



# The Kitchen of the Future

Pratt Institute • The LG Studio Process Guide:  
Chapter Four, Modified • Alternative Kitchen Units,  
Chapter Five, LG Business & Marketings

# Chapter 4

## Modified / Alternative Kitchen Units

- 
- Compact Kitchens: Self Contained
  - History of the Kitchenette: Ships, Houseboats, and Campers
  - Kitchen Ventilation Systems and Requirements
  - Contemporary Ventilation Systems
  - Considering Disabilities: Wheelchair Accessibility, Blindness, etc.

# Compact Kitchens: Self Contained

Catharine Beecher’s “A Treatise on Domestic Economy,” written in 1843, introduced the concept of the “model kitchen.” She offered a systematic design based on early ergonomics. The design included regular shelves on the walls, ample work space, and dedicated storage areas for various food items. Beecher recommended separating the functions of preparing food and cooking it.

In 1913, Christine Frederick published a series of articles on New Household Management in which she analyzed the kitchen using detailed time-motion studies as the basis of her kitchen design. A 1927 social housing project in Frankfurt was the breakthrough for her “Frankfurt kitchen,” which embodied her new notion of efficiency in the kitchen. While this “work kitchen” and variants derived from it were a great success for tenement buildings, most home owners had different demands and didn’t want to be constrained by a 6.4 square meter kitchen.

The compact kitchen privileges ergonomics, efficiency, and the triangle theory over the desire for lots of space. Compact kitchens contain only what is necessary for the preparation and refrigeration of food. Due to their size, compact kitchens are not usually meant for gourmet cooking, or cooking for more than a few people.



IMAGE 59 Interior view of an apartment



IMAGE 60

The compact kitchen usually contains the following: a mini-refrigerator, a sink, a stove top, and a microwave. All appliances are usually “mini” in size and can be used to cook for no more than a few people.

While large kitchens have traditionally been seen as a status symbol, compact kitchens are quickly becoming more and more in fashion. Below, a luxury home is outfitted with a modern compact kitchen with adjacent bar area. This example shows that a compact kitchen is not just for space saving. Often, these units even appear sculptural or are made to blend in as a regular piece of furniture.

In 1993, the Small Homes Council was founded in the US, with the goal to improve the state of the art in home building, originally with an emphasis on standardization for cost reduction. It was there that the notion of the kitchen work triangle was formalized: the three main functions in a kitchen are storage, preparation, and cooking (which Catharine Beecher had already recognized), and the places for these functions should be arranged in the kitchen in such a way that work at one place does not interfere with work at another place, the distance between these places is not unnecessarily large, and no obstacles impede movement between them. A natural arrangement is a triangle, with the refrigerator, the sink, and the stove at a vertex each.

However, the compact kitchen places these items in close proximity, allowing quick and efficient work in a small space.



IMAGE 63



IMAGE 62



IMAGE 61



# History of the Kitchenette: Ships, Houseboats, and Campers

Innovation in compact kitchen design can be found in mobile kitchens incorporated into motor vehicles and boats. Camper kitchens, for example, can be located in more places than just inside the Recreational Vehicle unit. Campers often choose to sleep in tents and cook outdoors over a fire. The above examples show advanced versions of outdoor kitchens for camping purposes.

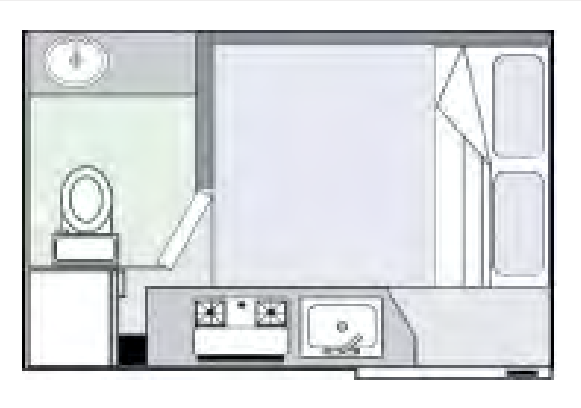


IMAGE 65 A typical camper kitchenette is shown in plan form. RV's have very minimal space, so the kitchen contains only the necessary items to quickly prepare food.

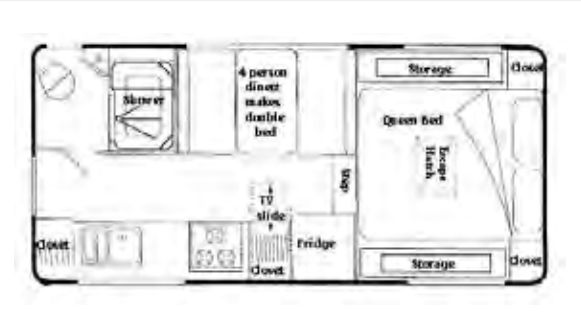


IMAGE 66

Camper kitchens are usually located in one of three places:

1 Rear: Here you usually have a U shaped kitchen to give you more room. However, movement can be problematic. The area behind the fifth wheel tends to bounce which can cause havoc on your dishes.

2 Mid kitchens: All the cabinets are mounted along the side. There is minimum bounce here as you are basically over the wheels so the bounce is much less than the rear kitchen.

3 The front kitchen: This location accommodated better to bounce and space. Obviously located in the front of the RV unit.

