

**University College London**

**The Bartlett School of Architecture and Planning**

**Unit for Architectural Studies**



# **Selfridges**

**The Spatial Paradox**

**Dissertation for Partial Fulfillment of  
MSc. in Architecture**

**Samia Morsy**

**September 1991**

**University College London**

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*To My Family and To Amr*

# Contents

	Page
<b>Acknowledgements</b>	1
<b>Introduction</b>	2
<b>Chapter One</b>	
The Department Store as a Retail Type	
1.1 Origin and Historical Development	3
1.2 The Architecture	5
1.3 The Social Aspect	7
1.4 The Selling Strategy	7
<b>Chapter Two</b>	
Introduction to The Space Syntax Approach and Methodology	
2.1 Definition	10
2.2 Methodological Tools	11
<b>Chapter Three</b>	
3.1 The Building as a Domain of Knowledge	15
3.2 General Description of Selfridges	16
3.3 Boundary analysis	18
3.4 Depth	18
3.4.1 Depth from Oxford Street	18
3.4.2 Depth for Each Floor	19
3.5 Intelligibility	20
3.5.1 Intelligibility for the Global System (Boundary)	20
3.5.2 Intelligibility for Individual Floors	21
3.6 Axial Analysis	21
3.7 Axial Intelligibility	23
<b>Chapter Four</b>	
4.1 Retail Information	25
4.2 Spatial Variables in Relation to Retail Variables	26
4.2.1 Correlation with Integration	26
4.2.2 Correlation with Integration Radius Three (1/x RRA(3))	26
4.2.3 Correlations with Connectivity	27
4.2.4 Correlations with Depth	28
4.2.5 Correlations with Intelligibility	31
4.3 Retail Information in relation to each other	32
4.3.1 Impulse and Demand Products with Frequent and Non-Frequent Purchase	33
4.3.2 The Performance Factor	33
4.3.3 Relation of Amount of Sales to Income	34
4.3.4 Relation of Income to Profit	34

<b>Chapter Five</b>	
5.1 Observations	37
5.2 Static Customers	38
5.2.1 Syntactic Variables	38
5.2.2 Retail Variables	39
5.3 Moving Customers	41
5.3.1 Syntactic Variables	41
5.3.2 Retail Variables	42
5.4 Static Staff	43
5.4.1 Syntactic Variables	43
5.4.2 Retail Variables	45
5.5 Moving Staff	46
5.5.1 Syntactic Variables	46
5.5.2 Retail Variables	46
<b>Discussion</b>	48
<b>Bibliography</b>	51

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## Introduction

Selfridge's policy in retailing was summed up by his biographer, Reginald Pound, five years after the store was opened: "... He would rather lose business than give the shoppers the impression that the store existed only to sell them goods, which was the old way"<sup>1</sup>. This carried a contradiction; for despite any impressions of objectives that a store might try to promote to its customers, its main aim as a store remains to achieve highest possible sales and consequently profits. In fact this has been Selfridge's idea to encourage customers to enter the store for a 'non-committed' search, anticipating that this is the best attitude on the part of the retailer, which can convert browsers into customers.

On one hand, in a shop, space is tightly constructed to get the customer to the point of purchase as rapidly and as easily as possible; acting as a retail facilitator. Department stores, on the other hand, as opposed to ordinary shops, are much more complex in their spatial organisation and their distribution of goods throughout the space. Apart from some general basics, like for instance placing impulse products in shallow spaces and demand ones in deep spaces, there is no ideal way of how it should be done and it remains a unique problem of each individual department store. For, as in a department store, there is the impossibility of a visual and/or permeable synchronisation of all the spaces or departments, thus the notion of prioritisation of some goods over others to occupy the shallowest parts of a store should be expected.

While the rational decisions concerning the latter objective are not easy to make, there remains another objective for the department store to achieve simultaneously: the recruiting of space organisation and the distribution of goods to make a shopping or browsing journey to customers as pleasurable an experience as possible. In other words, the act of shopping should not only be a practical affair in terms of efficiency but also a celebration of the process of purchase as a social and cultural act. In fact, the distribution of goods throughout a store and its space structure -done either by research, intuition or trial and error- although it might appear to be a pure retailing process, it is not

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<sup>1</sup> Pound, Reginald, Selfridge, Heinemann, London, 1960.

devoid of cultural and social significance. These two elements can discriminate between different kinds of customers according to status being either class or income or the combination of both. Also the location of specialised departments throughout the floors can easily affect the presence of customers according to gender.

This thesis looks at the spatial structure of the department store of Selfridges in an attempt to pin down how this department store works and to trace specifically the role of space in the implementation of the retail strategies in the store. It argues that space has a direct effect on the amount of sales for the different departments of the store. This argument is examined through the analysis of the spatial structure of the store in relation to the distribution of goods, their prices, their profit margins and how they perform according to sales. It also looks at the way customers and staff use the space and how this accordingly affects the sales. The method adapted in the analysis is the Space Syntax technique & methodology.

The organisation of the thesis will be in the following order:

Chapter one briefly reviews the historical, architectural, commercial and social development of the department store as a retail concept.

Chapter two introduces the 'Space Syntax' theory and technique of analysis of complex buildings, and explains the descriptive tools which are employed in the analyses.

Chapter three analyses the spatial structure of the store in two different conventions: the axial and the boundary conventions as a single spatial structure and also as the spatial structure of individual floors.

Chapter four looks at the retail information of the store in relation to the spatial variables analysed in the previous chapter and in relation to each other.

Chapter five describes the observations of customers and staff carried out in all the different departments of the store. The results are tested against the



syntactic spatial variables and the retail information of the store.

Finally the discussion outlines the important findings of the study and discusses them in relation to further research suggestions.

# Chapter One

## The Department Store as a Retail Type:

### 1.1 Origin and Historical Development:

The origin of the department store is debated and is mostly a problem of disagreement. Clausen argues that it did not appear until after the middle of the 19th century. She claims that the Bon Marche in France in the 1860s was the first building of the kind.<sup>2</sup> Adburgham contradicts this origin by claiming the existence of Bainbridge's in Newcastle and Kendal Milne & Faulkner in Manchester before 1850. Yet the bottom line could be that the Bon Marche started big in 1852 while the other two followed the policy of gradual extension.

Defined as a large retail establishment located in the heart of downtown the department store carried a broad range of mass produced goods and aimed primarily at middle classes. As manufacturing methods changed, marketing split off from production. Trade regulation which restricted proprietors from selling more than a single line of goods were lifted and competition among store owners quickened. Small speciality shops tried to met this new competition by clustering together with other shops that sold related goods, thus enabling customers to buy their goods from a single location. Other factors paved the way for the department store. New manufacturing methods expanded factory production. This meant large quantities of mass-produced goods were available at substantially reduced prices. Meanwhile interest city transportation systems enabled people from provinces to travel to the centre of the city. This provided the mass clients needed to sustain the big stores.

Big stores often developed by converting some preexisting buildings as they expanded. In many cases the gradual acquisition of several adjacent buildings would soon lead the proprietor to gain control over the entire block thus enabling him to erect a new complex e.g. the Bon Marche in France and Harrods in England.

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<sup>2</sup> Clausen, Meredith, "The Department Store-Development of the type", *Journal of Architectural Education*, Fall 1985, p.20.

## 1.2 The Architecture:

By the middle of the 19th century many rambling premises were rebuilt into magnificent modern emporiums. Grandiose architecture and facade design was crucial. Not only did the exterior need to convey the building's function, but had to be visually appealing as well. Its striking appearance served as overall advertisement for the store. For architects, the building type was completely new and problematic as it called for a multistory building with continuous ground floor display windows.

