A personal distribution terminal is designed to provide a self-contained free standing or stand-alone enclosure for easy placement wherever office personnel require convenient access to building services. The placement of this enclosure may be in the vicinity of a standard desk or other workstations or where people congregate. The occupant of the nearby workstation has control over personal air flow for personal comfort. The enclosure is so constructed to also provide space control by displacement ventilation for the surrounding area to provide greater indoor air quality and reduce energy consumption. Incorporated into the enclosure are other services in the modern office, such as electric, both constant or interruptible, communication terminals and internet connections. The use of this terminal eliminates floor and wall grilles for better esthetics, and easier, more economical installation and housekeeping. The result of this inventive concept is substantial energy savings based on individual control of personal air supply and displacement ventilation permitting overall higher operating temperatures. The overall result is a simple installation of the terminal for easy and less expensive construction and ease of relocation.
PERSONALIZED DISTRIBUTION TERMINAL

FIELD OF THE INVENTION

[0001] The invention at hand relates to either heating or cooling the air in a building, especially with a floor area having a multiple of persons working therein. The invention is directed 1) primarily to the personal comfort and health of a person working at a desk by directing conditioned air to the immediate vicinity of the person or persons present at those workstations and by giving those workstations the use and control of the conditioned air, and 2) to provide displacement air ventilation to the surrounding area, while at the same time providing for a cleaner environment using less energy, and 3) to provide other services required. This method of total space conditioning is known as task/ambient conditioning.

BACKGROUND OF THE INVENTION

[0002] In the field of heating and cooling, generally known as “air conditioning” there are known problems causing discomfort to the occupants in the building or a room. Inefficiencies in the system result in excessive operating costs in the operation of the building and control of the present system. Also, present systems tend to have a poor indoor air quality (IAQ) because of the mixing effect and exacerbate the spread of infections by cross-contamination from person to person.

DESCRIPTION OF THE PRIOR ART

[0003] U.S. Pat. No. 374,424 discloses a system for supplying fresh air to the environment of a building and wherein the air blows directly to a person which is occupied by a person without any mechanical control.

[0004] U.S. Pat. No. 1,194,527 shows the ventilation of a class room through a ventilated floor panel and is further distributed into a desk where the pupil is sitting. The pupil may have some control over the amount of air flowing to or through the desk. In both above cited patents, the air is not conditioned or modified as to heat, cold or relative humidity.

[0005] U.S. Pat. No. 2,140,829 describes an air conditioning system wherein there is cooling of high ceiling rooms by providing a stratum of cooled and dehumidified air in their lower levels of the room up to the height of the occupants without a personal control over the flow of the air without considering the relatively large cost and the complications of treating all of the air in the room, that is, the heating and cooling without the benefit of displacement ventilation to maintain the surrounding room with no room air control.

[0006] U.S. Pat. No. 2,341,125 illustrates a way of ventilating a desk at a workstation by simply mounting a fan within the rear of the desk and by blowing air at the person and by giving the person working at the desk somewhat of a control of the fan by positioning the same or by controlling the speed of the air flow. Air is not conditioned.

[0007] U.S. Pat. No. 2,507,634 teaches the ventilation of restaurant equipment by supplying air to and from restaurant tables. The person or persons seated at the tables have no control over the flow and/or direction of the flow of the air, and there is no displacement ventilation for the remaining space.

[0008] U.S. Pat. No. 2,572,120 shows a ventilated table having a fan mounted in a horizontal position which is emitting air in a horizontal direction and the air flows out of the lateral sides of the table without the benefit of displacement ventilation.

[0009] U.S. Pat. No. 2,616,617 illustrates a ventilated table similarly constructed as the table shown in the immediately above cited patent without displacement ventilation.

[0010] U.S. Pat. No. 2,734,900 discloses a desk as a workstation having a combination fan and heater mounted therein. The fan blows the conditioned air (heat) directly at the person sitting at the desk. The direction of the air is adjustable by tilting the fan in one direction or the other and the level of the heat is adjustable by way of a rheostat but there is no displacement ventilation.