Cooking in the RV is much the same as cooking at home. You need the same utensils, accessories, condiments, etc. that you would use in your kitchen at home. The thing to remember here is that you are mobile. Everything in the RV must be able to withstand the shaking and bouncing while the vehicle is in movement.



IMAGE 67

The block kitchen (or island) is a more recent development, typically found in open kitchens. Here, the stove or both the stove and the sink are placed where an L or U kitchen would have a table, in a freestanding "island," separated from the other cabinets. In an open kitchen, it makes the stove accessible from all sides such that two persons can cook together, and allows for contact with guests or the rest of the family, since the cook doesn't face the wall anymore. This type of kitchen is more typical in large cruise ships.



IMAGE 68



IMAGE 69

The house boat has a kitchen with features similar to the RV kitchen. It needs to take into account the movement that will occur, as well as where regular kitchen items can be stored away. Also, similar to the RV kitchen, the houseboat usually has very limited space.

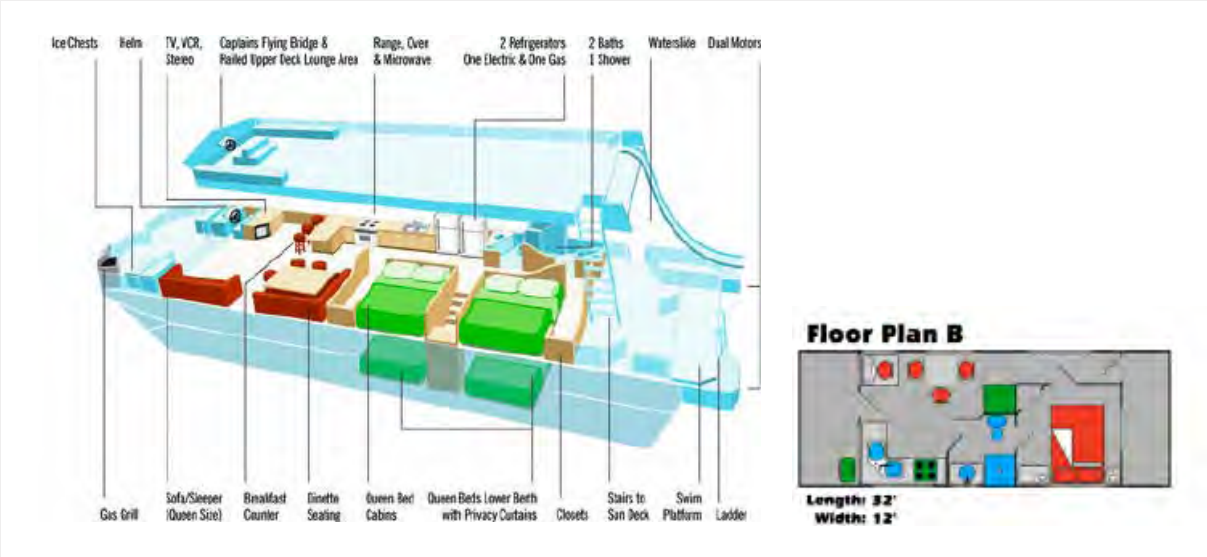


IMAGE 70 Typical houseboat layouts showing compact kitchenettes.

# Kitchen Ventilation Systems and Requirements

In the past, people cooked indoors over a fire. In order to prevent smoke from pouring back into the room, a large updraft pulling air (and also heat) out a chimney is needed. This both pulls heat away and pulls air from the rest of the house into the fire and then up the chimney. High airflow creates a draft which pulls heated air out of the house to be replaced with cold air leaking in from the outside.



IMAGE 71 An ancient home contains a hole in the wall of the kitchen area. This was an early form of ventilation.

Modern stoves require ventilation. By capturing most of the heat from the combustion and exhaust through an extended system of flues inside a large thermal mass before the exhaust is vented to the outside air.



IMAGE 72

Without the proper ventilation, harmful pollutants will collect in the air every time you cook. There are two main types of systems to choose from. The system you choose should depend on local building codes, personal preferences, budget, and noise.

Updraft vent hoods are located over a cook top or range for removal of unwanted fumes. These vents can work in two different ways. One way involves a fan pulling the polluted air into it, then pushing the air through filters and finally exhausting the air outdoors through a duct system. The second way involves a fan drawing the polluted air through filters and then re-circulating clean air back into the kitchen. These hoods are often used as decorative elements in the design of the kitchen. However, they can be hard to clean and noisy.

The second main type of system is the Downdraft vent. Rather than being placed over the cook top or range, a downdraft vent is built into a base cabinet. Polluted air is removed through vents placed on the sides and back of the cook top. This form of ventilation works well with island cooktops. Their appearance is much more subtle than an overhanging hood. Unfortunately, downdraft vents only exhaust fumes that are right next to the vent.

