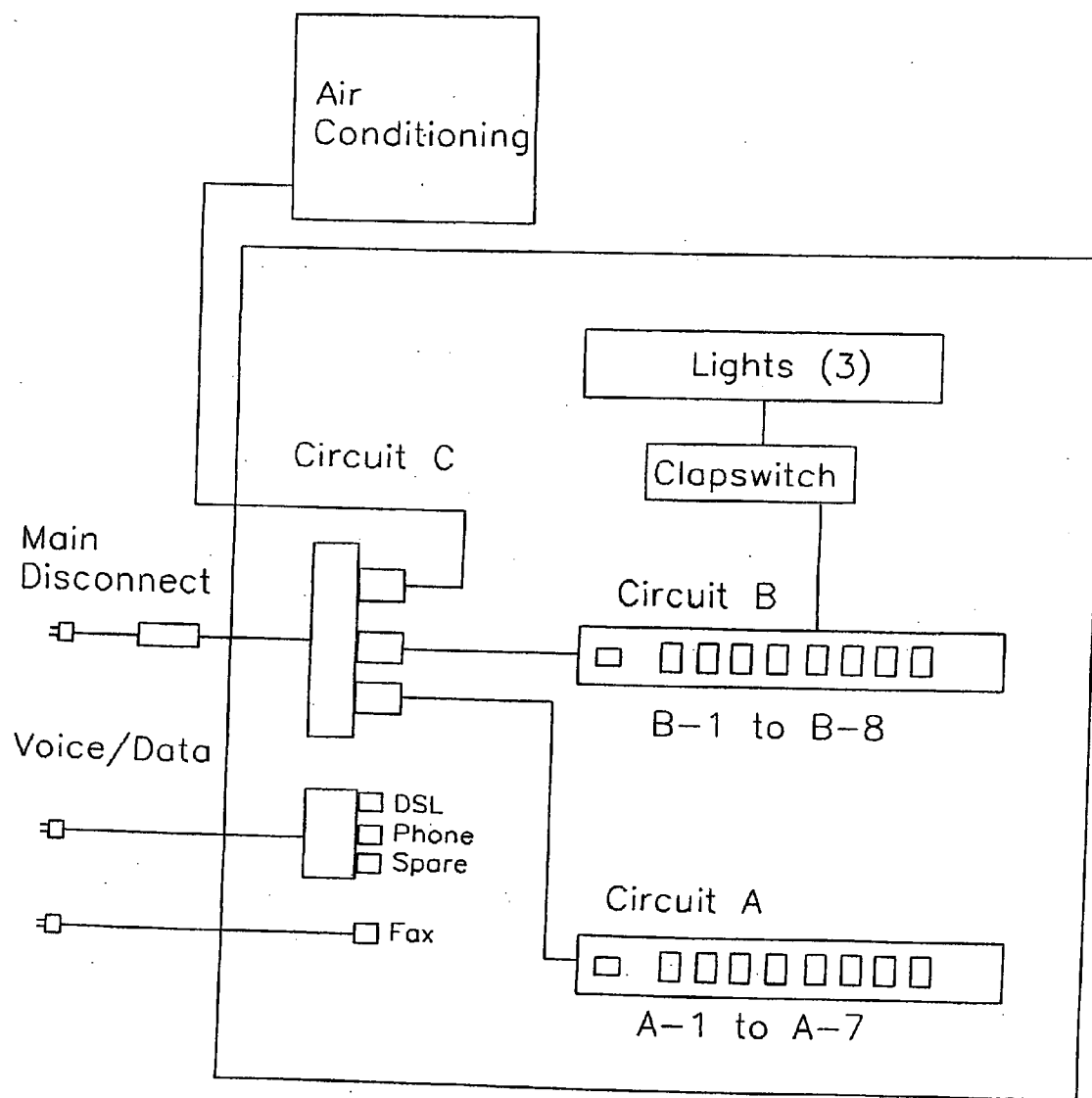


FIG. 10

Electrical requirement Chart

Description	Brand	Model	AC Voltage	Watts	Hertz	Amps.
Circuit A						
A1 Monitor	Dell 19" CTR		100/120		50/60	1.0
A2 CPU	Dell	3W5Y231	100/120		50/60	1.5
A3 DSL Modem transformer	Westell	A31312CL	120	24	60	0.15
A4 Router transformer	Linksys	WRT54G	120	23	60	0.15
A5 Cordless Phone / Answering Machine transformer	Panasonic					0.15
A6 Wireless keyboard/mouse transformer	Logitech	CEO682	3V (DC)			0.15
A7 Printer/Fax/Scanner/Copier	Hewlett Packard		100/120		50/60	1
Circuit B						
B1 Paper Shredder	Maxshred	WM-5255B	115		60	1.4
B2 Subwoofer/tweeters transformer	Altec Lansing	AV300A67	120	20	60	2.0
B3 Refrigerator transformer	Vector	VEC004A	120		60	1.4
B4 PDA transformer	Motorola	MUT21052100	110		50/60	0.5
B5 MP3 player transformer	Samsung	DPP082OU	100		50/60	0.3
B6 2 Desktop & 1 Upper shelf lights	Slim fluorescent					4.5
B7 Spare Outlet # 1						1.0
B8 Spare Outlet # 2						1.0
Circuit C						
C1 Air Conditioner (5200 BTU/hr)	Sunbeam		115		60	5.0
1 phase, 135 Air circ. vol., .5 liter/hr moist. removal, 45 lbs. Weight						
						max amps. 21.2
						assuming 70% 14.84