[0011] U.S. Pat. No. 2,835,186 discloses an air conditioning system wherein there are upstanding air emitting columns receiving air through ducts in the floor system. It is considered to be a local or spot air conditioning system and there is no displacement ventilation system.

[0012] U.S. Pat. No. 2,877,990 discloses a novel building structure embodying a multi-cellular load supporting floor having an air distributing and an electrical wiring system wherein both the heated and the cooled air and the electric wires are distributed through selected ones of the cells in the floor.

[0013] U.S. Pat. No. 3,322,055 teaches the elimination of duct work in a building by adding fan driven diffusers in the ceiling whereby the air in the chamber in the ceiling may be used as an unpressurized distribution chamber. Again, there is no description of an air displacement ventilation system.

[0014] U.S. Pat. No. 3,516,374 shows the use of a double plenum air conditioning system which creates a space between a structure and the floor of the roof above the building and the double plenum is divided by a horizontal partition into an upper part and a lower plenum and a supply of air is fed to one of the plenum and return air is withdrawn from the other of the plenums. The supply of air can be hot or cold or neutral. Inlets and outlets connect the plenums through the slab to the room below or through to the room above, but there is no personalized control or a displacement ventilation system.

[0015] U.S. Pat. No. 4,035,018 discloses a system whereby conditioned air is distributed through a floor plenum to a multiple of chairs having an air supply connected to each of the chairs to expel the conditioned air into the general environment of the room. The occupants of the chairs have no control over the speed and the direction of the air flowing to the chairs and there is no displacement ventilation or provision for space heating or cooling.

[0016] U.S. Pat. No. 4,135,440 illustrates an air conditioning system including both ceiling and floor plenums and each of the plenums has individual air outlets diffusing air into the room between the plenums. In addition, there are individual elongated air outlet tubes suspended from the ceiling plenums or upstanding from the floor plenum. Each of the outlet tubes can be directed against a person sitting at a workstation. The respective person has control over the direction of the air flowing from the outlets, but without the benefit of a displacement ventilation system or control of the space thermal load.

[0017] U.S. Pat. No. 4,378,727 shows an open office space system including a plurality of freestanding workstations which are constructed of vertical panels and are removably mounted to an upper board member to direct cooling air to a user of the organization permitting its use in a convenient manner in various environments.

[0018] Another prior art air conditioned workstation is known under the word “CLIMADESK”. It is described as a plenum which is installed under the top of the desk. The air
plenum has an inlet to receive conditioned air from an air conditioning unit being placed apart from but adjacent to the desk. The air conditioning unit receives fresh air from the outside of the building through an air intake vent. The air plenum installed under the top surface of the desk is directing conditioned air toward a person sitting at the desk. The conditioned air is exiting toward the person by way of two front louvers and is further directed upwardly from the top surface of the desk in front of the person sitting at the desk. The temperature of the conditioned air can be controlled by way of a thermostat located on a front panel of the desk. This kind of an arrangement greatly reduces the mobility of such a workstation and thereby eliminates an effective arrangement of all of the workstations in an open office concept. There is no provision for air displacement ventilation to provide conditioning for the space.  

[0019] German published specification (Offenlegungsschrift) No. 24 07 448 discloses a workstation in the form of a desk receiving conditioned air by way of a flexible hose through the floor having ducts therein. The occupant at the desk has no control over the flow of the air with regard to direction and/or speed and no displacement ventilation for space control.  

[0020] German published specification (Offenlegungsschrift) No. 27 19 570 discloses a similar system as was disclosed in the German publication above. In this arrangement, the conditioned air is supplied by way of ducts located below the floor of the open office area. From there the conditioned air is funneled to upstanding tube located at each of the workstations. The conditioned air is blown into the room at a location above the desk surface at each of the workstations. The occupant of the workstation has some control over the direction and the speed of the air flowing through the outlets of the upstanding tubes, but no displacement ventilation.  

[0021] German published specification (Offenlegungsschrift) 29 38 702 is similar to both German publications discussed above and does not add any more knowledge to the already known prior art.  