# Contemporary Ventilation Systems

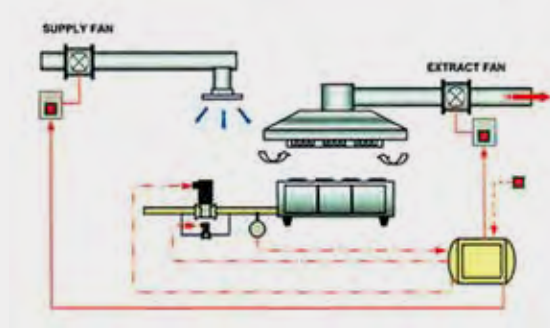
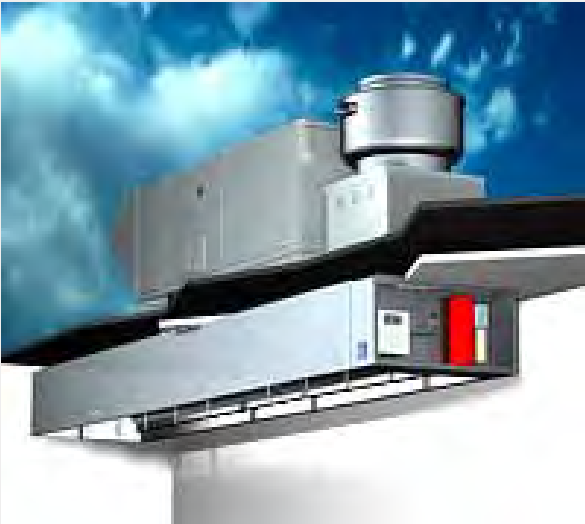


IMAGE 74, 75 Two typical commercial/large residential kitchen ventilation systems are shown. Technology and design are changing ventilation systems technically and aesthetically.

The following examples are current technology from Britannia and Jenn-Air.

*The Britannia kitchen ventilation company carries many different types of systems for both commercial and residential use.*

The Silverline Ceiling system is an entire ceiling installation that is designed to vent an entire commercial kitchen. Each canopy section is ducted directly into the atmosphere and can be fitted with a fire suppression system or Ultrastream UV filtration system to provide secondary grease removal and cut down on odor. The remaining ceiling is made up of fixed light lanes, with recessed light fittings and removable panels.



IMAGE 77- Photograph of an installed Silverline Ceiling system

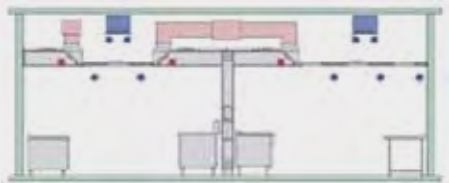


IMAGE 76 Diagram for how the system takes in and removes air and unwanted grease.





IMAGE 78

The Jenn-Air appliance company makes a range with what is known as “downdraft ventilation.” This range is ideal for use in a kitchen island. It eliminates the need for an overhead hood and allows for an open kitchen design. The downward suction, which comes from a vent parallel to the burners, pulls out smoke, steam and odors.



IMAGE 79

Another type of ventilation system is the Ultrastream UV Filtration System:  
An ultra violet filtration system, that provides secondary grease and odor removal before the air is discharged to the atmosphere. This unit significantly reduces ductwork cleaning and reduces fire risk within the extract system. As the system also destroys odors, kitchens can be located in areas where efficient air circulation is not normally possible. Ultrastream is more efficient and cost effective than conventional carbon treatments, with greatly reduced maintenance costs. Grease and odor removal is achieved by passing the extract air through the UV lamp assembly located

within the canopy. Intense UV light energy breaks down and destroys residual grease and odors by a combination of ozonolysis and photolysis.



IMAGE 80

The Refresh Recirculation Unit (see images) is a self contained kitchen ventilation system that does not need ventilating into the atmosphere. Designed for use over electrically powered cooking equipment, the system made up of a ventilation canopy with a services tower at one end. The tower filters out grease and odors before re-circulating the air back into the kitchen. This unit is ideal for commercial applications where duct work cannot be installed.



IMAGE 81

## Considering Disabilities: Wheelchair Accessibility, Blindness, etc.

### Classification of Disabilities: Characteristics and Needs

#### Blindness

There are two types of blindness: total blindness and persons with partial blindness who perceive light. If a person is familiar with the environment, he or she may be self-sufficient.

Generally, individuals with disabilities need more space in a living unit, particularly counter space in the kitchen.



IMAGE 82 A push- pull drawer handle eliminates fine muscular coordination. The Braille assists the blind, and design symbols aid hemiplegic persons with memory failure.

#### Hand Disabilities

Persons who have arthritis, congenital deformities, contractures, etc. may be unable to perform hand movements. There are a wide range of special aids, furnishings, equipment available to offset these sorts of disability, including oversized handles, and grasping surfaces that reduce two-hand operations to one-hand.

#### Arm Disabilities

This includes persons with limited strength and/or a limited range of motion of arms. In moderate cases, individuals may be able to function in a self-help environment; in severe cases, they may need some assistance.



IMAGE 83 The lever push handle is operated by the disabled who are unable to grasp and twist.



IMAGE 84 Automatic washing machines. The faucets are activated by a sensor for hands-free operation.



IMAGE 85 Paddle-type handles for palm down movement require minimal grasping and hand muscular coordination; it is especially suited for the elderly.



**Hearing Loss**

Hearing loss can range from mild to severe, and it can be congenital, progressive, or due to disease or old age. Visual and tactile cues necessary, for example, signal lights for door-bell, telephone.

**Tactile Loss, Touch, Temperature**

Sensory deprivation is often accompanied by motor loss. It is brought by variety of disorders, usually accompanied by varying degrees of paralysis. People who suffer from sensory depravation need protection from injury, including insulation from exposed hot water piped, water temperature controls in the kitchen and bathroom, and designs need to avoid sharp and abrasive surfaces.