FIG. 11

SELF-CONTAINED AND EXPANDABLE FURNITURE SYSTEM HOSTING STATE-OF-THE-ART TECHNOLOGY

[0001] This application is a Continuation-In-Part application of co-pending U.S. patent application Ser. No. 11/271,619 filed on Nov. 9, 2005 which was based on provisional patent application Ser. No. 60/626,668 filed on Nov. 10, 2004.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to an expandable furniture system and, more particularly, to a self-contained plug-and-play furniture system that is expandable and encloseable and ready to host state-of-the-art technology in a movable, autonomous, acoustically balanced and climate controlled environment.

[0004] 2. Discussion of the Related Art

[0005] For centuries, people have had the need for a suitable space to think, create, study or just be alone to gather their thoughts in a calm, peaceful environment. These needs have evolved in modern times to include information processing and time management in order to be productive and generate wealth. The use of state-of-the-art technology, including computers and telecommunications equipment, has become essential in today's society. Likewise, the need for peaceful and inspiring surroundings remains as an essential element of efficiency.

[0006] In the past, others have proposed various prefabricated fixed or mobile modular systems to build work stations, enclosed rooms or small building structures. Notwithstanding, the numerous proposed systems and structures do not fully meet the emerging needs of a personal home office or commercial work space (e.g. warehouse, factory, etc.). More specifically, the prior art fails to provide a self-contained, movable, and expandable plug-and-play furniture system that is ready to host state-of-the-art technology.

[0007] Examples of enclosed workspace systems and enclosed modular office systems are disclosed in the U.S. patents to Ando et al., U.S. Pat. No. 6,701,682; and Koby-Olsen, U.S. Pat. No. 5,897,325 and in U.S. Patent application Pub. No. US 2004/0003545 to Gillespie. The modular office systems disclosed in these related art references require the detailed assembly of hundreds of parts, with each part being uniquely designed for the fixed sized assembly at a specific location within the overall assembly. Gillespie, in particular, appears to require the assembly of at least several hundred individual parts, each being uniquely designed for their intended purpose, similar to the manufacturing assembly of an automobile or recreational vehicle. The need to manufacture and assemble many individual and unique parts makes these prior art modular office systems extremely expensive. Moreover, the modular office systems in the related art fail to provide for ease of expansion to accommodate the needs and budget of the consumer. Furthermore, the workspace systems disclosed in the related art fail to provide for flexibility in materials and, particularly, the ability to easily switch materials to accommodate the needs of the user such as providing resistance to fire, bullets, moisture, mold, sounds, heat, or insects. The systems in the related art also fail to provide for flexibility in transparency and visual control. More specifically, the systems in the related arts fail to allow for easy installation of transparent panels, such as panes of glass, at any location around the vertical wall structure and ceiling

structure in order to provide desirable visibility, light, and to eliminate a claustrophobic feeling when inside the enclosed environment.

[0008] Telecommuting, or the ability to work from home, is a new social dynamic or segment of the marketplace that is poised for rapid growth. The term "telecommuter" has been known for more than 20 years, and in that time the category of people it describes has exploded. It is estimated that the number of workers whose only office is at home has doubled over the last three years. Clearly, given the present social issues with spiraling fuel prices, traffic congestion issues, parents needing to be in the home to care for children or elderly, and other factors, telecommuting will continue to become integrated into society. With the emergence of advanced telecommunication services into the home, spaces are now being established within the employee's residence which effectively creates a virtual office environment. Accordingly, telecommuting and the ability to work from places other than the traditional office environment is an emerging concept poised for rapid growth.

[0009] Future telecommuting market growth will depend not only on the emergence of user friendly and robust, low cost, easy to install home equipment, but also on providing the end user with a sensible, affordable, easily assembled, sound and ambience controlled private space. This space should be specifically designed to satisfy the consumer's needs for working and spending leisure time by providing a comfortable, easily managed and partitioned environment, free from noise and distractions, and which allows people to easily connect into their employer offices and communicate with the world while working from their residence. Given the paradigm shift to the telecommuter or "at-home" worker, technology being targeted for this space must be viewed as a consumer grade service. As such, any design goals must consider the "technology challenged" consumer and require functionality that is inexpensive, simple to construct, and use. In the case of an in-home spatial enclosure suitable for telecommuting, the consumer expectation is that the technology functions properly and requires little more than plugging a cable into the home's power and telecommunication sources to make it permanently ready to work or play.