[0022] Japanese Patent No. 61-11535 discloses an air conditioning system having a floor plenum installed over a slab of a building. The conditioned air is driven by a fan into a hollow partition situated over an opening in the floor. Conditioned air may exit into the room at a higher elevation than the height of the desk. At the bottom of the floor whereupon the desk is placed, there is a further air outlet which is directing conditioned air to the feet of a person sitting at the desk. It appears that the person has very little control over the volume, speed and direction of the conditioned air entering the vicinity of the desk. None of the above-mentioned references disclose a system wherein a stand-alone unit is located in the vicinity of a workstation or provides for room control by displacement ventilation.  

**BRIEF SUMMARY OF THE INVENTION**  

[0023] An object of the invention is to present a system for distributing various building services, including task/ambient air conditioning, throughout an open plan office environment in a most efficient and economical way. The inventive system provides local workstation access to various building services, simultaneous air conditioning to the space at large through displacement ventilation and individual control over personal supply air, and energy savings. In a building, large or small, or in individual rooms or at workstations, the control of temperature, air flow, humidity and the like leaves many persons dissatisfied with the, condition of their individual environments. Different persons have different levels of metabolism and, therefore, different needs for comfort. The inventive system provides a means to satisfy various individual thermal comfort needs and the space as a whole at the same time. Total air supply is controlled to satisfy the total cooling or heating requirement.  

[0024] Also, different locations in a building or on a floor, or even in a single room or in the vicinity of a workstation, are not satisfactorily heated or cooled, that is, air conditioned, which will give rise to complaints about discomfort and illness, resulting in absenteeism and, of course, loss of productivity and wasted energy.  

[0025] Further, conventional air conditioning systems generally require expensive duct work installations, usually in ceilings or floors or both. This causes unnecessary heating or cooling of unused space. For example, the approximately six feet of space that is occupied in a room having a 12 foot ceiling has an unoccupied space of approximately six feet, and the air in that space can be warmer and thereby save energy. The above mentioned duct work also increases an energy demand for the movement of the air through the ducts and presents difficulties in cleaning.  

[0026] Prior art and known systems with slab floor and/or wall mounted air outlet grilles limited the location of workstations, furniture and equipment to positions at locations which would enhance the flow of air. Such prior art systems also created complaints of discomfort caused by high or low air velocities, or high or low temperatures, depending on the location of the air outlet grilles. Also, air conditioning outlet grilles and the ducts associated therewith frequently need to be removed to accommodate changes in air conditioning loads, or a rearrangement of the work space or individual workstations in an open office layout, and do not provide for displacement ventilation.  

[0027] While workstations may be economically beneficial with regard to the amount of floor space being used, the use of partitions creates an impediment to the flow of the conditioned air throughout the room. Conditioned air flows freely in the area above and around workstations; however, within the workstations or between the room dividers or partitions, there is limited means for providing the workstation occupant with an acceptable flow of conditioned air. Workers often become uncomfortable or even ill, which in turn decreases productivity and/or causes absenteeism.  

[0028] Consequently, in the field of heating and cooling there exists a need for providing a flow of conditioned air directly to or near a person sitting at or in the vicinity of a workstation, without creating a draft, as well as to occupants of the surrounding area. More particularly, there exists a need for a workstation to be so equipped whereby the occupant can individually control and obtain the amount of conditioned air supplied within the workstation while maintaining a desirable amount of conditioned air to surrounding areas. The amount and direction of conditioned air flow within the workstation is controlled by the occupant to maximize his or her comfort level, well being, health and productivity, while maintaining a desirable amount of conditioned air for surrounding areas by the displacement ventilation system (not by mixing, which causes cross-contamination).  