**Bending or Kneeling**

People with stiff joints or arthritis often have difficulties sitting or kneeling. Although usually able to take care of themselves, they experience difficulty placing and removing storage items in middle and upper ranges of the kitchen.

**Extremes in Size**

This category includes people with dwarfism, giantism, and small children. These individuals can be self-sufficient, but their household items need special adaptations.



IMAGE 86 An extended lever handle provides for mechanical leverage with a vertical force



IMAGE 87 Switch to levers instead of doorknobs

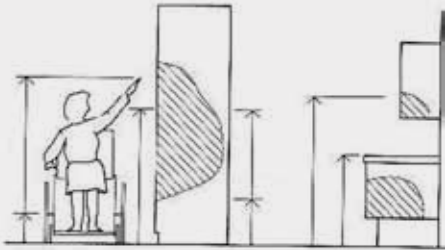


IMAGE 90 Reach zones for wheel chair user: a= low reach; b=high reach; c=reach to back of shelf; d=preferred zone; e=high reach over obstruction; f=work top.

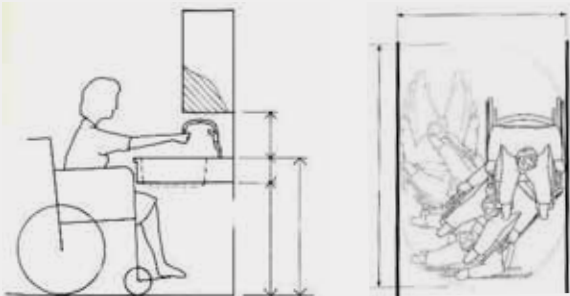


IMAGE 91 Sink position for wheelchair user  
IMAGE 92 Minimum clearance needed for wheelchair u-turn

IMAGE 100



IMAGE 101



IMAGE 102



IMAGE 103



IMAGE 104 – 106



IMAGE 107 Can be raised or lowered to the user's height



IMAGE 108 Movable drawer with handle





# The Kitchen of the Future

Pratt Institute • The LG Studio Process Guide:  
Chapter Five, LG Business & Marketings



# Chapter 5

## LG Business and Marketing

- 
- Company History and Profile
  - Business Area and Main Products
  - LG as a Global Business
  - Design for Local Markets
  - Marketing
  - Analysis of Regional Websites
  - Promoting LG within Local Communities

# Company History and Profile

## Quick Facts

- Year of Foundation: 1947
- Total Sales: KRW 85 Trillion (as of 2006)
- Business Fields: Electronics, Chemicals, Telecom-  
munication & Services
- Number of Companies: 31
- Overseas Subsidiaries: c130
- Number of employees: c160,000

## History

2005

- LG Electronics MobileComm becomes second larg-  
est mobile phone manufacturer in the US
- LG Electronics MobileComm leads the US mobile  
handset industry in customer satisfaction
- LG Electronics MobileComm dominate CDMA sales

2001

- LG.Philips Displays, a joint venture with Philips, is  
born

1995

- Merges with GoldStar Communications Company  
name changed from GoldStar to LG Electronics
- Acquires Zenith of the US
- Declares Challenge 2005

1968

- Establishes first overseas branch office (New York)
- Produces Korea's first air conditioner

1966

- Produces Korea's first black & white TV

1965

- Produces Korea's first refrigerator

1958

- GoldStar Established

## Location

- Head Quarters in Seoul, Korea

International Offices: R&D centers

- USA: New Jersey, Chicago, San Diego
- India: Bangalore
- Brazil: Sao Paulo
- China: Tianjin, Beijing, Yuntae
- France: Paris

## Company Name and Logo

LG is not an acronym. It is the official name of a global business group that includes an electronics and ap-  
pliance division, a telecommunication division, and a chemicals unit. The Group was renamed LG follow-  
ing the merger of the chemical company **Lucky** and the **Goldstar Communications Company**. In choos-  
ing this new name, the Group felt that "LG" could in-  
tegrate the different images of two main streams of the Group's businesses, Chemicals led by Lucky and electronics & telecommunications led by Goldstar.



IMAGE 270

The LG logo features the "face of the future," an image that incorporates a representation of the world, the fu-  
ture, youth, and the relationship between humans and technology.

The logo has one eye symbolizing concentration and focus, and the lower curve of the design represents a smile. The open asymmetric space on the right of the design represents LG's adaptability and creativity.

LG's slogan, "Life's Good" expresses the brand's core values. It is conceived as the ultimate expression of what LG's brand stands for and what the company strives to deliver to its customers. To put it simply, LG provides delightfully smart products designed to make life good.

