



Working Live Work

Design Guidelines for the New Home Office

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Contact

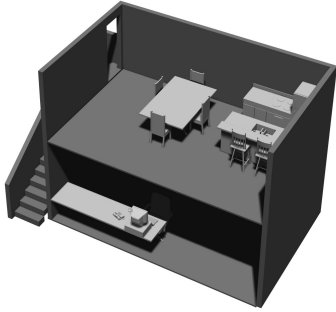
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Why? Six of every one-hundred Americans now work at home in some fashion, shouldn't our Architecture be responsive to their needs? Live Work will be the single most important new building typology to emerge during this century as self-employed individuals are becoming increasingly relevant. By facilitating the decentralization of business, Live Work embraces the changes emerging in the digital era as information becomes just another commodity. By leading the Live Work revolution architecture can show a newfound relevance. This is a chance to be more than cutting edge, this is a chance to make lives better, this opportunity for design has the potential to improve millions of lives.

A Brief History of Workplace.



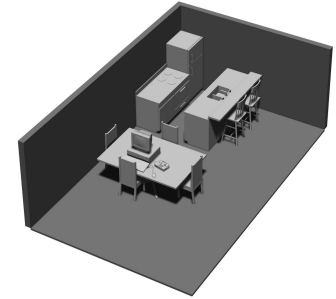
THE MEDIEVAL MODEL

Business Downstairs, Home Upstairs.
Model has survived for funeral homes and day care and is common outside of America.



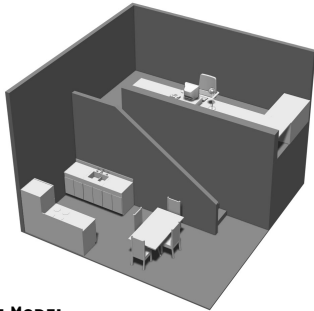
THE CAPITALIST MODEL

Separation of Home and Work by arbitrary distance.
Supported by centralized business, still common today although ideals are being questioned.



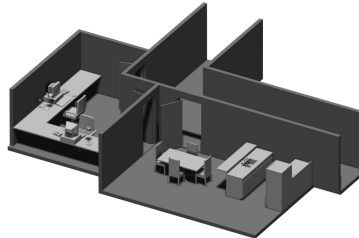
THE FIRST HOME OFFICE MODEL

Rebellion against the capitalist model.
Telecommunications bring home an ergonomic nightmare that has proven inefficient and unsuccessful.



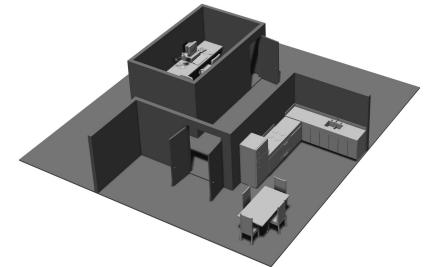
THE L'OFFICE MODEL

Builds on the mistakes of the first-gen Work at Home.
Simple separation and dedication of space makes for vast improvements in productivity and usability.



THE MILLENNIUM MODEL

Provides separation and proximity.
Pleasing the IRS, developers re-label granny suites as Home Offices and everybody wins.



THE DREAM MODEL

Millennium Model with weather.
Studies show that those who commute out to the garage are less distracted and more productive.

Clear spatial links have emerged as the Live Work Model has evolved and converged with the legal and economic benefits set forward by government. Compare the preceding evolutionary diagrams to the following excerpts from IRS Publication 587 "Business Use of Your Home."

The term **home** includes a house, apartment, condominium, mobile home or boat. It also includes structures on the property, such as an unattached garage, studio, barn or greenhouse.

You must use a specific area of your home **only** for your trade or business. The area used for business can be a room or other separately identifiable space. The space does not need to be marked off by a permanent partition. You do **not** meet the requirements of the exclusive use test if you use the area in question both for business and for personal purposes.

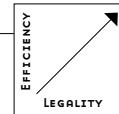
You can deduct expenses for a separate free-standing structure, such as a studio, garage or barn, if you use it exclusively and regularly for your business. The structure does not have to be your principal place of business or a place where you meet patients, clients or customers.

1) Your use of the business part of your home must be:

- a) Exclusive,
- b) Regular,
- c) For your trade or business, AND

2) The business part of your home must be **one** of the following:

- a) Your principle place of business,
- b) A place where you meet or deal with patients, clients, or customers in the normal course of your trade or business, or
- c) A separate structure you use in connection with your trade or business.



By Building on these models and studying the present condition we can lay out a set of guidelines to a better Live Work future:

HOW TO LIVE WORK

A manual for the home worker, or the designer of live work spaces: this book is meant to be a jumping off point for design, a series of visual explanations of practical experience learned from interviewing home workers. It is meant to provide a generic overview of the Live Work condition, and a series of assistive treatments. The manual is broken down into eight sections which are outlined on the following pages. The ideal Live Work space should address all eight points to the greatest degree possible.

Sociological: *Distance is Good*

When physical distance is compressed, other means of achieving separation become increasingly important.

Visual Separation — The home worker must not be distracted by views into the living space. This is particularly important in situations where there is more than one person living in the space, or more than one person employed.