Inside the store, still the programme was complex. It required internal structure slender enough to permit maximum light and space throughout, yet strong enough to bear the weights of large crowds and display counters. Circulation was critical, demanding strategic locations of entrances, main stairs and emergency exits.<sup>3</sup> The plans were supposed to be designed to channel customers throughout the large building, providing easy access to departments on all stories. The higher the number of customers induced to proceed through aisles of upper floors, the more successful the design was thought to be.

Disorientation was the store's aim. The layout is deliberately planned to confuse; it intended the diversion of the customers into departments they had no intention of visiting, thus depriving them of control. Bowlby reports how attempting a quick exit from Selfridges or any other large store, will result in a feeling of frustration. Apart from unrelated escalators and confusing layout, the arrangement of goods seem to be altered every now and then.<sup>4</sup>

The twin aims of easy access coupled to disorientation begin to produce a paradoxical programme for the designer. The more straight forward and efficient the movement channels, the less likely that the customers will be disorientated and trapped. Its resolution would seem to involve subtle spatial strategies rather than one simple organising principal.

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<sup>3</sup> Clausen, op. cit p.22.

<sup>4</sup> Bowlby, Rachel, *Just Looking: Consumer Culture in Dixie, Glasgow and Zola*, New York, Methuen, 1965 in MacConnell, Jane Mares, *Reading in Design*, Unpublished MSc. Thesis, Bartlett School of Architecture and Planning, September 1989, p.20.

Like museums, department stores were crammed with displays of exotic goods and luxury items except that as Pepponis <sup>5</sup> points out, the order of objects is underlined by general theories or historical background. The distinction between the store and the museum lies in the length of the rules governing the display arrangement. The former depends on shorter rules in which relations become more ephemeral and subjected to change. In the latter the reproduction of knowledge requires that the relations among large numbers of objects remain unchanged.

### 1.3 The Social Aspect:

Among the phrases associated with the new department stores was the "democratisation of luxury", but this was misleading. For the stores were originally perceived in terms of status and class. <sup>6</sup> Although entrance was free and theoretically the store was open for everyone, each department store typically catered to a particular social class. Miller <sup>7</sup> suggests that it was the "respectable" air exuded by the department store which made it so middle class that it was forbidding to lower classes. The very definition of bourgeois was no longer occupying a particular place in the process of production, but rather buying certain goods in order to lead an associated way of life. Status was derived from possessions. Thus customers chose to shop where the store image provided them an identity they could relate to or wished to acquire. <sup>8</sup> The department store widened the range of goods on offer and in doing so increased the 'need' of its customers. It revolutionised the process of buying, turning it into a cultural activity rather than a response to the demands of subsistence.

### 1.4 The Selling Strategy:

By stressing stock turn over and low prices, the store increased the sales volume. <sup>9</sup> The retailers growing interest in developing diverse and new lines

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<sup>5</sup> Pepponis, John, The Elusive Architecture of Shop Displays and Interiors. Unpublished Paper, UAS, Bartlett School of Architecture and Planning, March 1986.

<sup>6</sup> Maccormell, Op.cit. p.5.

<sup>7</sup> Miller, Michael, The Ben Marchet Bourgeois Culture and the Department Store 1869-1928. London, George Alan and Unwin, 1981.

<sup>8</sup> Mason, Roger, Carnivalesque Consumption. 1981. p.122, in Maccormell, Supra.

<sup>9</sup> Miller, Supra. p.167.

of products in which the collective management of the store would find the way to compensate for any seasonal slumps in departments. Goods were sold in departments which operated as semi-independent units with their own manager and sales personnel. This meant that their responsibility lay in their issuing adequate marketing procedures which would compete and attract customers from neighbouring departments. The location of different merchandise categories was studied in a way to bring a mutual advantage as the retailer recognised that the sale of one type of items may tempt the customers to buy another. This led to the identification of 'impulse' items such as gloves, scarves, etc... These were finally located close to entrances where as other 'demand' items such as furniture was located in the back or upstairs.<sup>10</sup>

Beddington, however, identifies a different<sup>o</sup> rule of classification which accounts for two other main shopping activities technically known as 'convenience' and 'comparison' shopping. Convenience goods comprise daily or recurring shopping needs, food purchases and some weekly and less frequent items such as magazines. Comparison goods, also known as consumer durables, are those among which customers compare quality, variety, design and prices before making a choice of purchase which should last a considerable time.<sup>11</sup>

In that respect the application of the new merchandising policies differentiated the retail strategy in the department store from that of traditional shops. It concentrated on ways by which to draw customers deeper to the building so as to make them pass by different display counters. Since entry was free, customers were encouraged to enter and browse. The venture of customers deeper into the store would subject them to looking at new products. This informative contact, would in the long run create a "demand" purchase on different visits. For this purpose, the retailer focused on making displays a matter of seduction and showmanship, thus creating a consumption drive which was the key to the success of the department store.

However, as competition became harder, non-product services were

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<sup>10</sup> Clausen, *Op.cit.* p.21.

<sup>11</sup> Beddington, Nadine, *Design for Shopping Centres*. Cambridge University Press, 1982. p.6.

introduced, some of which were completely free. These ranged from concerts to lectures, library facilities, tea rooms and restaurants, music rooms, meeting rooms for ladies, etc.. Selfridge's own description was significant of his whole outlook upon the function of a department store, as a social centre not a shop. Its slogan was later to become "Why not spend the day at Selfridges?".<sup>12</sup>

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<sup>12</sup> Adburgham, Alison, *Shops and Shopping 1880-1914* George Allen and Unwin, London, 1981. p.276.

## Chapter Two

### Introduction to The Space Syntax Approach and Methodology:

This chapter briefly introduces the syntactic approach of investigating architectural objects. Part 2.1 defines the aim of "Space Syntax" in the context of the present architectural discourse. Part 2.2 defines the elements of the spatial description which provide the basis for analysis, carried out by a numerical measurement of spatial properties.

#### 2.1 Definition:

The syntactic approach initiated by Professor Bill Hillier at the Bartlett School of Architecture and Planning in 1975, addressed itself in the first instance to the architectural objects i.e. buildings, towns. Its aim was to develop methods of description of spatial representation precise enough to capture the similarities and differences of architectural objects, to find out whether and in what ways they are the products of laws internal to such objects i.e. laws of construction pertaining to the object, or the result of external determination i.e. laws from society to object.<sup>13</sup> Another issue tackled by the syntactic approach was that of architectural determinism i.e. how architectural form may have an effect on society.<sup>14</sup>

The syntactic approach has been critical of the prevailing traditions in architectural discourse. One distinctive trend has been concerned with the changing forms and types of buildings and limited itself to the discussion of styles and types.<sup>15</sup> Another trend was represented by scientific research in architecture which avoided the problem of form and occupied itself almost

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<sup>13</sup> Hillier, Bill. "The Morphology of Urban Space, The Evolution of a Syntactic Approach". Published in French in *Architecture & Behaviour*, Vol. 3, No. 3, pp. 205-216, 1987. Under the title "La Morphologie De L'espace Urbain: L'évolution De L'approche Syntaxique".

<sup>14</sup> Hillier, Bill. "The Architecture of the Urban Object". *Elastica* Special issue on space syntax research, fall 1989.