[0029] Conventional room dividers for workstations may supply conditioned air to workstations, with continuous air flows through an air flow grille at about the height where the worker is sitting, but the worker has very little control over the
flow of air or its direction. Such room dividers consist of hollow spaces being created by panels that are spaced from each other by a predetermined distance to define an air flow there between, but there is no provision for displacement ventilation or effective personal control. The hollow room divider is placed on an opening in the floor, which floor is spaced above the concrete slab of the building which constitutes the building floor to thereby form a large or major air plenum. This air plenum, therefore, is formed by a slab of the building and the raised floor being spaced above the slab of the building. The air plenum is charged with conditioned air (hot or cold). Applicants’ prior U.S. Pat. Nos. 4,646,966; 4,860,642; 5,135,436; 5,238,452 and 6,318,113 are directed to conditioned air being supplied through a floor plenum and from there distributed to individual workstations through various forms of air delivery. All the noted patents above operate in various satisfactory manners, but there is still room for improvements. In all the known prior art patents as well as applicants’ own patents there is a tendency of the air that is introduced into the workstations and various open spaces to create air streams or air whirls that have a detrimental effect on the overall indoor air quality within the room where persons are working. This circulating air does not contribute to the cleanliness of the ambient air. On the contrary, the circulating air will pick up various contaminants present in the ambient atmosphere until exhausted.

[0030] Displacement ventilation is an innovative concept for the supply of conditioned air and ventilation of buildings. It uses the natural buoyancy of warm air to provide ventilation and comfort. In a displacement ventilation system, supply air is introduced to the space at or near floor level, at a low velocity and at a temperature only slightly below the desired room temperature. The cooler supplied air “displaces” the warmer air, creating a zone of fresh cool air at the occupied level. Heat and contaminants produced by the activities in the occupied space are carried to the ceiling, where they are exhausted, thus providing cleaner space.

[0031] Displacement Ventilation systems are typically more energy efficient and quieter than conventional overhead systems, and may also provide better ventilation efficiency and improve indoor air quality. Displacement Ventilation systems are appropriate in spaces such as class rooms or conference rooms with high ventilation requirements. They are also being used with great success in an open office space architecture.

[0032] The inventive personal distribution terminal is constructed to provide space to take advantage of the known principle of “Displacement Ventilation”. In most known systems mentioned and explained above, the air conditioning is of the “mixing” type, wherein hot or cold air is mixed with room air by blowing conditioned air into a workstation or into an open office space at high velocity. Typical displacement ventilation for cooling supplies conditioned air from a low side wall diffuser at a very low velocity to limit entrapment of impurities in the moving air. This requires outlets with large surface areas provided by the invention. In the inventive concept, air is supplied from a plenum below the floor, which will be explained below. However, displacement ventilation will work just as well if the air is supplied to the stand-alone personal distribution terminal in other manners, such as ducting above the concrete slab or as a conduit in the concrete slab.

[0033] In order to achieve the relatively lower speed supply air flow necessary for effective displacement ventilation, the supply air outlets must be of larger area to maintain sufficient volume of air flow to meet cooling load requirements. It is often difficult to find sufficient surface area in a typical office environment to accommodate larger outlets. The inventive movable stand-alone terminal meets this need by providing adequate surface area in one of its side panels where none exists without the terminal, such as next to workstations or in room locations away from walls.

[0034] Experience has shown that in an office layout stand-alone units may be equipped with more features. For example, it is desirable that one stand-alone unit can serve at least two adjacent workstations that are independent of but located in the vicinity of the stand-alone unit. This could be accomplished by one stand-alone unit having two personal air outlets or discharge areas operating in different directions.

[0035] One type of office architecture can have air in underfloor plenums that are at zero air pressure relative to the ambient air. In this type of installation, the stand-alone unit can have an air fan installed therein that will pull the conditioned air from the underfloor plenum. The basic principle would be the same, which is, that a stand-alone unit can be positioned anywhere desired. It merely would be a task of moving a respective modified tile from the floor and positioning the stand-alone unit right over some opening in a different location, as will be explained below. In certain buildings which have no underfloor plenum, the conditioned air would be supplied through ducts lying on a floor in an inconspicuous area, or by ducts or channels embedded in the floor concrete slab.

[0036] It has also been shown that different damper systems can be used instead of the dampers explained below, such as opposed blade dampers. Such dampers would allow a more fine tuned control over the flow of the air through the stand-alone unit.