Acoustic Separation — The Home worker must not be disturbed by sounds from the residence. Marshall MacLuhan's "Cool Media" sounds such as television must be avoided, as well as distractions such as home phone lines, doorbells, pets and children. Baby monitors must absolutely be avoided.

Mental Separation — Beyond just physical boundaries, psychological ones too must be employed. Interaction with external elements breeds distance. Home workers who interact with weather are much more efficient with their time and less susceptible to distraction from the home. If possible, a route should be made between Residence and Business that allows for interaction with other people.

Professional Entry and Image for Clients — Space must be managed such that clients do not enter the workplace through the living space, separate entrances are best. Many clients are now comfortable with the concept of Work at Home, but need not interact with the domestic side. If possible, unprogrammed space should be provided for conferences, office parties and other gatherings.

Technical: *Office Space is Flexible*

One of the key virtues of traditional office space is that it can accommodate almost any type of activity.

Flexible Space for Different Needs / Types of Work — Not everyone who works at home sits in front of a computer. Others may require oversized doors, specialized lighting, soundproofing or floor drains on an individual basis.

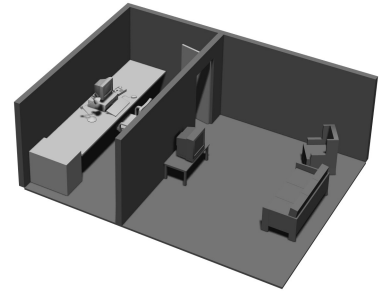
Flexible Technology to Accommodate Different Needs / Types of Work — The majority of Home Workers do in fact use a computer frequently. The space should accommodate current technology, and provide for upgrade. Oversized cable chases should be used, roofs should be accessible and a technology closet should be provided for cables, servers and such. All ergonomic standards should be met pertaining to lighting, furniture sizing and placement.

Restroom and Kitchenette Facilities — Basic services must be available to keep workers out of the house, and more importantly to keep employees and clients separated from the living quarters.

Concierge / Delivery Service — If the home worker is alone, design must accommodate deliveries in his absence. In many neighborhoods this can be accomplished with a secluded porch, others may require more secure means such as an oversized mail slot or adapted milk drop.

VISUAL SEPARATION

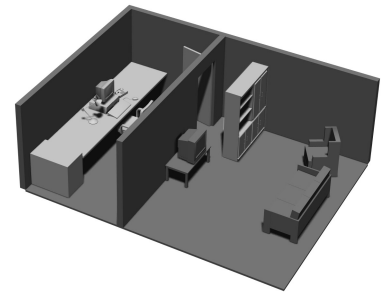
The home worker must not be distracted by views into the residence. Most common distractions in the workplace stem from interaction with others, this is the very reason why home workers claim to 're-gain' so much time. By removing the visual stimulus of a spouse washing dishes — or a pet that needs walking — productivity is enhanced. Visual separation is crucial in situations where there are either employees or multiple persons in the residence. For the spouse it is frequently awkward to have an employee constantly about. They report feeling 'watched' in their own homes. Employees can be made to feel intrusive too. By keeping the workplace and the residence separate, everybody gains. "Out of sight, out of mind" definitely applies here.

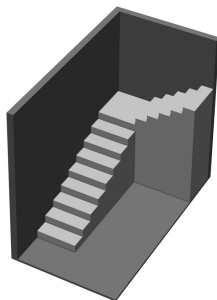


An open doorway allows a view into the residence,

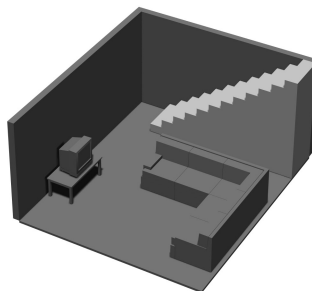
furniture can be used to create hallways and
visual barriers.

The Internal Revenue Service mandates the use of a doorway or staircase to separate the Business from the Residence. While a good start, both can be employed to better effect.

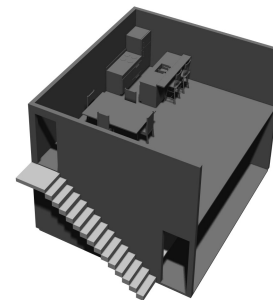




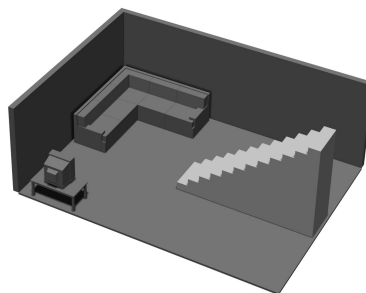
Landings too create visual barriers.



Straight stair runs should end at walls,
not in living spaces.

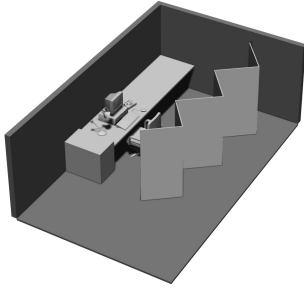


Consider moving stairways back to the exterior!