<sup>15</sup> Rowe, Colin, *The Mathematics of the Ideal Villa and other Essays*. MIT Press, 1976 and Frankl, Paul, *Principles of Architectural History: the four phases of architectural style, 1420-1900*. MIT Press, 1973, translated from the German edition of 1914.

exclusively with function <sup>16</sup> The syntactic approach argues that a theory of function can be built through the analysis of spatial forms in buildings which can only be achieved through a theory of description of spatial form. The latter can then answer precisely two questions:

- What is it about what people do (function) That leaves its mark on building form? Defined as law of type two. <sup>17</sup>

- What is it about building form that leaves its mark on what people do? Defined as law of type three. <sup>18</sup>

The organisation of space for social purposes in a building is in important ways what makes it unique. The aim of a theory of description is to reveal the social aspect of space. By describing buildings spatially, social products are unfolded. The descriptive theory becomes a theory of space which revolves around three levels: <sup>19</sup>

- The identification and representation of spatial elements;
- The categorisation and analysis of spatial configurations;
- The modelling of social meaning behind functional dynamics of the building

## 22 Methodological Tools:

A number of methodological tools have been developed for the description of space. The most elementary identifies the boundaries in buildings as continuous spaces perforated by one or more entrances. **Figure 2.1 a** is a simple plan and **Figure 2.1 b** represents its boundary structure as a graph in which circles represent bounded spaces and lines relations of direct permeability. In this study the boundary analysis will be used for analysing the different departments of the store. <sup>20</sup>

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<sup>16</sup> Nuffield Foundation Study, **The design of research Laboratories**. 1961. The research sets recommendations like efficiency in metric space utilisation disregarding the relation of spatial configuration on interactions and activities occurring in the laboratories.

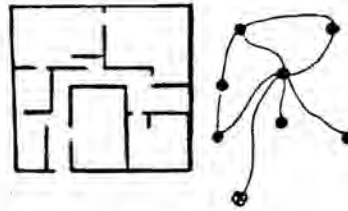
<sup>17</sup> Hillier, B.; Hanson, J.; Peponis, J., "What Do We Mean By Building Function". In Powell, J. (Ed.), **Designing for Building Utilisation**. Spon, London 1984, pp.61-72.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

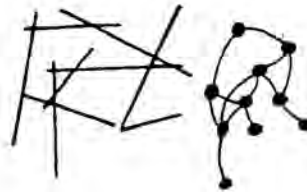
<sup>20</sup> The boundaries of the departments are supplied by the management of the store. They were converted to boundary maps.





**Figures 2.1 a & b**

Another descriptive tool is the axial analysis. This identifies the longest and fewest straight lines that cover all the boundary spaces in the plan. **Figure 22** shows the circulation spaces of the same example analysed axially.<sup>21</sup>



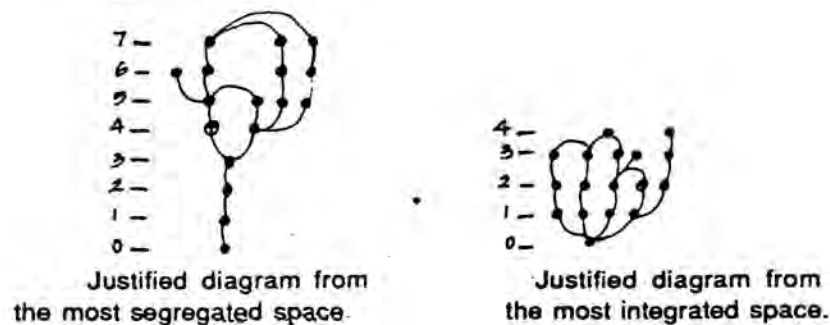
**Figure 22**

These representations and figures give useful data on the general characteristics of plans. Greater precision in analysis is achieved through numerical analysis of relations among spaces. The integration value of a space coded as  $(1/x \text{ RRA})$  expresses how many spaces in distant a particular space is from every other space in the system analysed. These values are different from one space to another in the spatial system. The justified graph method of representation illustrates the difference: In it the spatial system is seen from a chosen space placed at the base of the graph, as all spaces of depth 1 (one space away) are aligned horizontally immediately above it. Then all spaces at depth 2 from that point are put horizontally above those at depth 1 and so on, until all levels of depth from that point are accounted for. Depth values determine how far removed each space in the complex is from the chosen space i.e. whether it is "deep" or "shallow". However, this depends on the choice of the carrier for

<sup>21</sup> Hillier, B., Hanson, J., Peponis, J., "What Do We Mean By Building Function". Op.cit.

the justified graph.

This relationship of depth is generalised through the notion of relative asymmetry. Spaces are deep from other spaces to reach them. Relative asymmetry is calculated by the formula  $RA=2(MD-1)/K-2$ , where MD is the mean depth of the space i.e. the number of spaces away of all other spaces from the selected space; k is the total number of spaces in the system. A correlating factor is applied to eliminate the empirical effects of size, so that different systems may be compared. This measure is called RRA (real relative asymmetry) . **Figures 23 a & b** show the justified permeability graphs of the same example (for the boundary convention) from two selected spaces.



**Figures 23a-b**

Integration Radius Three ( $1/x$  RRA(3)) is another local integration. It accounts for spaces only three steps away from the space into consideration. Its corresponding integration core picks the "local" integration in a spatial system.

Connectivity, as its name indicates, is the index which accounts for the number of convex spaces or axial lines linked to the space or line into consideration. Thus highly connected spaces are represented by high connectivity values and vice versa.

Intelligibility of a spatial system is measured by finding out the coefficient of

determination ( $R^2$ ) between integration and connectivity values of spaces. The degree of correlation between connectivity and integration in a system expresses the degree to which the local property of space is a good guide to the global position of spaces in the building as a whole.<sup>22</sup>

In the following chapter the defined syntactic descriptive tools and measures are used as a basis of a spatial analysis of the department store of Selfridges.

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<sup>22</sup> Hillier, Bill, "The Architecture of the Urban Object". *Op.cit.*

## Chapter Three

This chapter is about the role of space in the shopping activity (laws of type 3). Part 3.1 will look at the building as a domain of knowledge. Part 3.2 briefly describes the contents of each floor as they are during the period of the study with the help of plans. In part 3.3, the boundary analysis is carried out for both the global system and for individual floors. In part 3.4 the justified permeability graph representation is applied for the boundary analysis by department. Part 3.5 will discuss the intelligibility of the boundary analysis. In part 3.6 the axial analysis is carried out for both the whole building and for individual floors. Part 3.7 will discuss the axial intelligibility.

### 3.1 The Building as a Domain of Knowledge:

A building is a domain of knowledge in the sense that it is a certain spatial ordering of categories, and a domain of control, in the sense that it is a certain ordering of boundaries. Sociologically speaking a building relates this dualism to the universe of inhabitants and visitors.<sup>23</sup> Inhabitants are represented by sales assistants present in all departments of the store while the visitors are the customers who experience the store. The interface between inhabitants and visitors has been widely tackled; how doctors interface with patients in hospital, teachers and pupils in a school, guards and prisoners in a prison and salesmen/women and customers in shops.<sup>24</sup> The latter can be called "search interface"<sup>25</sup> as it intrinsically occurs between customers and objects although in some cases mediated through sales assistants, while in others it can be direct.

Although the sales assistants present in all departments can be the mediators of knowledge of display contents, yet they do not necessarily constitute the "inhabitants" who took part in the development of the retail strategies of the store. Those have disappeared instrumentally, as they take no part in the direct

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<sup>23</sup> Hillier, Bill; Hanson, Julienne. *The Social Logic of Space*. CUP, 1984. Ch. 4, p.146.

<sup>24</sup> Ibid.