[0010] Success in the consumer market requires that a home office be reasonably priced, easy to install, easy to use, and that it provides all the required surfaces, spaces, shelves, drawers, electrical power, lighting, climate control, power outlets, voice and data outlets all designed and ready to host computer equipment, telecommunications equipment and other supplies and equipment required for an "at-home" work environment. Additionally, a home office furniture system should provide for ease of expanding, both vertically and horizontally, to accommodate the existing budget and personal needs of the consumer. Moreover, the design should also provide a comfortable environment where one is free to "get away from it all." An environment to support these objectives is ideally provided in a "plug-and-play" self-contained and expandable furniture system of the present invention.

Objects and Advantages of the Invention

[0011] Considering the shortcomings of the prior art, and the definite need to combine an informed person and high-tech equipment within inspiring surroundings in order to improve their effectiveness and efficiency, it is a primary object of the present invention to provide a self-contained, plug-and-play furniture system that allows for the progressive vertical assembly of prefabricated pieces of the furniture system, in "slices," as the individual consumers budget allows, thereby making it possible to use one or several reduced cost

partially assembled sections as customers develop the ideal level of expansion to suit their needs.

[0012] It is a further object of the present invention to provide a self-contained, plug-and-play furniture system that permits the progressive addition of horizontal prefabricated sections to the furniture system, in layers, in accordance with the customer's budget, thereby making it possible to use one or several reduced cost partial sections as customers develop the ideal level of expansion of the furniture system to suit their needs.

[0013] It is still a further object of the present invention to provide a self-contained, plug-and-play furniture system that allows for the progressive assembly over a period of time while enabling the customer to fully utilize installed or newly added prefabricated partial sections as they are needed, developing the system in either or both horizontal or vertical directions and ultimately allowing the customer to enclose the assembly in order to provide a private, peaceful and fully functional indoor work environment.

[0014] It is yet a further object of the present invention to provide a self-contained furniture system that allows for adaptability to suit the customer's needs, including the ability to mix and swap various materials to accommodate such things as wind resistance, fire resistance, bullet resistance, moisture and mold resistance, sound resistance, heat resistance and insect resistance.

[0015] It is still a further object of the present invention to provide a self-contained furniture system, as described above, and wherein the furniture system provides for portability, allowing one or more fully assembled furniture systems of the present invention to be easily transported to any location in the world, and further wherein the self-contained furniture system can be quickly and easily set up for use at any location, even remote locations, for connection to landline or wireless telecommunication services and internet services.

[0016] It is still a further object of the present invention to provide a self-contained furniture system, as described above, and provides for any degree of desired transparency by switching out opaque wall panels for transparent wall and ceiling panels, as desired, and thereby allowing the user to customize their interior work environment to enhance visibility of the outdoor environment, light input from outside sources and elimination of a claustrophobic feeling when in the interior environment of the furniture system.

[0017] It is a further object of the present invention to provide a self-contained furniture system, as described above, which allows for maximum organization and efficient placement of equipment and items for storage.

[0018] It is a further object of the present invention to provide a self-contained, plug-and-play furniture system in a movable enclosure that includes work surfaces, shelves, lighting, electrical power with outlets, voice and data outlets and switches and which is ready to host state-of-the-art computer and telecommunication equipment, as well as all other supplies and equipment needed to work, play and communicate in a peaceful and highly efficient environment.

[0019] It is still a further object of the present invention to provide a self-contained furniture system as described above, and which is adapted to be quickly and easily assembled at the point of use to provide a fully enclosed plug-and-play system that is ready to host today's high-tech computer and telecommunications equipment without the need to acquire special building permits.

[0020] It is still a further object of the present invention to provide a self-contained, movable and autonomous furniture system as described above, which is adapted to be placed

within an existing home or commercial building without the need for remodeling the existing home or building structure.

[0021] It is still a further object of the present invention to provide a self-contained furniture system that solves the missing connection between a person and today's high-tech equipment, by providing the person with privacy and total control of their surrounding environment, thus uniquely enhancing their productivity in a calm, relaxed atmosphere.

[0022] It is still a further object of the present invention to provide a self-contained, movable and autonomous furniture system which provides multiple levels of interior and exterior shelves to accommodate all necessary equipment and supplies needed for a person to function with maximum efficiency within a compact, highly organized area.

[0023] It is still a further object of the present invention to provide a self-contained, movable and autonomous furniture system which is constructed entirely with conventional materials.