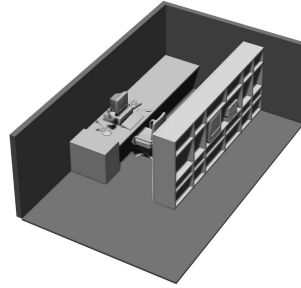


Visual Separation

Well, I know **13** who want to.



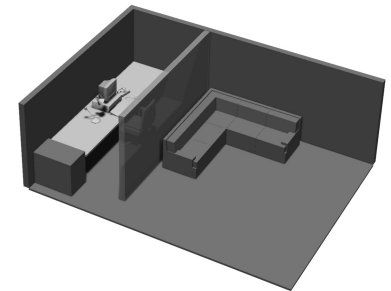
Traditional Shoji screen / folding partitions work well,

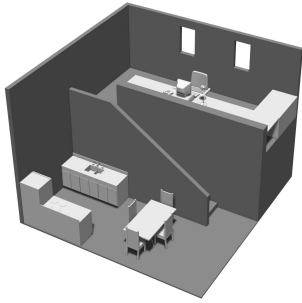


larger built-ins or bookcases are better.

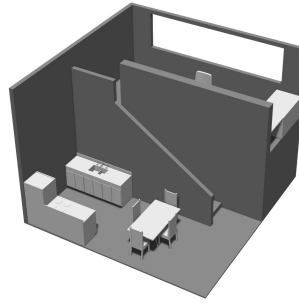
Technological solutions like translucent materials can have the effect of allowing light through while still screening movement.

There are of course simple ways to partition space in the home for a small but efficient workplace. Using furniture to create semi-permanent boundaries is quite acceptable.





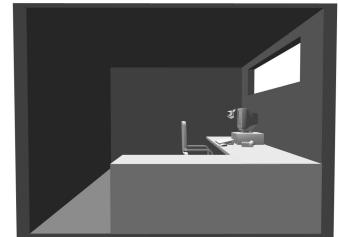
An open balcony focuses inwards,

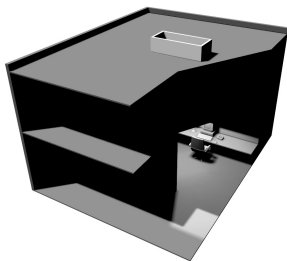


a higher balcony rail or larger window focuses attention outwards.

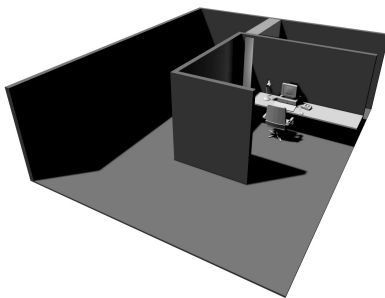
Wright used high windows to focus sight lines upwards and away from distraction in his Larkin Building.

One should use lighting and materials to control the focus of the workplace room. Warm materials, lighting effects and windows can draw interest away from the residence.

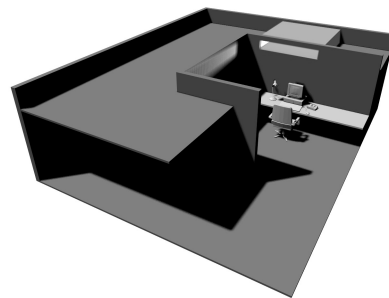




Light can be brought down through upper levels,

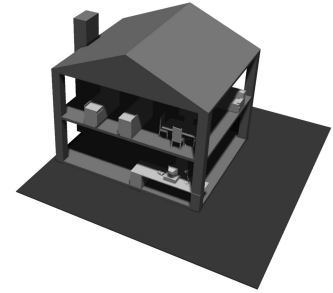


inside of interior walls,



or above lowered ceilings.

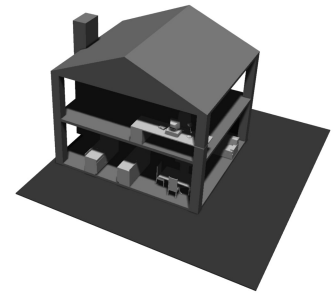
Interior spaces can be used to good advantage by creating 'light tunnels' to bounce daylight into the workspace. Making use of less than habitable space, reflected interior daylighting has the added benefits of producing less glare than windows and doesn't disorient the worker by isolating him from solar time.

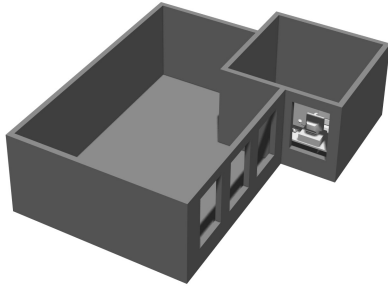


Residence above business, or

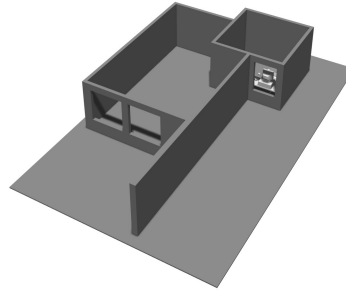
Business above residence.