<sup>25</sup> The term "search interface" was used by Fepponis, Op.cit. Also Fepponis, John, *The Elements Culture of Shop Displays and Interiors*. UAS, Bartlett School of Architecture and Planning, 1986.

interface with customers, as they occupy spaces inaccessible to customers.<sup>26</sup> Hence the spatial analysis is concerned only with the spaces accessible to customers in which the search interface takes place.

### **3.2 General Description of Selfridges:**

The department store of Selfridges is located in Oxford Street, in the centre of London (**figure 3.1**). It was built and owned by Gordon Selfridge, an American business man. Nowadays the store is accessed by fifteen entrances on four different streets; six on Oxford Street, four on Orchard Street, two on Duke Street, two on Edward Mews and one located at the corner of Duke Street and Edward Mews. All entrances lead to the ground floor directly and from there to all the other floors except the last entrance, (**Figure 3.2** & space 66 in **Figure 3.8**) which contains two sets of escalators, giving access from the street to the basement and to the first floor directly.

The interior was designed to create large open spaces with the structure system and keeping the walls between spaces as minimal as possible. These large spaces rarely contain a single department (like the Food Hall department); for in most cases a number of departments are grouped in a single space (like the Stationery, Confectionery, Greeting cards, Newspapers & Periodicals, Fountain Pens, Clocks, Sun Glasses, Optician and Wigs). This spatial property translates into characteristic visibility. The large spaces are connected to each other through several access points.

The contents of departments and their locations inside the store are listed on a board at entrance 74 (**Figures 3.2** & **3.8**). Pamphlets written in different languages are located at entrance 75 (close to 74), which are almost directly followed by the Information Desk. Except for the boards at some central escalators in the different floors, these are the only places where customers can locate their destination departments. At these specific points, customers should be able to plan their journey inside the store.

**Figures 3.2-3.7** are the store plans. The ground floor (**figures 3.2** & **3.8**)

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<sup>26</sup> This refers to the management spaces on the second and fourth floors as well as the stock and service rooms distributed among departments on all floors.

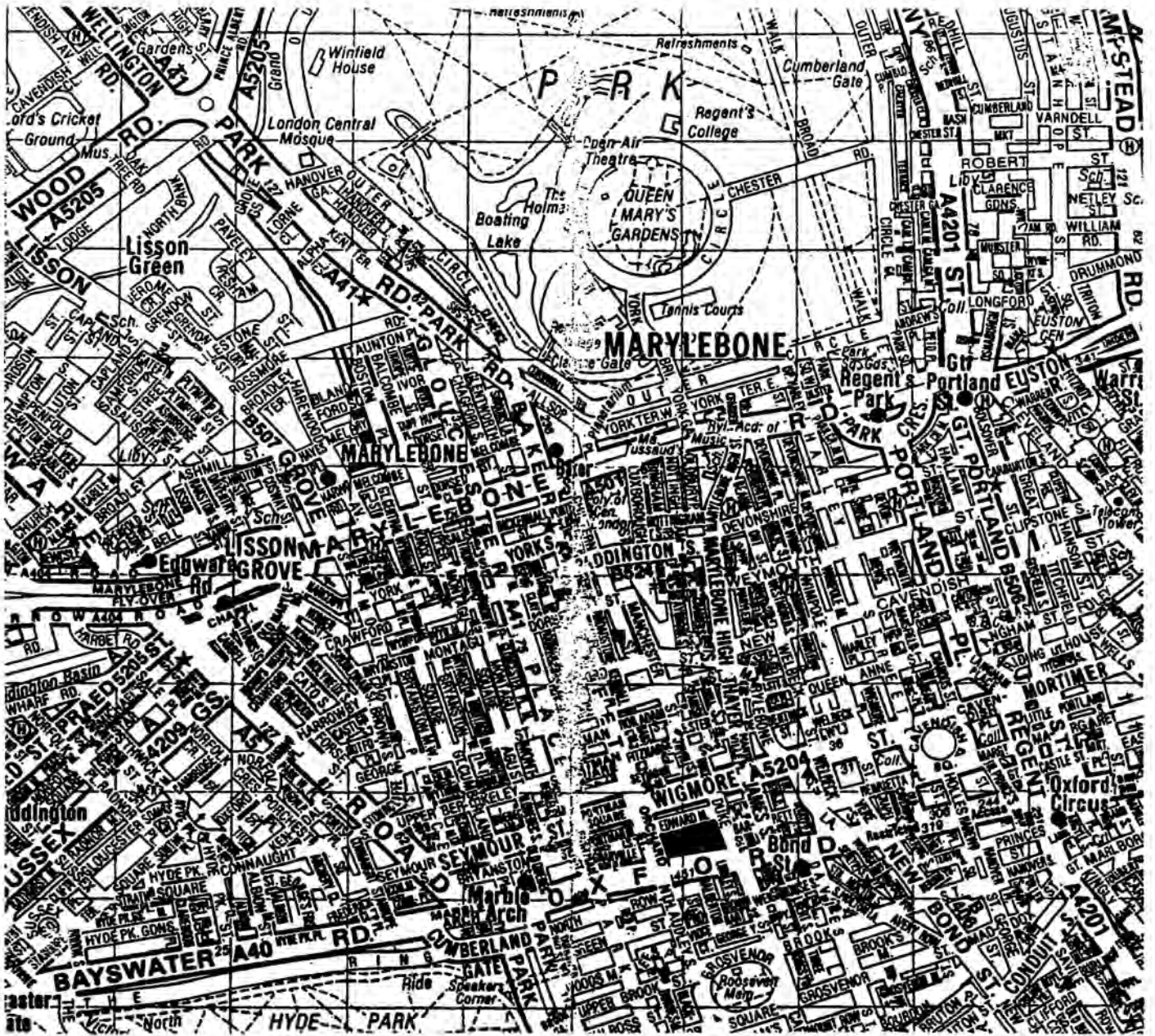


Figure 3.1

NOTE: THE READING STRUCTURE IS NOT FULLY ACCESSIBLE. ALL INDICATED AREAS BEING VISITED BY THE GUARDIAN LINE.

Ross	
Laird	
Heights	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.	
101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150.	