[0024] It is still a further object of the present invention to provide a self-contained, movable and autonomous furniture system as described above, and which includes an electrical system that connects to an existing power supply source via UL rated plug-and-play extension cords, thus eliminating the need for a licensed electrician for assembly and use.

[0025] It is still a further object of the present invention to provide a self-contained, movable and autonomous furniture system, as described above, which provides the further advantages of:

- [0026]** indirect lighting to avoid glare and discomfort,
- [0027]** remote control air-conditioning for climate control,
- [0028]** a heat cube for cold weather,
- [0029]** a fire extinguisher kit (includes a smoke detector)
- [0030]** Sound and weather insulation,
- [0031]** a noise absorbing acoustic ceiling,
- [0032]** easy to clean laminate finishes that can be upgraded to plastic, metal or wood finishes,

[0033] These and other objects and advantages of the present invention are more readily apparent with reference to the following detailed description and accompanying drawings.

SUMMARY OF THE INVENTION

[0034] The present invention is directed to a self-contained plug-and-play furniture system that is ready to host state-of-the-art technology within a portable, autonomous and expandable structure so that a person may work, play and communicate at optimum efficiency. The assembly of the system begins with a primary unit including a desk work station. The primary unit is fully equipped for electric power, voice and data connection and includes multiple power outlets, as well as data and voice outlets. The primary unit is expandable both vertically and horizontally by attaching prefabricated sections, as needed, including a sliding door section that completes assembly of an interior environment of the furniture system. Insulated wall, ceiling and floor panels fit within openings of the exterior frame structures of the primary unit and prefabricated sections to provide privacy and, when fully assembled, to enclose the interior environment. An air conditioner unit with remote control mounts on top of the ceiling for controlling the climate of the enclosed interior

environment. Wheels on the primary unit and the base of attached prefabricated sections promote portability.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] For a fuller understanding of the nature of the present invention, reference should be made to the following detailed description taken in conjunction with the accompanying drawings in which:

[0036] FIG. 1 is a front, top perspective view of the frame structure of the furniture system of the present invention shown partially exploded to demonstrate the ability to add to the furniture systems in slices and stacks for expanding both vertically and horizontally, eventually to a completed, anchored unit structure;

[0037] FIG. 2 is a perspective view of a primary unit of the furniture system shown assembled with a work surface, an upper shelf and a lower shelf and including a fully integrated plug-and-play power, voice and data outlet system for hosting computer equipment, telecommunication equipment, lighting, and other supplies and equipment required for a fully functional work environment;

[0038] FIG. 3 is a front, top perspective view showing the exterior of the fully assembled furniture system as an enclosed structure;

[0039] FIG. 4 is an isolated perspective view, shown in cut-away, illustrating the manner of connection of the frame members, using screws and U-shaped clips, in the assembly of the frame structure of prefabricated sections;

[0040] FIG. 5 is a side elevational view of the fully assembled enclosed furniture system, shown in partial cross-section, showing the frame structure, interior shelves and air-conditioning housing with an air-conditioning unit;

[0041] FIG. 6 is an isolated view, shown in cross-section, illustrating the wall panel construction and installation to the frame structure;

[0042] FIG. 7 is an isolated view, shown in cross-section, illustrating the shelf support structure of the frame assembly;

[0043] FIG. 8 is a perspective view showing a primary unit of the furniture system with additional "stacks" of prefabricated expansion sections attached to add shelves and vertical height to the furniture system for fully functional use without the assembly of additional expansion sections;

[0044] FIG. 9 is a perspective view, shown partially in phantom lines, showing the entire furniture system fully assembled and illustrating the interior construction and arrangement of shelves, work surfaces, an executive chair, equipment and supplies, and further illustrating the assembly of slices and stacks of prefabricated expansion sections that allow for the vertical and horizontal expansion of the overall furniture system;

[0045] FIG. 10 is a general schematic of the electrical system; and

[0046] FIG. 11 is a chart showing an example of various items of equipment connected to the several circuits of the electrical system.

[0047] Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0048] The self-contained plug-and-play furniture system is described hereinafter and is referred to generally as 10 throughout the several views of the drawings. The furniture system 10 includes prefabricated sections that are adapted to

be attached in order to selectively expand the size of the system both vertically and horizontally.

[0049] The prefabricated sections of the furniture system 10 have an external skeletal frame structure 12. The prefabricated sections include a primary unit 16, a front section 14 with a sliding door 40 and various horizontal and vertical expansion sections to selectively expand the furniture system.