For new construction or remodels there are tools which can be employed to provide effective visual separation between Residence and Business. Vertical Separation is an undeniably efficient method dating back to Medieval times. Adding setbacks can strengthen the effect.

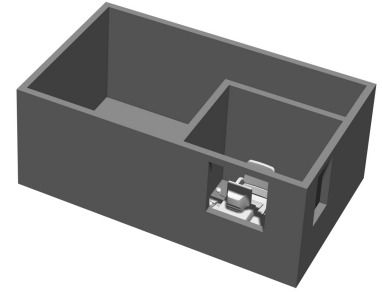




This corner creates problematic sight lines from the business into the residence.



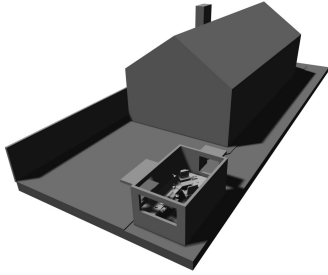
Exterior walls can offer strong separation all the way to the street.



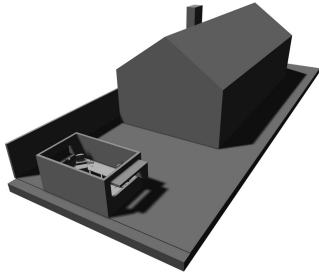
No corner problems at all.

Be careful with re-entrant corners!

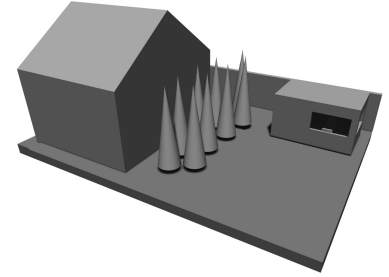
Views into residential rooms are to be avoided. Clients don't want to see into bedrooms and workers should not be able to see into the kitchen. Therefore windows on inside corners can ruin visual separation if they allow views back into the residence. Exterior views of the residence are less problematic. When the situation cannot be avoided, try for sight lines into less busy rooms. Most living and dining rooms are not occupied during business hours. Other "bonus" rooms, such as libraries, studies and guest rooms may also be frequently unoccupied.



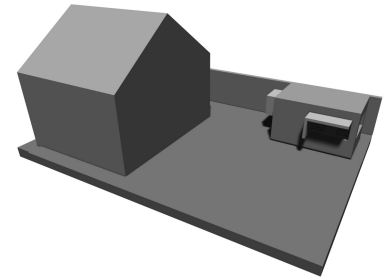
Diagonals allow for longer non-residence views,
when centered, daylighting should come from side windows
to avoid views.



The ideal home workplace is physically separated from the residence. The trick is gaining separation without creating views into what are traditionally the most active parts of the house, those around the kitchen. Here are some tips for those building in the back yard or re-using a garage.

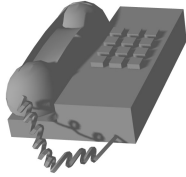


Plant a screen,
or use sun shade style devices

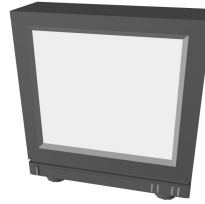


ACOUSTIC SEPARATION

The home worker must not be disturbed by errant sounds from the residence. Acoustic pollution can potentially be just as damaging to productivity as visual distraction. Home workers report interruptions from many household noises, but especially troublesome are MacLuhan's "Cool Media" sounds, such as television. Television is a prime example of how sound can infiltrate the listener's consciousness and divert attention. This is a function of our perception of only one half of the media source. The sounds are overheard, but the source is what truly demands attention.

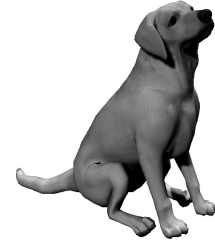
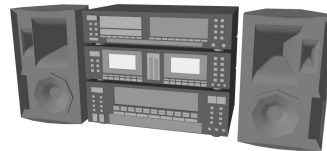


It is important to have a separate business line and not answer the home phone while working.



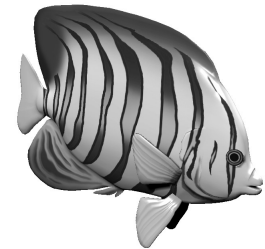
One huge source of distraction that must be avoided.

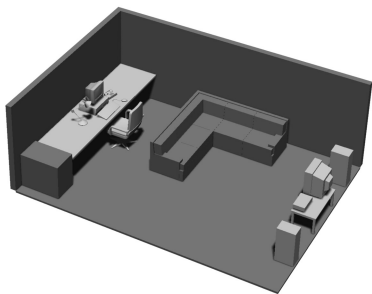
Have a separate stereo system in the office, constantly making trips to the living room to change CDs can drain valuable time.



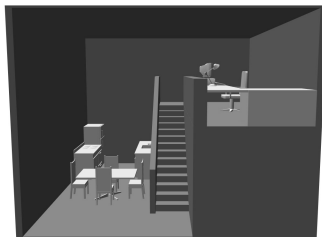
A constantly barking pet can be a real nuisance,

should you consider a quieter pet? Sounds of water can also mask other more distracting sounds. Some office buildings employ white-noise generators for this purpose.