## Corporate Divisions

- Electronics
  - LG.Philips LCD
  - LG Innotek
  - LG Micron
  - Hiplaza
  - Hi Logistics
- Siltron
- Lusem

## Chemicals

- LG Chem
  - LG Petrochem
  - LG DOW Polycarbonate
  - SEETEC
- LG Household & Health Care
- LG Life Sciences
- LG MMA

## Telecommunication and Services

- LG TeleCom
  - CS Leader
  - A•IN
- LG DACOM
  - LG Powercom
  - DACOM Multimedia Internet
  - DACOM Crossing
- LG CNS
  - V-ENS
- LG N-Sys
- SERVEONE
- LG Management Development Institute
- LG Sports

## Other Divisions

- LG International
- LG Fashion

# Business Areas and Main Products

## Digital Appliance Company

Includes: air conditioner, refrigerator, microwave oven, washing machine, vacuum cleaner, HomeNet, com-  
pressor for air conditioner, compressor for refrigerator



IMAGE 271

## Digital Display Company

Includes: plasma TV, LCD TV, micro display panel TV, monitor, PDP module, OLED panel, USB memory



IMAGE 272



Digital Media Company

Includes: home theater system, DVD recorder, super multi DVD rewriter, CD±RW, notebook PC, desktop PC, PDA, PDA Phone, MP3 Player, new karaoke system, car infotainment