[0050] The exterior skeletal frame structure 12, including the frame structure of the front section 14, the primary unit 16 and all prefabricated expansion sections, has various sized square and/or rectangular openings for receiving wall panels and/or clear (window) panels. In a preferred embodiment, the access door 40 on the front section 14 is a double sliding glass door (one fixed glass door and sliding glass door) with a lock. A remainder of the skeletal frame structure 12 is defined by perpendicularly arranged frame members 30, extending vertically in the exterior walls and an A.C. ceiling structure, as well as horizontally in the vertical planes of the walls and in the horizontal planes of the ceiling sections. The interconnected arrangement of frame members 30 form the rectangular and square openings on the four vertical sides, the ceiling and the base. In a preferred embodiment, the frame members 30 consist of square aluminum tubing. The bottom horizontal frame members may be larger in dimension to provide a base frame structure 30a that supports plywood floor planks. Additionally, the front wall frame structure, surrounding the sliding glass door 40, including the header rail 42, base rail 44 and side rails 46, is of an increased width to accommodate the width of the sliding glass door and track structure. It should be noted that the choice of particular materials may vary and is not limited to aluminum tubing. Moreover, the dimensions of the numerous structural components may vary and are not intended to be limited to those set forth herein.

[0051] The openings on the vertical sides, top and base of the skeletal frame structure, formed by the interconnected frame members 30, are of pre-determined size to accommodate correspondingly sized and configured wall panels 50.

[0052] The top or ceiling frame structure 60, as seen in FIGS. 1 and 5, is formed to define openings between the frame members. The center opening of the prefabricated expansion ceiling sections accommodate an air-conditioning housing 70 and unit 72 (see FIG. 5), as described more fully hereinafter.

[0053] As previously noted, the frame members 30a forming the base frame structure are preferably slightly larger in cross-sectional configuration for supporting plywood planks 35. In a preferred embodiment, the plywood planks are sized to rest on the base frame structure, within the interior, and are supported around their perimeter by the top surface of the base frame members. Once the floor panels are dropped into supported position on the base frame structure, a flooring material, such as carpet can be installed to cover the plywood planks 35.

[0054] The wall panels 50 are preferably formed of a sandwich construction. More particularly, the wall, ceiling and floor panels (all generally referred to as 50) consist of an insulation core 52 that is sandwiched between outer 54 and inner 56 panel boards, as seen in FIG. 6. This sandwiched construction is surrounded by an aluminum frame 58 which holds the inner 56 and outer 54 panel boards against the insulation core 52. The frame of the wall, ceiling and floor panel construction further includes a flanged lip 59 that mates against an outer facing surface of the frame members 30 surrounding the openings of the skeletal frame structure. The wall panels 50 are specifically sized and configured for congruent receipt within the predetermined sized openings of the frame structure to close the openings and form an insulated

wall structure. Likewise, the ceiling panels fit within the top openings of the frame structure and the floor panels fit within the base frame openings, below the plywood floor planks. In a preferred embodiment, the flanged lip 59 of the wall panel frame is provided with a double-faced adhesive for mating attachment to the outer spacing surface of the frame members, thereby holding the wall panels on the frame structure in fitted position within the pre-determined sized openings of the skeletal frame structure. The flanged lip 59 and double-faced adhesive arrangement also allows for ease of removal of any one or more wall panels and replacement of a new insulated wall panel 50 or, alternatively, a plexiglass, glass or other transparent material to provide one or more transparent windows 50a (see FIG. 5). The wall and ceiling panels may also be made to be resistant to high winds, fire, bullets, moisture, mold, sound, heat and/or insects.

[0055] The primary unit 16 is adapted to be fully functional as a work station and can be expanded, at a later date, to eventually become an enclosed environment as shown in FIGS. 1 and 3. The primary unit 16 provides the user with a fully operational office that can be paced inside of a vehicle, such as a minivan, van or truck. The primary unit 16 can then be upgraded by expansion, to include a back tower, and then eventually into the interior enclosed work space. When used in a vehicle, the assembly, as well as the drawers and equipment, are held in place with hook and loop fasteners or other securing means to prevent items from shifting and falling while the vehicle is moving. The primary unit 16 provides all required surfaces, spaces, shelves, drawers, electrical power, lighting, power outlets, voice and data outlets and other items for hosting computer equipment, telecommunications equipment and other supplies and equipment required for a fully functional office environment. In the embodiment shown in FIG. 2, the primary unit relies on the climate control system of the surrounding indoor space of either a home or building structure, or a vehicle.

[0056] As seen in FIGS. 3, 5 and 9, an air-conditioning housing 70 is affixed on the ceiling above the center openings of the prefabricated expansion ceiling sections. The air-conditioning housing 70 is formed by tube frame members 74 that are essentially the same as those used in the construction of the skeletal frame structure. The frame members 74 form a generally rectangular box configuration that accommodates air-conditioning unit 72 and an airflow duct 76. Insulated panels of the same type used in the construction of the side walls and ceiling of the system 10 are used to enclose the air-conditioning housing. The size of the insulated panels on the air-conditioning housing 70 may be different from those used on the walls. In one embodiment, the panels used on the sides of the housing 70 are different in size from the walls and ceiling. This allows for and ease of panel identification.