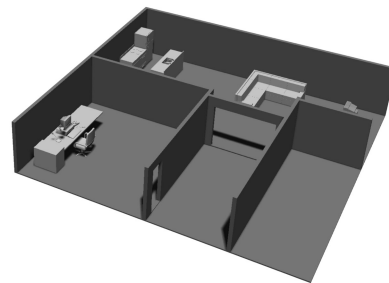
Proximity to the entertainment center is probably not a good idea,



the L'office Model provides no acoustic isolation either.

Having distance and doorways can reduce most entertainment system noises. Locate the office as far as possible from the noise source.

The most common household noises can be the most damaging to a stable home workplace. Some are easier to avoid than others but inexpensive, simple mediation techniques can help prevent sound transmission.

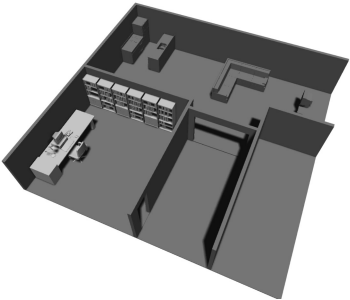
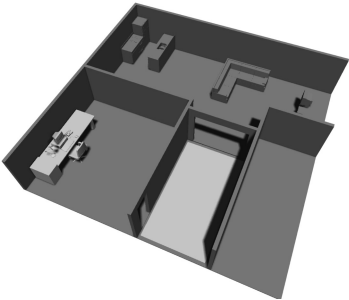
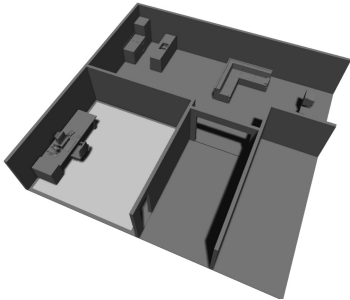


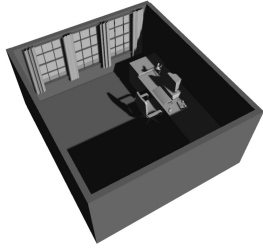
Some of the more easily and inexpensively achieved acoustical solutions.

Use a carpet to absorb sounds in the office,

or in other areas of the house to attenuate reflected noises.

Large furniture items also absorb sounds, bookshelves in particular can be used to good effect.





Heavy drapes can absorb street noises transmitted through windows.

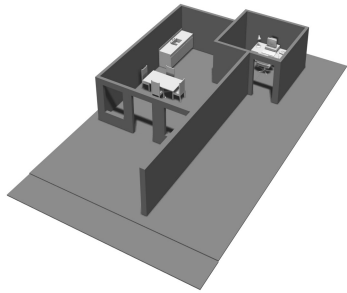


Having irregularly shaped rooms is a bonus too.

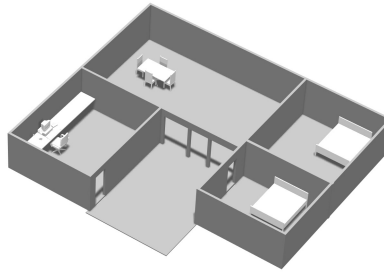
Exercising common sense is one of the easiest ways to avoid noise problems while working. Baby monitors, doorbells and home phones constantly demand attention from the worker. Remove stimuli where possible and make use of furnishings to block other sounds.

MENTAL SEPARATION

Beyond physical boundaries, psychological ones too must be employed. The home worker must have the same mental level of distance from home that a commute provides. Simple interaction with external elements breeds distance; home workers who interact with weather are much more efficient with their time and less susceptible to distraction from the home. If possible, a route should be made between Residence and Business that allows for interaction with other people.



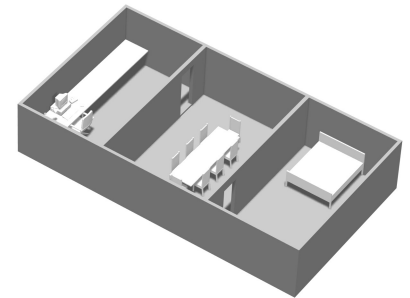
Again, interaction with the street can have huge benefit,

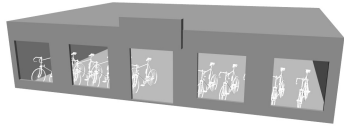


but just crossing a courtyard will work too.

Failing that, set up boundaries within the residence. Make a longer walk around furniture or through extra rooms.

Some small physical distance or boundary can have great psychological impact on the workday. Providing good Acoustic and Visual Separation goes a long way toward achieving Mental distance.





Many home workers go to a gym for 'Face Time' with others,
some prefer getting a cup of coffee as ritual.



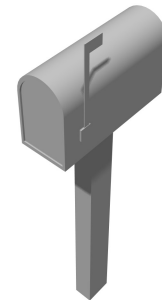
Wear shoes to work, not slippers.



Taking the dog for a long walk before work is helpful,
or simply having a reason to go out to the curb.