IMAGE 273

Mobile Communications Company

Includes: CDMA Handsets, GSM Handsets, 3G Handsets



IMAGE 274

Example of Cooperation across LG Business Areas

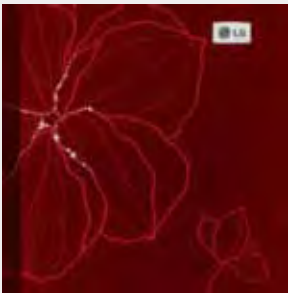


IMAGE 277



LG as a Global Business

Map of Areas Where LG Products are Sold

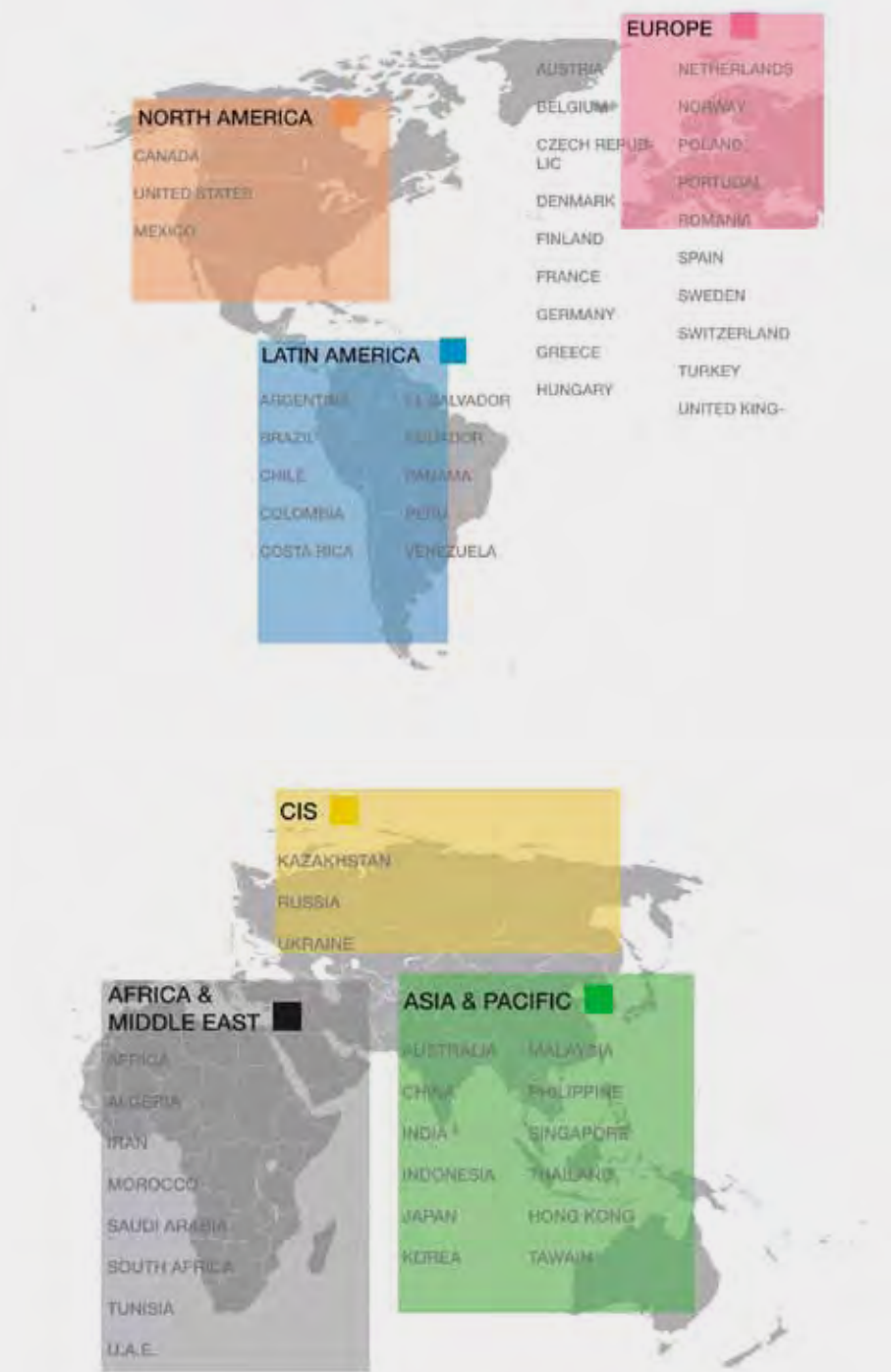


IMAGE 251

IMAGE 252

Worldwide Sales of Kitchen Appliances

AS OF 2006

GLOBAL REVENUE, REFERRING TO THE TOTAL REVENUE OF THE GLOBAL SUBSIDIARIES ACCOUNT

SALES BY REGION

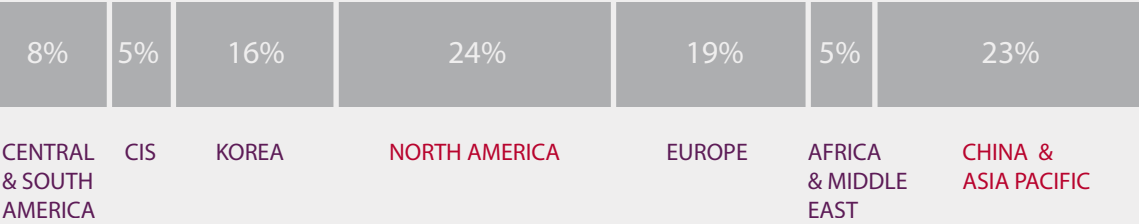


IMAGE 264b

Global Refrigerator Market

2005 Refrigerator Market Volume (World) billion

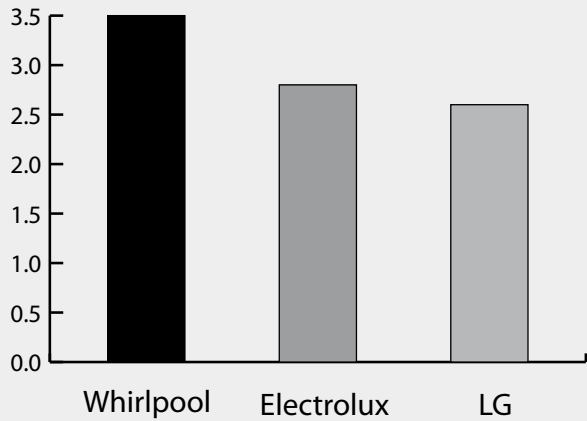
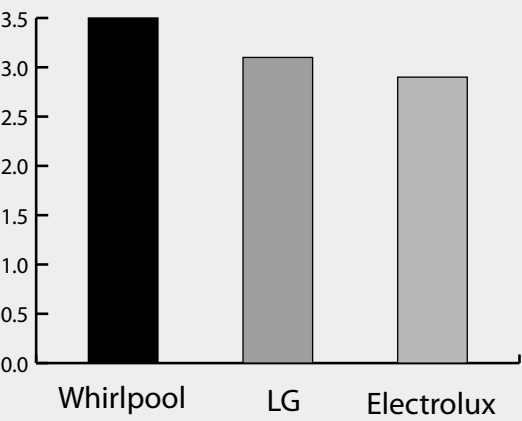


IMAGE 283 (2 charts)

2006 Refrigerator Market Volume (World) billion



Global Distribution of the LG Side-by-Side Refrigerator



The Side-by-Side is sold in 160 countries worldwide

IMAGE 254

This chart shows the number of different models offered in various countries worldwide.