[0057] As seen in FIG. 5, the air-conditioning unit 72 may be supported on the top of the ceiling frame structure 60. In a preferred embodiment, the air-conditioning unit 70 includes a remote control, allowing the user to activate the AC unit and increase or decrease the desired temperature without the need of reaching up into the air duct to access the air-conditioning unit. A plastic egg crate 75 is fitted within the center ceiling opening just below the air duct 76.

[0058] Initial assembly of the skeletal frame structure for each prefabricated section is preferably performed at the manufacturing site. Specifically, the frame structure of the front section 14, including the sliding glass door 40, as well as the primary unit 16 is performed at the manufacturing site. At that time, wheel casters 90 are attached to the base of the frame structure of the front section 14 and the primary unit 16. Preferably, the front section 14 and primary unit 16 are each

provided with at least four wheel casters 90, on the bottom corners of the base frame 30a of each unit.

[0059] As seen in FIGS. 5, 8, and 9, the interior of the system 10, and particularly the primary unit 16, is constructed to include a plurality of shelves 102, 104, 106, in addition to a desk top or work surface 100 that is provided in the primary unit 16. In a preferred embodiment, the shelves and work surface extend across the entire width of the primary unit 16, as seen in FIG. 8. It is preferable that the shelves and work surface extend further along the right side wall, as seen in FIG. 9, in an L-shape that partially surrounds the user when seated in the executive chair shown in FIG. 9. This allows for maximum storage capacity to host a full array of computer equipment, telecommunications equipment and other equipment needed by a person to fully function in an optimal manner. The multiple level of shelves also allow for storage and organization of office supplies, files, a small refrigerator and all other equipment needed by the user. The work surface 100 and shelves are supported on a lip 31 that extends from the frame members 30b, as seen in FIG. 7.

[0060] As seen in FIG. 5, the shelf assembly includes a lower shelf 102 that is below the desk top or work surface 100. A first upper shelf 104 is provided above the work surface and is ideally suited for supporting a printer/fax/scanner/copier machine, speakers and other electronic equipment. The uppermost shelf 106 extends out about the same width as the lowest shelf and is ideally suited for holding files, paper and various stationery supplies. The lowest shelf 102, below the work surface 100, may be used to support a computer (i.e. CPU), a paper shredder, a subwoofer component of the speaker system, a small refrigerator and/or other equipment and supplies. The main desktop or work surface accommodates a computer keyboard, monitor, and other items and equipment commonly found on one's desk. The continuation of the work surface and shelves along the right side wall, in a general L configuration, allows for additional work surface and storage capabilities so that the floor remains clear of any clutter.

[0061] FIG. 10 illustrates a general schematic of the electric system and voice/data connections. In a preferred embodiment, the main disconnect is a UL approved extension cord which plugs into a standard power outlet of a home or building that provides the main power supply. The power is then directed to three circuits, namely Circuit A, Circuit B and Circuit C. Circuits A and B provide outlets arranged under the shelves and behind a hinged access door 94, providing a power source for the electronic components to plug into, including the user's computer, fax/copier/scanner, telephone and other equipment. Circuit B provides power to outlets and lighting within the interior. It should be noted that the lighting is all indirect and under-mounted below the shelves to avoid glare and discomfort. Circuit C provides power to the air-conditioning unit 72.

[0062] The voice/data jacks provide up to 5 connections including at least one voice connection, a DSL line connection, a fax connection and at least two spare jacks.

[0063] FIG. 11 shows a chart with examples of various equipment and components that are powered by each of the three circuits A, B and C of the electrical system.

[0064] The structure, function and method of assembly of the furniture system 10 of the present invention provides numerous advantages and benefits over the several modular office structures in the related art, including those prior art references mentioned above. In particular, the furniture system 10 of the present invention provides the following novel features of construction and assembly:

[0065] 1. —Slice-ability (Gradual Vertical Assembly) permits the progressive vertical assembly of available prefabricated pieces to the primary unit at will, like slices on a loaf of bread, as personal budget allows (see FIGS. 1 and 9). This makes possible using one or several reduced cost partial solutions available, as customers develop the ideal level of expansion. Each “slice” constitutes a component of the whole unit and has its own features, all contributing to make the furniture system 10 easy to assemble and advantageous over the prior art. Progressive assembly is a new construction technique allowing customers to fully utilize installed or newly added partial sections as they are added, developing a unit in the vertical directions at will. Assembly may be stopped at any point with no crisis to the user, indeed an innovative engineering and technical novelty.

[0066] 2. —Stack-ability (Gradual Horizontal Assembly) permits the progressive addition of available horizontal prefabricated pieces to the primary unit and base layer at will, like stacking pancakes, as personal budget allows (see FIGS. 1, 8 and 9). This makes possible using one or several reduced-cost partial solutions available, as customers develop the ideal level of expansion. Each “stack” constitutes a component of the whole unit and has its own features, all contributing to make the furniture system 10 easy to assemble and advantageous over the prior art.