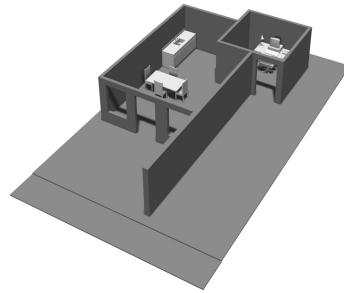


In truth, the most succesful Mental
Separations are daily rituals. Finding a
routine and sticking to it will help distance
work from home immeasurably.

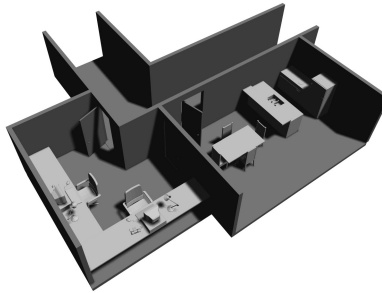


PROFESSIONAL IMAGE

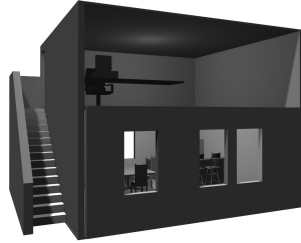
Many clients are now comfortable with the concept of Live Work, but may still be less than comfortable with entering into a domestic situation. The client doesn't necessarily need a lobby to enter through as the neighborhood will usually cue them that they are not in a commercial district. Still, a professional entrance is the first impression many clients get. Space must be managed such that clients do not enter the workplace through the living space. The Home Worker should take extra care to maintain the workplace, returning all domestic items to their places.



From the street back,
or from a shared hallway.



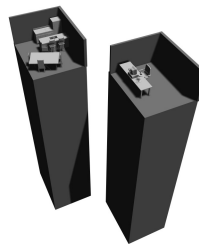
Separate entrances are best,



Of course sometimes it is unavoidable, or even desirable to have a client in the home. Artists and furniture sales can benefit from using the home as a showroom, and dining rooms frequently double for conferences. One must remember tidiness for these occasions.

A separate staircase is a plus,
and buildings can have separate cores.

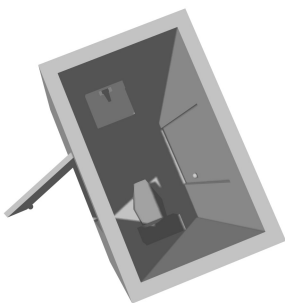
but not necessary.



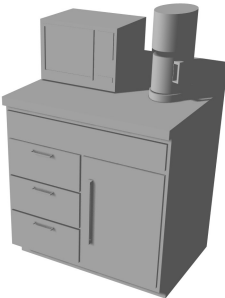
RESTROOM AND KITCHENETTE FACILITIES

Basic services should be available to keep workers out of the house, and more importantly to provide separation between clients and living quarters. Many home workers report that their situation would be greatly improved with better plumbing: restrooms are the number one reason that more offices don't move out to garages from spare bedrooms. There sometimes can be awkwardness between employees and spouses around these two facilities, so duplication can be a necessity for the successful home office.

The home office kitchenette has basically the same needs as that of a regular office, microwave, mini-fridge and coffee maker. A sink is definitely a bonus too.

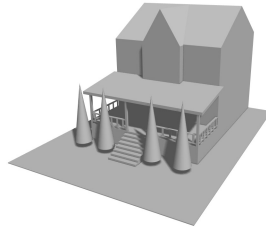


Restrooms can be accessed from two sides.



CONCIERGE SERVICE

One of the most prevalent complaints of the home worker is inability to send and receive packages conveniently. In a traditional office setting these tasks would be carried out by a receptionist, often the least likely employee in a home office. As most Live Work situations are single person, one outside appointment can mean no one is able to sign for unpredictable deliveries.



Some can use a secluded porch for packages,

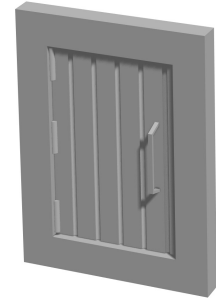


most Condominiums provide a concierge desk for exactly this reason!

A few easy solutions, but many will still find it easier to receive than send packages. Unfortunately for the Home Worker there is really no substitute for a human, meaning that condominiums may be a greater resource for home offices than one might suspect. Having a system agreed upon with delivery services is important, as many home workers are concerned about alerting the neighbors to their activities. Some neighbors may be willing to receive packages, others view working at home as illegal though. For this reason discretion is advised.



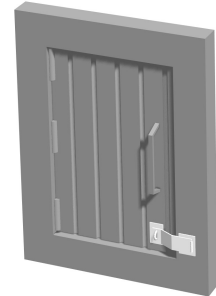
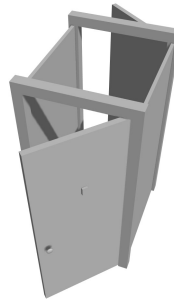
Increasing the mailslot to 13" will accommodate most Fedex Envelopes,
a doggie-door can fit larger packages while still providing security.



Perhaps revival of the Milk delivery box is in order,
with a hasp that the deliverer can close.