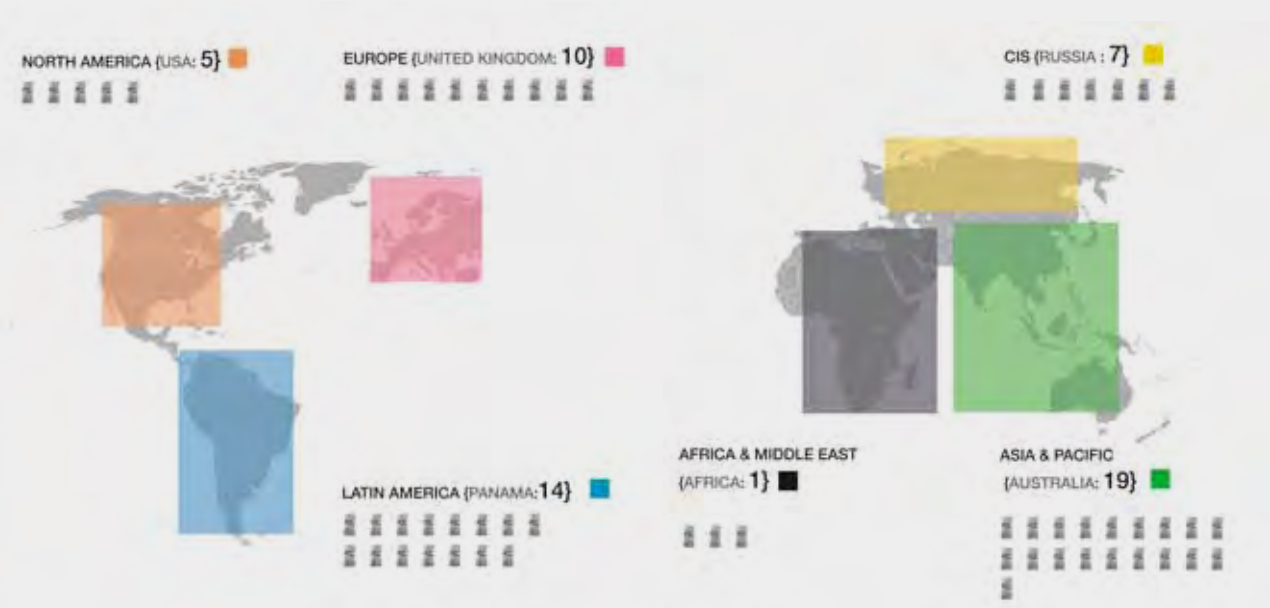


IMAGE 253

IMAGE 255



Major Competitors in the North American Side-by-Side Refrigerator Market

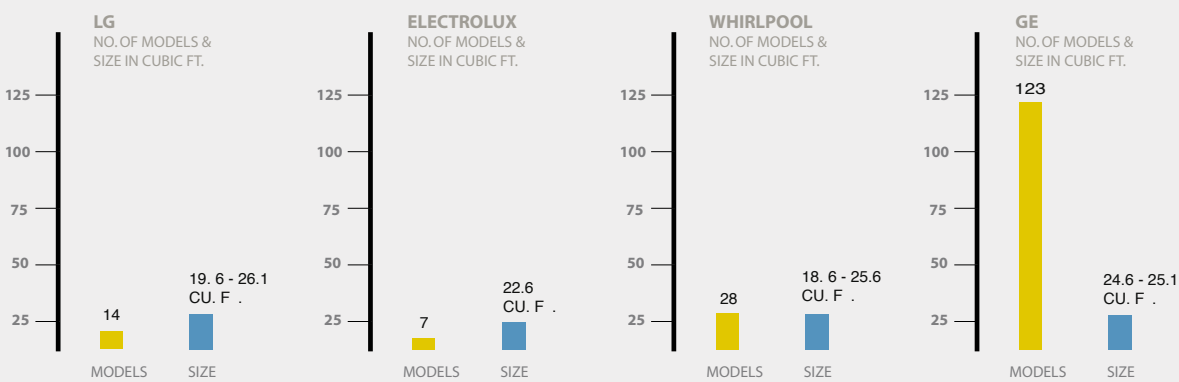


IMAGE 256 (LG)



IMAGE 257 (Electrolux)



IMAGE 258 (Whirlpool)



IMAGE 259 (GE)

Major Competitors in the North American Appliance Market



IMAGE 276

Selection of Microwave Oven Models Distributed Worldwide



IMAGE 260

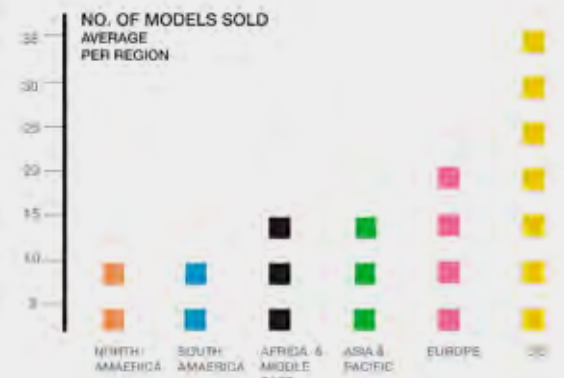


IMAGE 261 (chart)

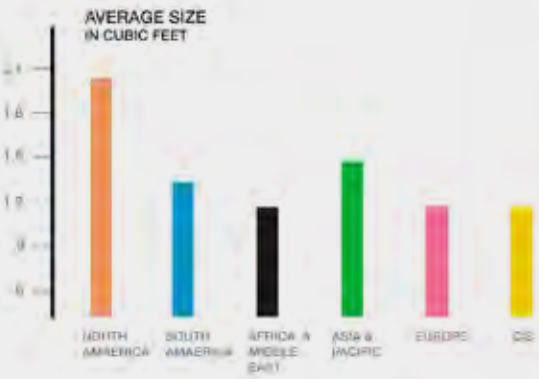


IMAGE 262 (chart)

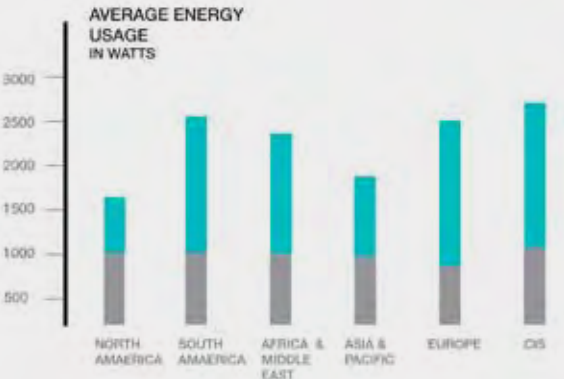


IMAGE 263 (chart)