[0067] 3. —Sustainability: Friendly on the environment, every structural element and component of the furniture system 10 has been thought of as contributing elements to make it a green solution, striving to meet today’s LEED or other pertaining green certification requirements.

[0068] In addition to the “green” requirements, such as a minimum recycled content for the fabrication of the structural system, insulation, floor/wall panel finishes, and a two bin recycle/trash method, the reduced footprint is cooled or heated at a very low cost with a high efficiency AC or HVAC unit, as well as lit by ultra efficient low profile LED—or similar—energy-saving lighting fixtures. A high capacity rechargeable UPS (Uninterrupted Power Supply system) to be plugged to an available external energy source, such as solar panels, a wind generator, a hybrid car, for example, will allow necessary equipment and a few appliances to run for an ample period of time without utilizing public energy.

[0069] 4. —Adaptability: The furniture structure is strong (see FIGS. 1, 3 and 4). A solid aluminum (metal, wood, plastic) structure can withstand heavy loads in all directions, but it can be further strengthened to withstand strong winds by means of 4 guy-wires easily installed from each one of 4 preinstalled corner hooks to a set of 4 concrete pilasters buried in the ground, and held tight by tension. The structure was also conceived and designed so its modular members can be expanded as required.

[0070] Wall panels can again be switched occasionally, or permanently, to standard heavy duty wind resisting panels. Switching may be done to fire, bullet, moisture, mold, sound, heat, or bug resistant regular panels, as required.

[0071] The extreme flexibility provided by the abovementioned features further provide the furniture system 10 with an unparalleled custom ability that makes it the only answer offering not just one fixed design but many unique possibilities while proposing to develop a private and workable space starting from the first basic part, or slice, and gradually adding to it until it becomes a complete private and enclosed space ready to be plug-and-played, and used many ways and in various activities, so as to fully meet each person’s needs.

[0072] The furniture system 10 of the present invention is designed to become a superb individual space, with all logical things a person needs at hand, able to be rolled-in to their

premises with every previously selected equipment in place. The main basic unit, or slice, includes all electrical connections and any ordered equipment perfectly interconnected to avoid the hardship of complicated interconnection between systems for the end user. Once the end users feel the necessity to add-on more features and space, they can start ordering the rest of the slices to complete the whole enclosed furniture system module.

[0073] The prior art modular offices require the AC or its parts to be connected to an existing AC supply duct. The furniture system 10 of the present invention includes the whole system in a quickly screwed-on preassembled unit that fits on top and, once plugged, starts running the AC or HVAC system without requiring any adaptation, another original functional feature.

[0074] 5. —Communications ready: Even the most basic primary unit slice comes with the required wire connections to cable, data, voice and digital, plus conduits for required antennas/dishes. Independent satellite connections for voice, data and cable are optional, and were conceived from the beginning to allow customers locate the furniture system 10 away from civilization and still be connected via satellite. This allows the furniture system to be detached from any particular fixed address and roam around wherever the end user requires.

[0075] 6. —Real Portability: The furniture system 10 has been designed for ultimate portability. This includes, among others, overall dimensions to fit in the most cost-effective transportation system available, meaning the container. By design, six fully assembled furniture systems can be rolled into a container thus offering immediate plug and play capacity upon delivery anywhere in the world, with a factory warranty just like automobiles. The furniture system can also be sent partially disassembled, if required, occupying a fraction of the shipping volume.

[0076] 7. —Transparency:

[0077] A-Visual control: The furniture system 10 can accommodate 360° of unobstructed visibility and transparency in any direction via single panes of glass ergonomically designed to offer perfect view/control at seated eye level or at full height to eliminate the claustrophobic feeling when you are inside.

[0078] B-Display-ability: The furniture system can accommodate single pane windows so arranged as to make available perfect display ability to show just about anything at trade shows, malls, anywhere, perfectly matching any needs.

[0079] 8. —Electrical systems designed with specific usage ability:

[0080] Power, Voice/Data: The electrical system of the furniture system 10 of the present invention is unlike previous art in that it is precisely conceived to allow calculated systems make the furniture system an immediate “plug-and-play” solution, while meeting standard electrical codes and safety requirements. It is composed of a series of standard UL rated commercial grade extension chords technically selected and interconnected via a vertical shaft and an easily accessible but out of view horizontal cable tray with three final outside terminals for electrical/AC/voice-data systems to be connected to the source to immediately make all systems ready to go. This prebuilt function eliminates the need to have a licensed electrician finishing up connections and making the system work. This original feature, with its particular amperage requirement calculations (FIG. 11), is in place in any slice of the furniture system that requires it and has been attached to our original patent. Additionally the electrical layout includes a redundant fuse system, one in the main disconnect and one on each circuit. Although this is small electrical