Use of double doors can provide secure space for pick-up and drop-off
and help save energy too.



FLEXIBILITY

Flexible Space for Changing Needs

Not everyone who works at home sits in front of a computer all day long. This is a word of caution to the designer — remember that the success of traditional office space is that it can accommodate almost any sort of activity — including habitation. This success is made possible by administering to the basic needs of good lighting, environmental control, lack of preconceptions, and the three locations. None of these should become any less important in the home workplace. Like with the traditional office, sometimes a client will have special needs which must be dealt with on a case by case basis, perhaps as tenant improvement. Remember though that the thoroughness with which the original design is carried out will reflect in any future use. Bearing this in mind it may be wise to include some potentially unnecessary features, such as floor drains, extra soundproofing or oversized doors.

Flexible Technology for Changing Needs

The fact remains that the vast majority of home workers do use a computer on a regular basis. Any design must accommodate the current state of the art technology as well as foreseeable upgrades. One must certainly then be aware of the tech trends. Additions of oversized cable chases, a telephone closet with air-conditioning, extra outlets and roof accessibility are musts. Many local telephone companies are installing residential lines 4 at a time. This should give an indication of how fast the changes can take place, and the foresight is important to note. Currently 6% of the U.S. has broadband Internet access at home while 25% is predicted for 2006. Those homes must be ready to accommodate the Category-5 cable needed now as well as the wireless solutions around the corner.

THE NEXT STEPS ARE UP TO YOU

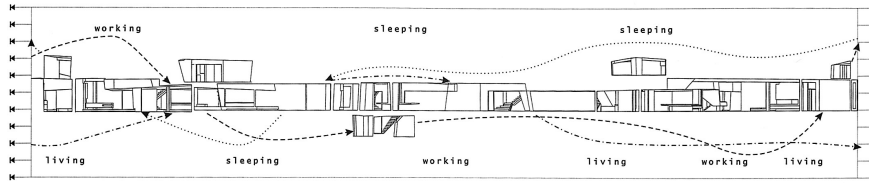
We have seen that succesful integration of the Business and Residence can happen. It is up to the designer to create — and the user to maintain — a focused and effective workspace.

Design Opportunity Abounds — Spatial integration of business and residence can happen any number of ways, but the magic will still lie in how separation, function, flexibility and technology are tailored to the individual.

Design Criterion Enumerated — We now have a shared language with which to evaluate a Live Work design. This language must be shared by designer and end user for success. Sharing this language should allow for more productive problem solving throughout the life cycle of a space.

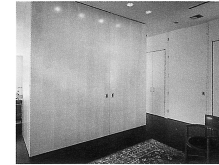
Design Functions Accomodated — With the shared language also comes the understanding that if one part of the Live Work equation is purposely omitted the burden falls on the user to overcome through good behavior.

EXAMPLES & RESOURCES

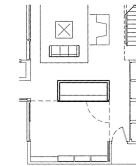


Möbius House
UN Studio/Van Berkel & Bos. The Netherlands, 1998.

The Möbius House was designed seemingly to thwart all pretext of separation between Residence and Business.



Work space with movable panels retracted



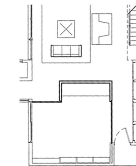
Plan of work space with movable panels retracted

Shorthand House
Francoise de Menil, Houston, 1997

This convertible work space complies with IRS mandates and provides great separation while maintaining re-use potential for the room.



Work space with movable panels extended



Plan of work space with movable panels extended

Integration is the key to a succesful home office. How to gracefully include as many of the preceding elements into the home as possible? For answers we turn away from the generic model and investigate several current projects, taken from the Museum of Modern Art in New York's showing entitled "The Un-Private House." The MOMA show was curated as a surface view of contemporary residences which blur the traditional distinction between Public and Private space. A longstanding architectural debate to which Live Work has added another twist by bringing business functions into what has been heralded as the most private part of society. Of the Un-Private House exhibit six projects are particularly noteworthy in their handling of Business and Residence. They achieve success by adhering to the eight points previously outlined.

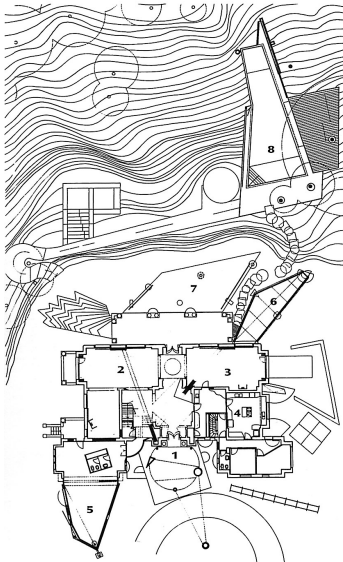


BV House
Farjadi Farjadi Architects, Lancashire England, 1999

A visual catalog of right answers, the BV house features large workspaces (5) which can only be accessed by going outside. They are separated by a pond and covered walkway (4) from the entranceway of the house (1). Notice also that the workspaces have separate kitchenette and restroom facilities.