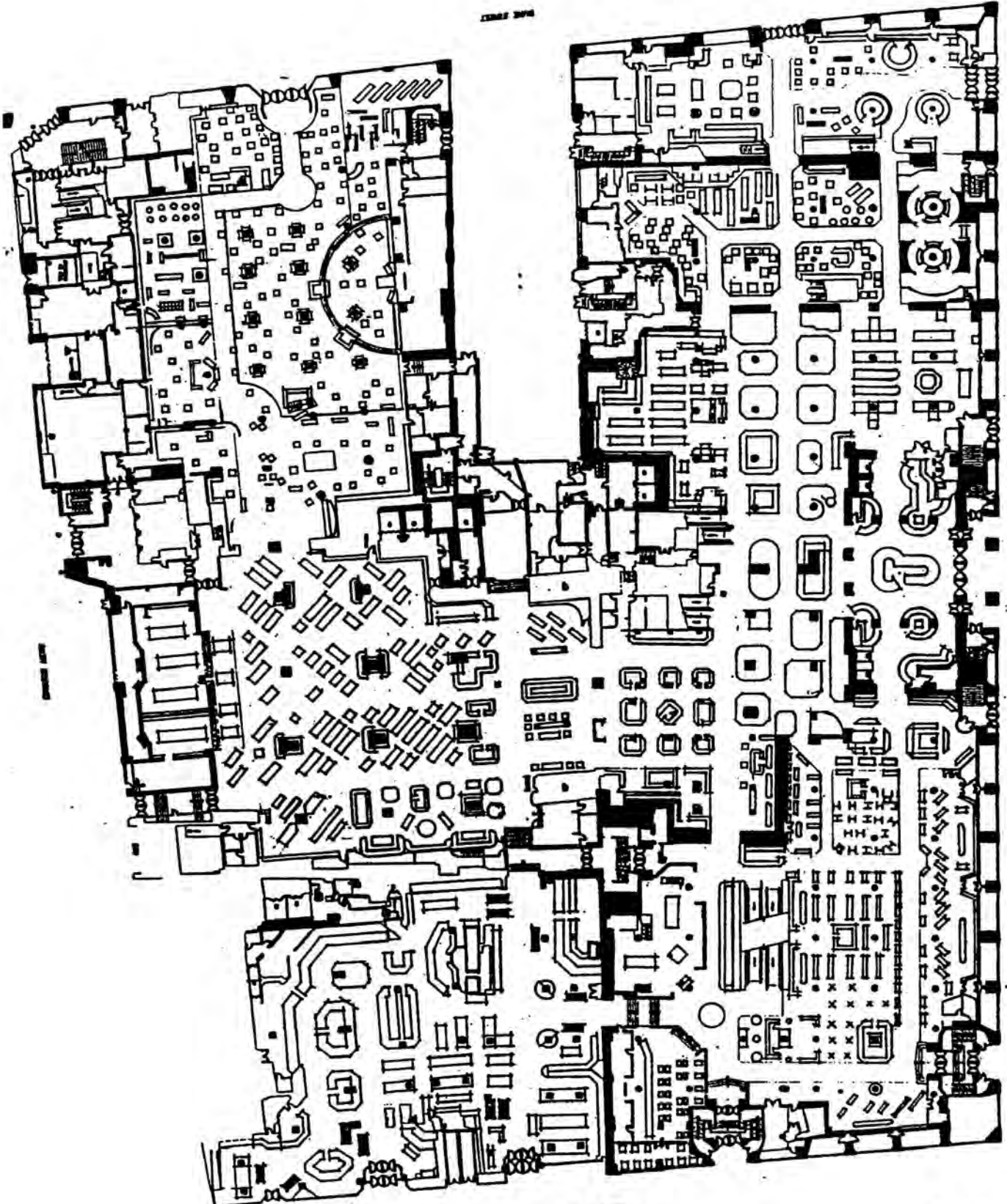
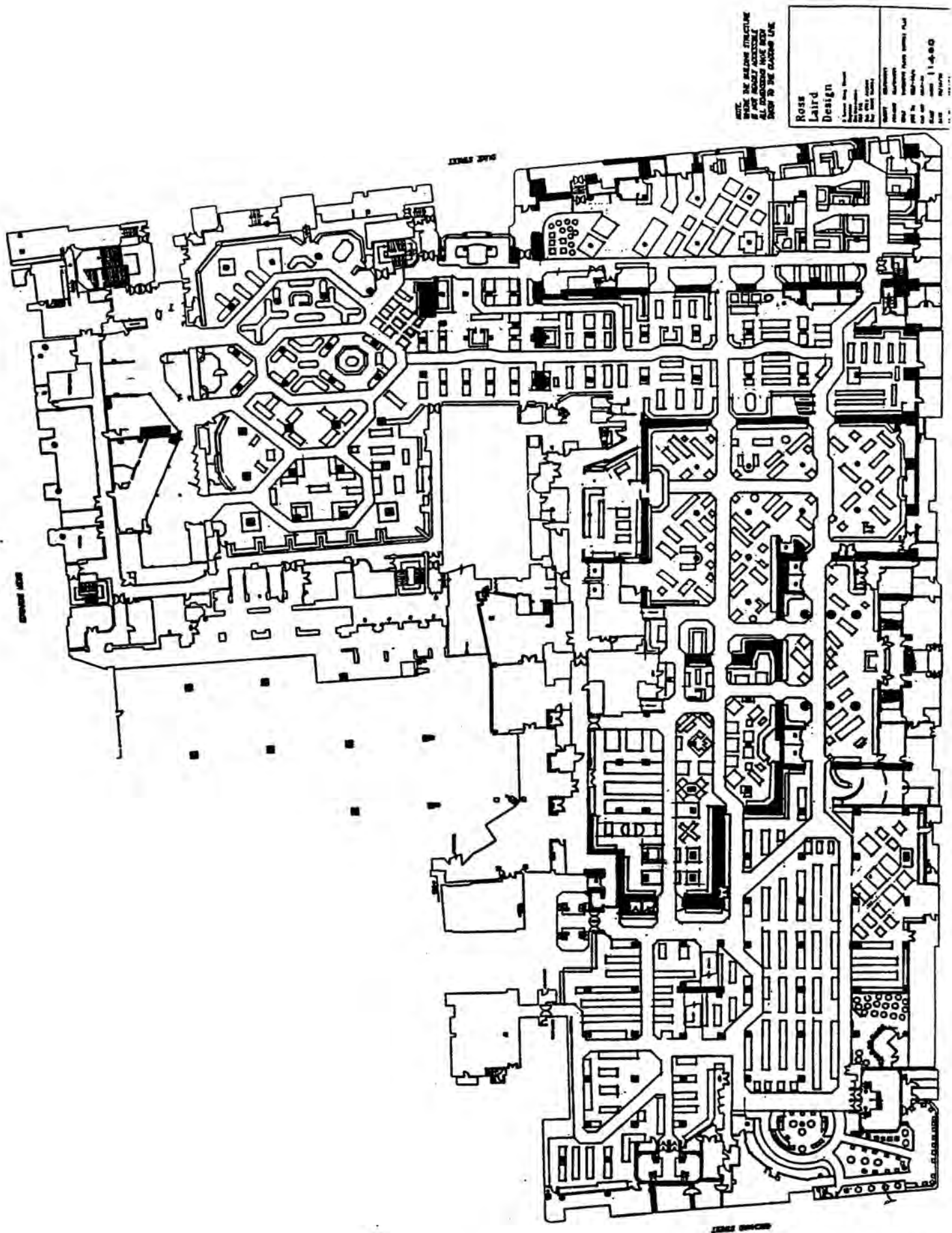


Figure 32



NOTE: THE BELOW STRUCTURE  
 SHALL BE CONSIDERED AS A  
 ALL DIMENSIONS ARE IN  
 FEET TO THE CLADDING LINE

Ross Laird Design	
1. Project Name	2. Project No.
3. Date	4. Scale
5. Drawing No.	6. Drawing Title
7. Drawing Date	8. Drawing Size
9. Drawing Sheet No.	10. Drawing Sheet Total
11. Drawing Sheet Size	12. Drawing Sheet Total
13. Drawing Sheet No.	14. Drawing Sheet Total
15. Drawing Sheet Size	16. Drawing Sheet Total
17. Drawing Sheet No.	18. Drawing Sheet Total
19. Drawing Sheet Size	20. Drawing Sheet Total

Figure 3.3



NOTE: THE BUILDING STRUCTURE  
 SHOWN IS AN APPROXIMATE  
 REPRESENTATION OF THE BUILDING AS  
 SHOWN IN THE EXISTING PLAN.