[0037] Modern and up-to-date workstations require quite a few convenience outlets, such as telephone jacks, computer outlets or data ports, coaxial cables and regular electrical outlets that are commonly in use on regular workstations. One object of the stand-alone unit can be to have installed therein a terminal or connector panel or box. The respective cable connections or feeders can be supplied from conduits located in the underfloor plenum, or could be supplied through conduits located and embedded in the concrete slab. The electrical system, as suggested above, could also incorporate a local relay to override a central shut-off, including fusing, and a shut-off to turn off the stand-alone unit altogether. An override control allows an after hours reset of the stand-alone unit. This system can also include a motion detector that should shut down the unit when a person just leaves the area and turns it on again when that person returns. This system would fall under the idea of saving energy.

[0038] It has also been found that under certain environmental circumstances, it is desirable that heat should be supplied to a certain workstation instead of cooled air. This could be accomplished by incorporating a heater in the stand-alone unit. Such heat could be supplied by a resistance heater, a convection heater or an infrared heater.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] FIG. 1 is a perspective view of the installation of a personal distribution terminal with air emanating at an angle;
FIG. 2 is a perspective view of FIG. 1 where the air is emanating from a straight front outlet;
FIG. 3 is a perspective view of an assembled structure useful in operating a personal distribution terminal including the various controls;
FIG. 4 is a perspective side view of a personal distribution terminal having different operating features therein and personal controls;
FIG. 5 illustrates a top view of the terminal of FIG. 4 showing a directional flow of air;
FIG. 6 illustrates the same view as FIG. 5, but showing at least two directional flows of air;
FIG. 7 shows a specially designed tile for an opening in the floor plenum.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a perspective view of an installation of a stand-alone unit 1 having a displacement ventilation system incorporated therein. The unit is independent from but located in the vicinity of an individual workstation. The unit 1 consists of a hollow chamber which is situated on a floor 3 having a plenum of conditioned air there below. The conditioned air is fed into the hollow chamber by a flexible duct 2 deriving air from below the floor 3. The air derived below the floor may be supplied by way of a fan located below the floor 3, by pressurized conditioned air in the plenum or by a fan located in the unit itself, which will be shown below. The unit 1 has a top 4 having a control knob 5 thereon that controls the amount of air passing through the unit 1, as will be explained below. The unit 1, shown in FIG. 1, has a front air outlet that is angled to the right, relative to the unit 1, so that the air emanating from the unit 1 will be directed to the right, possibly to a person sitting at that particular workstation. The arrows A indicate the direction of the movement of the air through the adjustable grille louver 6. FIG. 2 is a perspective view of the same layout of FIG. 1 except that the front of the stand-alone unit 1 is straight, meaning, at a right angle to the basic unit 1. In this arrangement the stream of the conditioned air is exiting straight from the front of the stand-alone unit 1 and into the ambient air of the room where the stand-alone unit 1 is located, as is shown by the arrows B.

FIG. 3 is a perspective view of an assembled unit based on FIGS. 1 and 2 with parts broken away to show the interior of the unit. Some of the same reference characters have been applied as in FIGS. 1-2. The unit has a lateral outlet 30 having louveres 31 that will discharge the conditioned air into the general environment of the room where many other conditioning units may be located. However, in the immediate construction of the unit there are front outlets 32 having louveres 33 therein that may be directing air at an angle or in a direct or straight mode which may depend on how the unit is constructed. According to FIG. 3, the unit is located on a floor 3 that has an air conditioned plenum there below. The duct 2 feeds air into the chamber 1 past a heater unit 40 by way of the flexible hose 2 which is located below the floor 3. The unit has a lateral outlet which is controlled by louveres 31 to direct the air flow as shown by arrows B by way of the louveres 31. The top of the unit is shown at 4. The installation takes place on an air conditioned plenum floor 3 that is created above the concrete slab 1 (not shown) and having a raised floor 3 to create the air plenum P that is charged with conditioned air. The raised floor 3 may be constructed of tiles 36 (FIG. 3), which has the advantage of placing any workstation in a predetermined location in an open office arrangement. It is merely a matter of removing a certain tile and replacing it with a tile that has an upward opening therein.