system, it is carefully divided into 3 separate circuits, each with its own circuit breaker; one for the AC unit, one for electronic equipment and one for lighting/extra courtesy outlets. The furniture system further differentiates from previous solutions by its manner of placing; the manner in which every piece of equipment is placed to make the best possible use of space, and ergonomically arranged to achieve optimal reach-and-get benefits. The furniture system of the present invention takes this objective to the point of considering even small details as the direction every piece faces. An example is the low profile LED energy-saving lighting fixtures, placed so as to illuminate the workspace and shelf areas indirectly in order to avoid glare while avoiding use of the inefficient ceiling mounted spotlights that, in this case, illuminate empty space and create shadows or glare. The furniture system lighting system provides comfortable and relaxing illumination that delivers proper intensity levels precisely where they are needed.

AC: The electrical circuitry diagram on FIG. 10 shows the three main circuits into which the electrical system is laid out.

[0081] 9. —Organize-ability: The furniture system 10 has an advanced storage system with a place for every logical office need in order to keep the work/play surface uncluttered, freeing it so the user may do what he/she feels like: a place for everything to keep users organized, while saving them time.

[0082] While the invention has been shown and described in accordance with a preferred and practical embodiment thereof, it is recognized that departures from the instant disclosure are fully contemplated within the spirit and scope of the present invention and is not to be limited, except as defined in the following claims as interpreted under the doctrine of equivalence.

What is claimed is:

1. A furniture system comprising:

- a primary unit having a skeletal frame structure forming opposite side walls, a rear wall, and said a base frame, a width of said primary unit being defined by a distance measured between said opposite side walls, and said skeletal frame structure including vertical frame members and horizontal frame members interconnected and arranged to form a plurality of frame openings on the opposite side walls and the rear wall, and said primary unit further including a horizontal work surface supported along at least a portion of the width of said primary unit between the opposite side walls;
- a plurality of panels each being sized and configured for fitted receipt within one of the plurality of frame openings of congruent size and configuration;
- an electrical power system adapted to be connected to a conventional alternating current power outlet of an external electrical power supply source, and said electrical power system including a plurality of outlets;
- at least one horizontal expansion section attachable to said primary unit for expanding an overall size of the furniture system, and said at least one horizontal expansion section including a skeletal frame structure with a plurality of vertical and horizontal frame members forming a plurality of frame openings, and said plurality of frame openings of the at least one horizontal expansion section being adapted for fitted, congruent receipt of the plurality of panels therein;
- at least one vertical expansion section attachable to said primary unit for expanding the size of the furniture system, and said at least one vertical expansion section including a skeletal frame structure with a plurality of

horizontal and vertical frame members forming a plurality of frame openings, and the plurality of frame openings of the vertical expansion section being adapted for fitted, congruent receipt of the plurality of panels therein; and

- a plurality of voice and data jacks on the furniture system for connecting telecommunications equipment and computer equipment to telephone and Internet connection services.

2. The furniture system as recited in claim 1 further comprising:

- a front section including an access door, said front section being structured for attachment to the furniture system to enclose an interior environment.

3. The furniture system as recited in claim 2 further comprising:

- an air-conditioning system structured and disposed for maintaining an interior temperature of the interior environment within a selected temperature range.

4. The furniture system as recited in claim 3 further comprising:

- a remote control for controlling activation of the air conditioning system and the selected temperature range.

5. The furniture system as recited in claim 1 wherein at least some of the plurality of panels are transparent.

6. The furniture system as recited in claim 1 wherein at least some of the plurality of panels are insulated.

7. The furniture system as recited in claim 1 wherein the plurality of panels are fire resistant.

8. The furniture system as recited in claim 1 wherein the plurality of panels are bullet resistant.

9. The furniture system as recited in claim 1 further comprising:

- a plurality of wheel castors attached to the base frame of said primary unit.

10. The furniture system as recited in claim 9 wherein said front section includes a base frame structure with a plurality of wheel castors attached thereto.

11. The furniture system as recited in claim 2 further comprising:

- a plurality of said horizontal expansion sections structured and disposed for stacked attachment to the furniture system.

12. The furniture system as recited in claim 2 further comprising:

- a plurality of said vertical expansion sections structured and disposed for side-by-side attachment to the furniture system.

13. The furniture system as recited in claim 11 wherein at least some of the plurality of horizontal expansion sections define ceiling structures for covering the furniture system and an interior environment.

14. The furniture system as recited in claim 13 wherein the horizontal frame members and vertical frame members of the primary unit, the plurality of horizontal expansion sections and the plurality of vertical expansion sections are hollow aluminum tubes.

15. The furniture system as recited in claim 14 wherein the hollow aluminum tubes are square in cross-section.

16. The furniture system as recited in claim 14 wherein the hollow aluminum.