Ross Laird Design	
Project No.	1000
Date	10/1/80
Scale	1/4" = 1'-0"
Sheet No.	1000-1
Sheet Title	EXISTING PLAN
Author	J. Ross
Checker	J. Ross
Designer	J. Ross
Engineer	J. Ross
Architect	J. Ross
Interior Designer	J. Ross
Structural Engineer	J. Ross
Mechanical Engineer	J. Ross
Electrical Engineer	J. Ross
Plumbing Engineer	J. Ross
Fire Protection Engineer	J. Ross
Transportation Engineer	J. Ross
Other	J. Ross

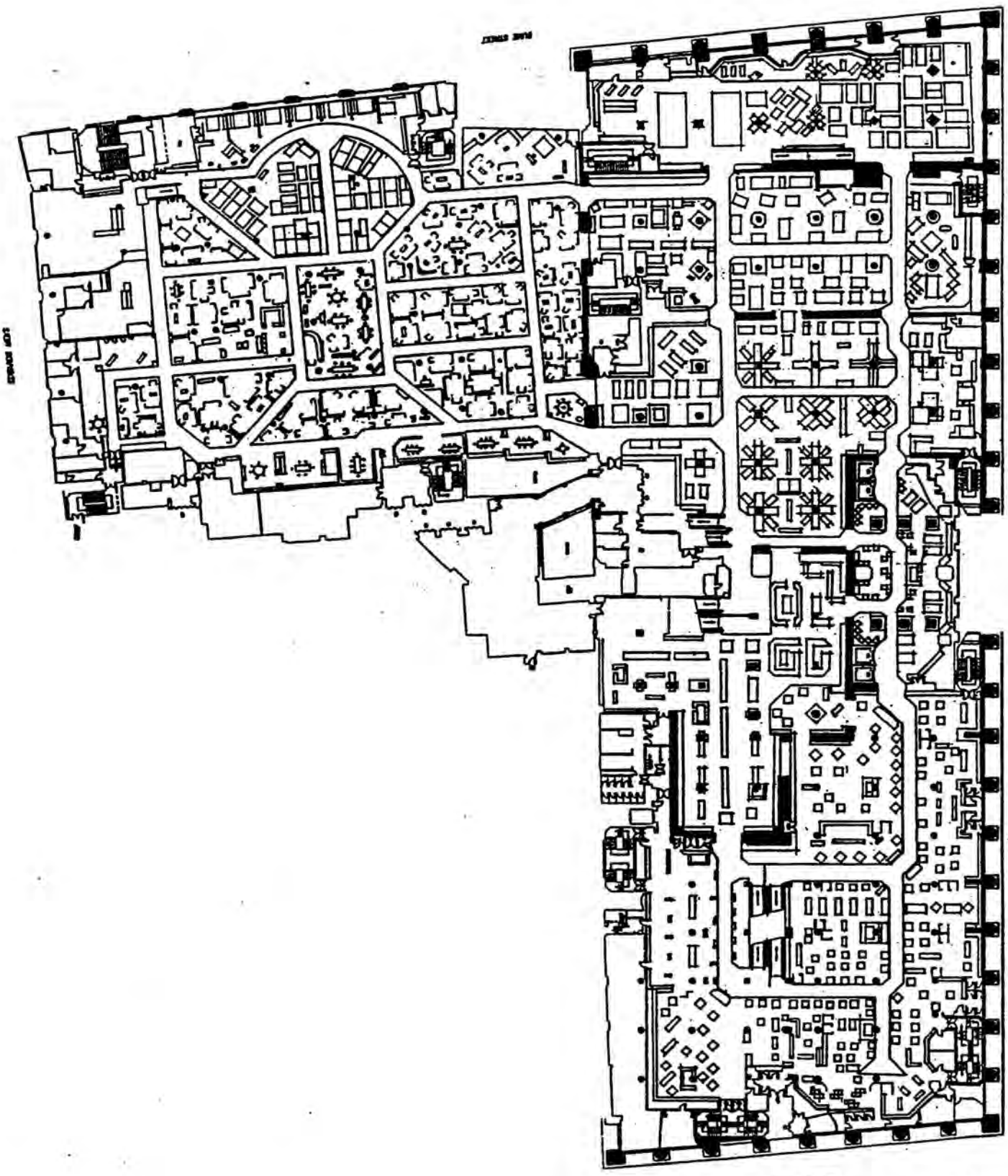


Figure 3.4

NOTE: MAKE THE BUILDING STRUCTURE  
 IF NOT NEARLY ACCESSIBLE  
 ALL BUILDINGS MUST BE  
 SHOWN IN THE CLASSING USE

Rosen Laird Design	
1. Project No.	2. Date
3. Drawing No.	4. Scale
5. Project Name	6. Project Location
7. Project Description	8. Project Status
9. Project Manager	10. Project Engineer
11. Project Architect	12. Project Designer
13. Project Draftsman	14. Project Checker
15. Project Approver	16. Project Date