The unit 1 has several controls therein. There is a damper 35 within the unit that controls the air flowing into the front of the unit. The damper control consists of plates 36 and 38 that can move relative to each other. The plate 36 has openings 37 therein and the plate 38 has openings 39 therein. Once the plates 36 and 38 are moved relative to each other, the openings 37 and 39 will more or less overlap each other to control the amount of air (arrow D) passing through these openings 37 and 39. The volume control consists of a rotatable sheet of metal such as a vane 34 that is controlled by the knob 35 located on top of the unit. The rotational direction of the vane 34 is indicated by the arrow C. The front outlet of the unit has several louveres 33 therein that will control the flow of air either up or down and left to right. FIG. 4 shows the stand-alone unit of FIG. 3 but having different operating features enclosed therein. The basic cabinet is shown at 4. On the left side there is shown an array of adjustable grilles 50 having a housing 50d there behind. The housing 50d contains a multiple of opposed blade dampers (not shown) there behind which are controlled by the control knob 64. This type of louver may be preferred because they have better control over the air flow. In the bottom of the cabinet 4 there is a fan 51 which may be a squirrel-type or cross flow fan. A motor 52 drives the speed controlled fan. In the bottom of the cabinet and located above the bottom opening 55 there is located a heater 53. Since it is located within the air stream of the conditioned air it should be a resistance type heater. Another proposed heater is an infrared heater which be located or hung outside the cabinet 4 or be fastened thereto. This type of heater will emit heating rays. At the right side and the bottom of the cabinet 4 there is shown a conduit connector 56. This connector receives a conduit having wires or cables therein. This conduit could be guided therein from under the floor of the plenum or from a conduit embedded in a concrete slab that forms the floor. Another flexible conduit 57 leads from the connector 56 into the terminal panel 58 which may be incorporated into the right front wall of the cabinet 4 or located in a terminal box inside the cabinet 4 and made accessible by a hinged door (not shown). The terminal panel has various accessible connectors located therein or thereon. Such connectors could be electric outlets 59, data connector 60, a telephone connector 61, a coaxial cable connector 62 and an intercom connector 63.

On the front panel of the cabinet 4 various controls could be located that would have an impact on the whole operation of the system. At 65 there is shown a relay that could influence the control and operation of the system at the will of the operator to save power. Then there could be a motion detector 66 that would simply turn off the operation of the system when a person leaves the premises and turn it on again upon return of that person. The knob 64 indicates a control knob for the opposed blade louveres, which are operated by a well known mechanism. The representation 67 indicates the presence of a smoke or heat detector, the structure of which is well known. While most office layouts are tobacco smoke-less environments, it is desirable to include a smoke detector in case of a fire within the stand-alone unit or in the vicinity thereof.

FIGS. 5 and 6 illustrate a top view of the chamber 4 having various directed air outlets. FIG. 5, for example, shows an adjustable grille with damper 50 which directs air at an angle from the upstanding chamber, possibly to a first
workstation which is located in the vicinity of the chamber. The arrow A shows the direction of the movement of the air. Fig. 6 is also a top view of the chamber having an additional opposed blade louver 503 which will direct air, arrow C to another direction which is 90 degrees from the direction of the arrow A. This direction may be to a second workstation in the vicinity of the first workstation. In the middle of the front of the chamber there is a central outlet 33 which will direct air, arrow B, into the general environment. This is conditioned air which has not been consumed in the various personal outlets of the chamber which are controlled by a person at a workstation in the vicinity of the personal distribution terminal. This conditioned air is the result of the air conditioning displacement ventilation system, which is located as part of the terminal.

[0052] Fig. 7 illustrates an adapter panel 50 to provide flexibility in the precise location of the stand-alone unit on a raised floor. The adapter panel includes an opening 82 at its center similar in shape and size to the opening 55 in the bottom of the chamber. The adapter panel spans the opening 81 in the raised floor created by removing one half of a standard floor tile. The adapter panel 50 is large enough to permit moving the stand-alone opening 55 throughout the opening in the raised floor while overlapping surrounding floor tiles. By moving the opening 82, a precise fit is accomplished with respect to the larger opening 81, especially if any communication conduits are passing through the opening also.