Ground-floor and site plan

- 1 Entry
- 2 Living area
- 3 Dining area
- 4 Kitchen
- 5 Work space/library
- 6 Solarium
- 7 Terrace
- 8 Pool

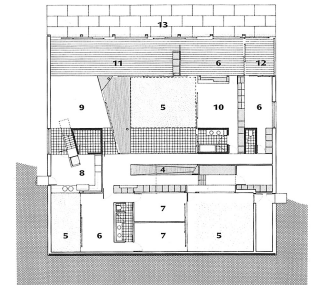


*Ghirardo-Kohen House
Clorindo Testa Architect, Buenos Aires, 1994*

Testa has given the generous workspace (5) in this house two separate entrances, a restroom and its own wing for acoustic separation. It is further visually isolated from the residence by nature of the angled exterior walls which make sight back into the residence difficult.

*House in Brasschaat
Xaveer de Geyter Architectenbureau, Belgium, 1992*

The workspace (6) in this house is a distinct room of its own, well placed at the end of a hallway. It is visually isolated, with its own enclosed outdoor space. A thick layer of built-in storage provides acoustic isolation from the master bedroom and there is a restroom located appropriately.



- Plan*
- 4 Entry ramp
 - 5 Courtyard
 - 6 Work space
 - 7 Bedroom
 - 8 Kitchen
 - 9 Dining area
 - 10 Master bedroom
 - 11 Living area
 - 12 Winter garden
 - 13 Terrace

Work House
Guthrie+Buresh Architects, Los Angeles, 1996

What appears to be an example of the L'office Model in section in fact has no line of sight into the living quarters. Notice also the additional stereo equipment in the workspace.



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<http://www.telecommute.org/>
[http://www.nytimes.com/2001/09/14/
nyregion/14EX0D.html](http://www.nytimes.com/2001/09/14/nyregion/14EX0D.html)
<http://www.house.gov/reform/tapps/hearings/9-6-01/GSA.htm>

Los Angeles County Demographics Information
<http://www.lacity.org>
<http://gis.lacity.org/info>
<http://navigatela.lacity.org>

General Demographics & PRIZM Information
<http://homeadvisor.msn.com/pickaplace>

Hi-Bandwidth Provider Services
<http://www.media.net/>

Architectural Information

<http://www.kazys.net>

Tax Deductions for Home Office use
<http://www.irs.gov>

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1999 MOMA, NY.

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3%	Commercial office buildings in U.S. with fiber connections
4%	Wireless traffic that is data
7%	U.K. internet users who are over the age of 55
16%	Telecottage users on internet socializing or for personal reasons
19%	Cable Modem shipments to Canada
20%	World internet traffic projected by satellite transmission for 2009
35%	U.K. internet users who are women
47%	Telecottage and Cybercafe users who are employed, not students or retired
50%	Internet connections that will be broadband by 2004
50%	Likelihood of broadband users to make online purchases relative to dialup users
51%	Covad Communications DSL service to businesses
65%	Small and medium businesses in U.S. with internet access
65%	Cybercafe users on internet socializing or for personal reasons
72%	Neighborhood computer center users who are women or elderly
79%	U.S. businesses that would switch to fixed wireless service today if offered
85%	Projected broadband service demand increase if prices were cut to \$25 monthly
90%	Neighborhood computer center users who are inexperienced with computers
90%	Telecottage and Cybercafe owners who state access for people more important than profit
200%	Projected broadband growth rate in Asia relative to U.S. by 2010
17,000%	Projected five year increase in wireless data traffic
15	Countries that offer Cable Modem service
300	Number of Telecottages and Cybercafes in U.K. in 1998
392	Rooms in airport hotels with Broadband in Vancouver Canada
766	Rooms in airport hotels with Broadband in Tokyo Japan
4,200	Telephone lines can be multiplexed over one copper pair
\$4,500	Average rental paid to building owners for wireless fiber rooftop installations
10,475	Hotel rooms in U.S. currently under retrofitting to Broadband
40,000	Hotel rooms in Canada currently under retrofitting to Broadband
488,911	Fixed wireless high-speed links
1 million	Other wired high-speed links such as ISDN
1.97 million	DSL Modems in U.S.
\$2 million	National Science Foundation grants to community technology centers in U.S.
3.5 million	Cable Modems in U.S.
3.6 million	Global Cable Modem sales for 1999
13.8 million	DSL Modems due for install by 2005
27.6 million	Cable Modems due for install by 2005
£1.7 billion	Government funds for 'Computers-for-all' to put computers in every community in U.K.
\$13.3 billion	Projected U.S. broadband revenue for 2004

First there were modem **JACKS** on payphones in airports, then in libraries and cafes. Internet Kiosks popped up **EVERYWHERE** last year. The big movement now is in the Hotel Industry. Airport hotels around the world are **PUSHING** fast to provide net access, knowing that their **LIVELIHOOD** depends on it. Why? Because the power of the Self-Employed Individual means more now than ever before. This design **MANUAL** for the Home Worker **ENSURES** the vitality of the Live Work space and shows how to blur the line between Business and Residence without losing the distinctions and benefits of the traditional **SEPARATION**.

Jamie Beekman Myer
Southern California Institute of Architecture
Thesis – Fall 2001