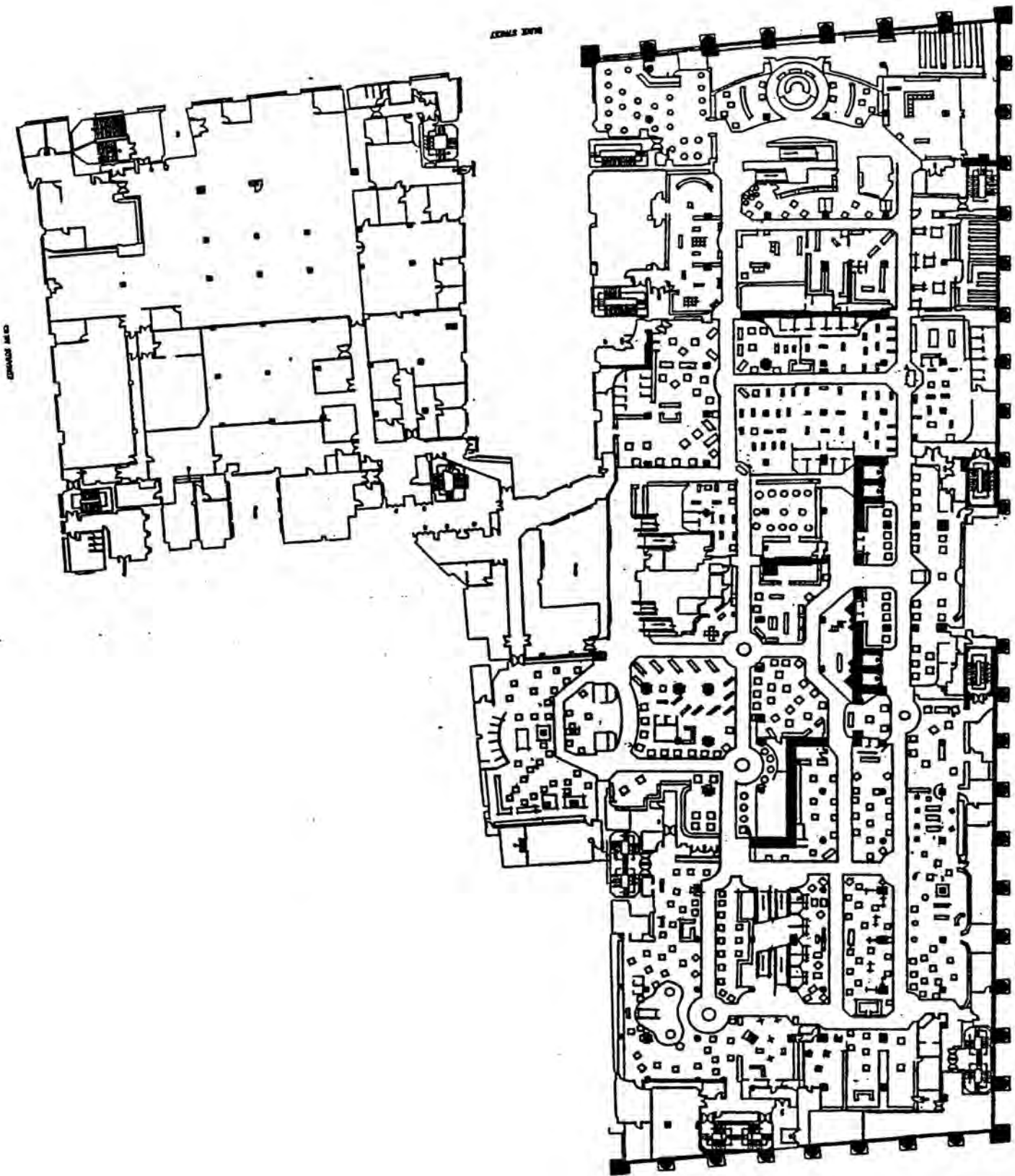
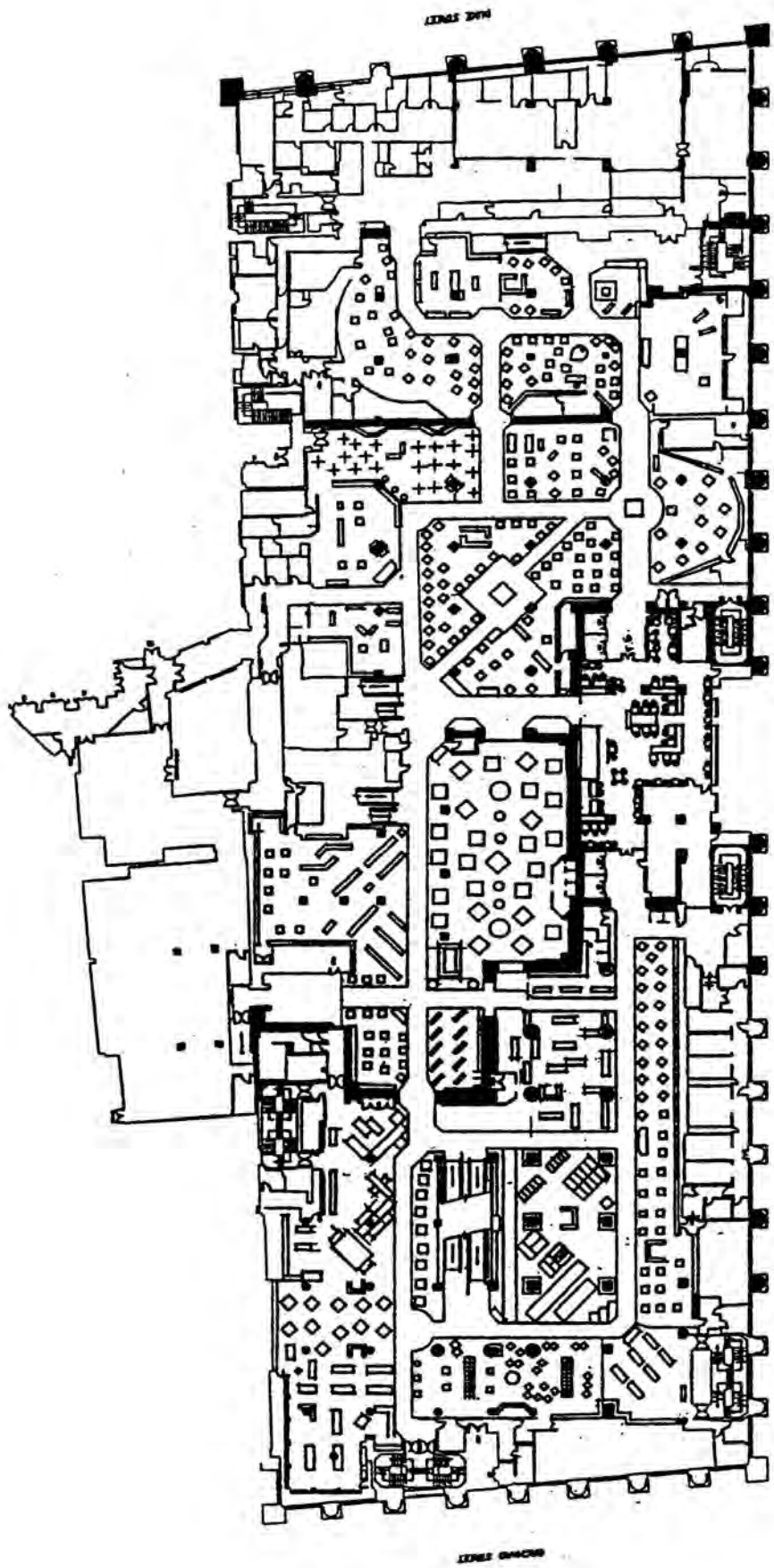