Operation

[0053] Contrary to the above disclosure of the prior art wherein the inventive displacement ventilation system is incorporated in an office furniture layout or the like, the present system is incorporated in a separate unit representing a stand-alone unit that may be placed anywhere in an open office space layout wherein the conditioned air is supplied through a plenum under the floor of the office layout or through various other ways such as conduits in a floor slab or through centrally located feeder ducts. This way, any unit may be placed in the vicinity of a desk or a table, but independent therefrom, or anywhere where one or several persons may be working alone or in unison on a certain project. If the office layout or architecture is changed at any time, the unit or units may easily be placed in a different location to accommodate the new layout. By control 5 a part of the conditioned air travels through the openings 33 at the front of the unit. Air that is not used through opening 33 is controlled by the movement of the damper 34 and will be expelled through the grille 30. This results in the novel air displacement ventilation that is disclosed in the prior application as well as in the one at hand. The inventive terminal also includes additional building services, such as power service, data and communication service.

What we claim is:

1. A personal distribution terminal including an air conditioning/displacement ventilation system, said terminal is incorporated in a stand-alone unit which is placed in the vicinity of one or more workstations but independent therefrom in an open office layout, said unit is constructed of an upstanding basic chamber, means for moving conditioned air into said chamber at a low speed, said chamber has various controls thereon to control the flow of air either to a front of said chamber or to a lateral side of said chamber into the ambient atmosphere surrounding said chamber and to one or more workstations.

2. The personal distribution terminal of claim 1, wherein one of said various controls is an air balance control mechanism.

3. The personal distribution terminal of claim 2, wherein said air balance control mechanism includes two adjacent metal plates, each having openings therein, whereby, when one of said plates is moved relative to the other, said openings more or less open or close an air flow passing through said plates.

4. The personal distribution terminal of claim 1, wherein another one of said various control mechanisms is an air volume damper to adjust an air volume within said chamber, said volume damper includes an upstanding blade which enhances or inhibits a flow of air from said balance control mechanism to a front of said chamber.

5. The personal distribution terminal of claim 4, wherein said upstanding blade is rotational around a vertical axis.

6. The personal distribution terminal of claim 1, wherein said front of said chamber includes grilles to direct air emanating from said grilles into two different directions.

7. The personal distribution terminal of claim 1, wherein said front of said chamber is located at a right angle relative to a side plane of said chamber.

8. The personal distribution terminal of claim 1, wherein said front of said chamber is located at an angle relative to a side plane of said chamber.

9. (canceled)

10. The personal distribution terminal of claim 1, wherein said terminal is located on a plenum constructed of a floor located above a concrete slab said plenum is charged with conditioned air said chamber having a bottom opening therein.

11. The personal distribution terminal of claim 1, wherein said means for moving air into said chamber is a ducted fan assembly located in a floor plenum.

12. The personal distribution terminal of claim 1 wherein said means for moving air into said chamber is a fan located in said chamber.

13. The personal distribution terminal of claim 1 wherein said means for moving air into said chamber is an air pressure charged plenum.

14. The personal distribution terminal of claim 1, wherein said means for moving air into said chamber constitutes air being derived from ducting.

15. The personal distribution terminal of claim 1 including a resistant heater placed in the bottom of said chamber.

16. (canceled)

17. The personal distribution terminal of claim 1 including a motion detector.

18. The personal distribution terminal of claim 1 including a system relay control.

19. The personal distribution terminal of claim 1 including a smoke or heat detector.

20. (canceled)

21. The personal distribution terminal of claim 1 wherein said communication terminal has connections therein that are selected from the group of connectors consisting of electric outlets, data outlets, telephone outlets and intercom terminals.

22. The personal distribution terminal of claim 10 including an adapter panel located over an opening in said plenum floor, said panel having an opening in the center matched in size and shape to the bottom opening in said chamber.