Worldwide Production of Kitchen Appliances

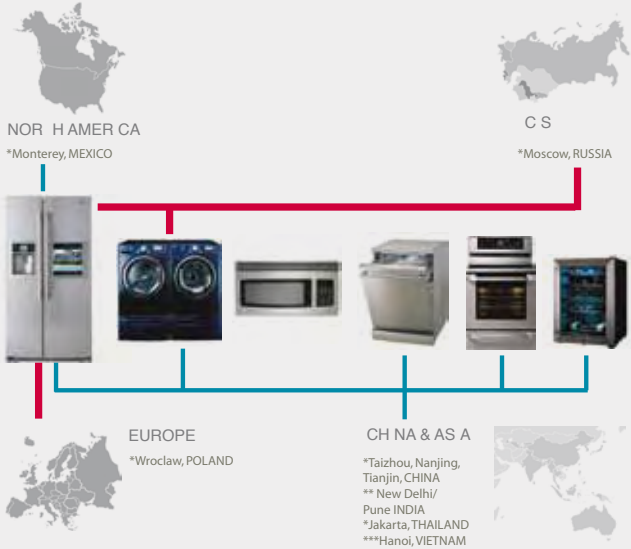


IMAGE 264a



Europe

- ## North America

- CSI / Russia

- India

- ### Case Study in Regional Design: Kimchi Refrigerator



IMAGE 288

- ### Sales Growth Kimchi refrigerators



### Three Different Types of Kimchi Refrigerator

- 

IMAGE 290

- 

IMAGE 291



- Standing Kimchi Refrigerator: released in 2005, this is LG's state of the art design for Kimchi refrigerators.



IMAGE 292

Competition in Kimchi Refrigerators

- LG
- Mando
- Samsung
- Daewoo

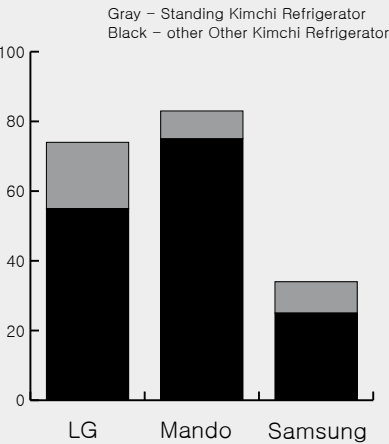


IMAGE 293

After the kimchi refrigerator was first produced, LG launched the Standing Kimchi Refrigerator. This in-

novative design took seven years to create, and was launched in 2005. Mando and Samsung followed with their own versions in 2007.

Standing Refrigerator by LG

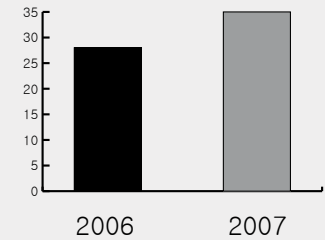


IMAGE 294

Marketing

Print Ads

The market dynamic adapts pop culture and refers to the pristine allure of youth and glamour. The majority of the ad space is filled with imagery, which markets more than a simple product but a way of life.



IMAGE 300

TV Ads

In Australia the target market seems to be those with leisure time who are family oriented. The idea seems to be that children can have their music players, and dinner is always served on time.



IMAGE 301

Internet Ads

The market dynamic seems to be aimed at the development of global communication through technological advancements in the digital infrastructure. The strategy seems to be to target wealthy countries.



IMAGE 302

Billboards and Urban Display

This LED display in Times Square in New York City is a good example of LG's billboard advertising.



IMAGE 303

Case Study: Fine Art Print Campaign

Targets high-end market with clever combination of classic fine art images and LG products. Familiar appliances are inserted, inconspicuously, into famous paintings.



IMAGE 304 John H. Lorimar, Grandmother's Birthday



IMAGE 305 Edgar Degas, Le Foyer de Danse a l'Opera de la Rue Peletier



IMAGE 306 Edouard Manet, Déjeuner sur l'Herbe

Analysis of Regional Websites

Korea

The market dynamic adapts pop culture and refers to the pristine allure of youth and glamour. The homepage is filled with imagery, which aims to sell more than just product but a way of life.



IMAGE 266

Iran

The market dynamic seems to be aimed at the development of global communication through the technological advancement of digital infrastructure. This home page targets professionals and businesses.



IMAGE 267

Australia

In Australia the target market seems to be people who value leisure and family. There are ads for mp3 players

that target younger consumers, and advertisements for kitchen appliances and cooking.



IMAGE 268

Germany

In German, it's all about style. The focus is on the creative minds behind the creative development of products. The homepage is the opposite of the Korean site where we view celebrity photographs and entertainers. Here the professional designer is the focus.



IMAGE 269

Promoting LG within Local Communities

Asia

Since 1999, LG Electronics has been supporting the LG Champion Quiz in Southeast Asian countries. LG Electronics awards the winners with scholarships and LG Electronics products. It is an indirect investment in the future of customers and employees, and just good community relations.



CIS

With the growing popularity of Baduk in the CIS (the Russian Baduk Association has more than 30,000 registered players), LG Electronics has successfully hosted Baduk tournament games.



Korea

Since 1990, LG Electronics has been the sponsor of the Student Invention Contest. The contest promotes creative inventions by students, and helps to support the growth and development of future inventors and leaders.



Russia

Since 1997, LG Electronics has been hosting the LG Festival in fourteen major cities in Russia, the CIS region, and Kazakhstan. LG Festival is a “two-way” event that encourages interactive participation.



United States

LG Electronics is the main sponsor of the Wiltern Theater, a popular venue in Las Angeles that was first established in 1931. In recognition of their support the Theater was recently renamed the Wiltern LG Theater.



LG Electronics aims to establish itself as an American consumer-friendly brand. Their sponsorship of the Wiltern Theater strikes a cord among Korean Americans in Las Angeles because this was the first time a Korean company has remaned an American performing hall. The partnership serves as a source of pride for local Korean Americans.