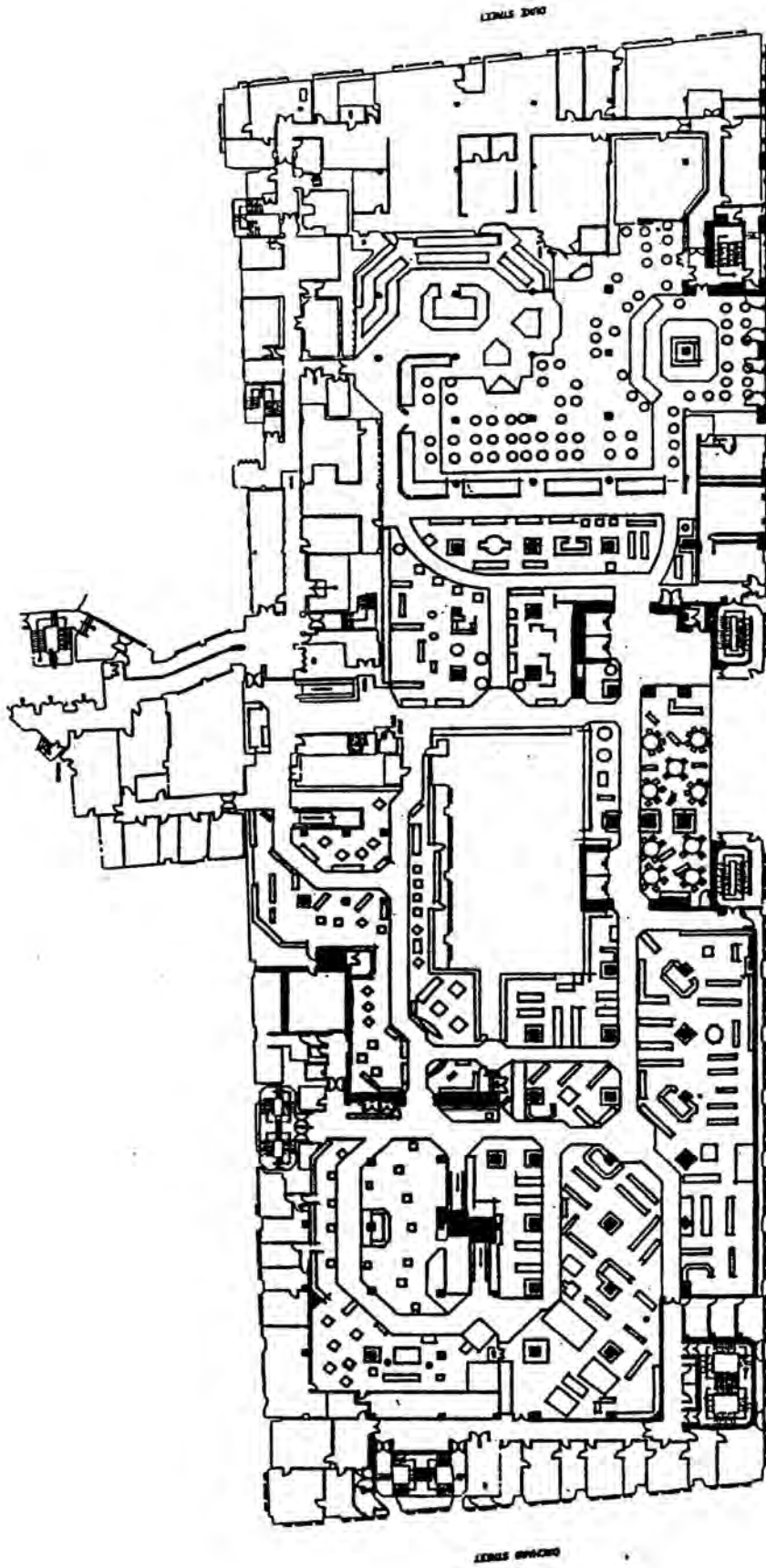
Figure 3.5



NOTE: THE PRELIMINARY STRUCTURE  
 IS NOT TO BE CONSIDERED  
 FINAL. ALL DIMENSIONS HAVE BEEN  
 TAKEN TO THE CLADDING LINE.

Ross Laird Design	
1. Ross Laird Design 2. Ross Laird Design 3. Ross Laird Design 4. Ross Laird Design	DRAWN: [unclear] CHECKED: [unclear] DATE: [unclear] SCALE: 1:400 SHEET NO. [unclear]

Figure 3.6

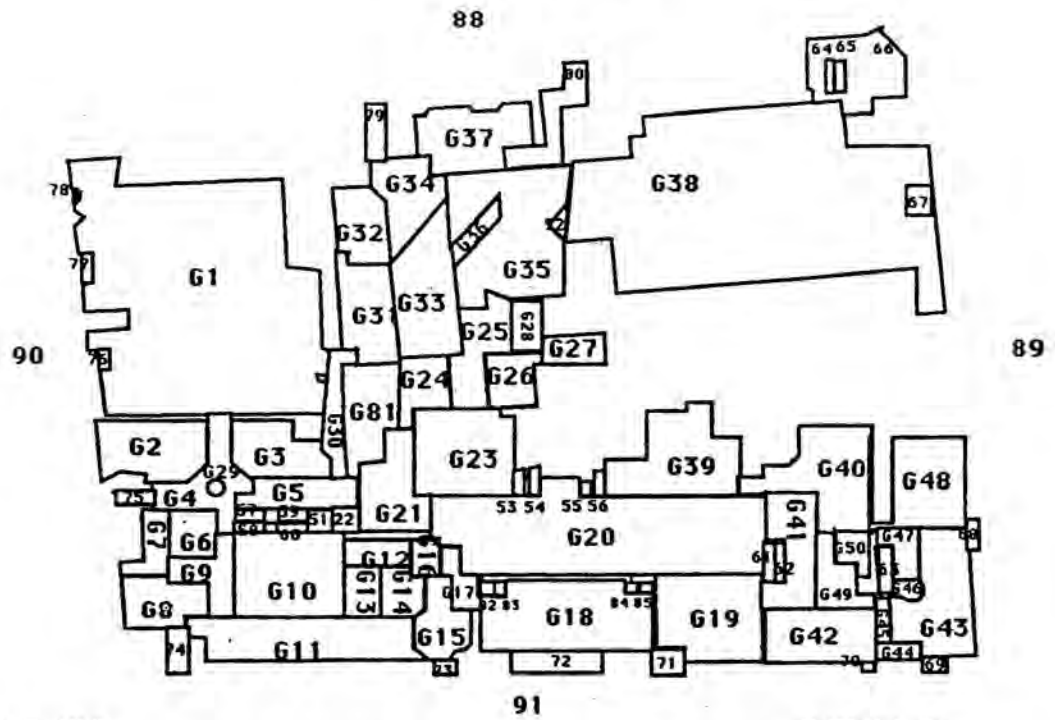


NOTE: BEFORE THE BUILDING STRUCTURE IS NOT ROCKET ACCESSIBLE. ALL BUILDINGS MUST BE READY TO BE CHANGED ETC.

Ross Laird Design	
Architects 100 N. W. 10th St. Miami, FL 33136	1:400 1/2" = 1'-0"

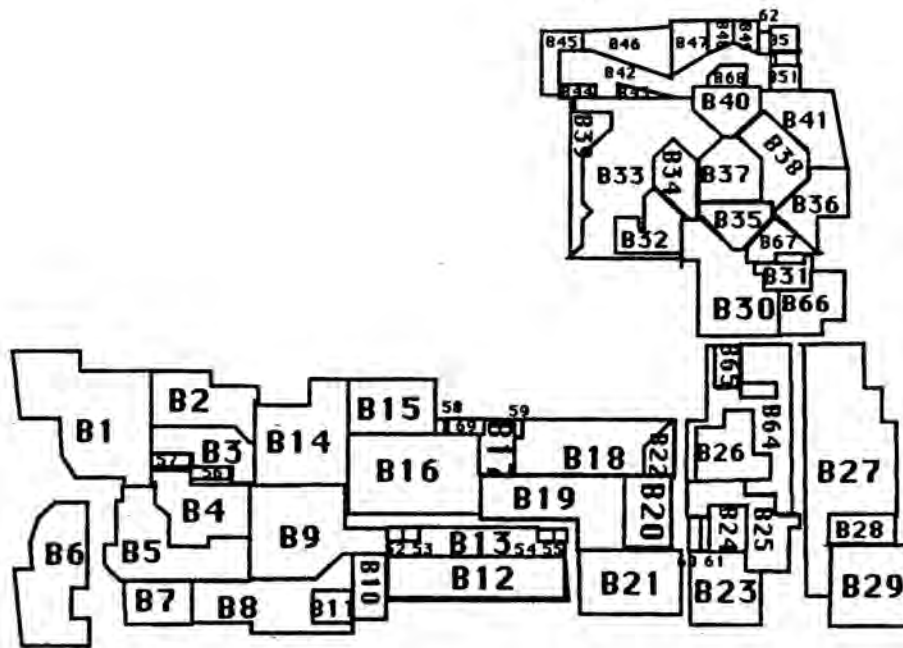
Figure 3.7

# Ground Floor



- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 Food Hall</li> <li>2 598 Brass Rail</li> <li>3 414 Wines &amp; Spirits</li> <li>4 Circulation Space</li> <li>5 411 &amp; 412 Tobaccos</li> <li>6 721 Dunhill</li> <li>7 112 Scarves</li> <li>8 111 Men's Accessories</li> <li>9 110 Men's Ties</li> <li>10 105 Men's Shirts</li> <li>11 103 Men's Knitwear &amp; Beschwear</li> <li>12 101 Men's Socks</li> <li>13 102 Men's Underwear</li> <li>14 107 Pyjamas</li> <li>15 476 Men's Fragrance</li> <li>16 108 Hom</li> <li>17 480 Aramis</li> <li>18 472 Perfumery</li> <li>19 121 Hosiery</li> <li>20 Cosmetics</li> <li>21 698 &amp; 699 Mappin &amp; Webb</li> <li>22 104 Y.S.L. Shirts</li> <li>23 Costume Jewellery</li> <li>24 Sun Glasses</li> <li>25 381 Pens</li> <li>26 718 Wigs</li> <li>27 710 &amp; 711 Optician</li> <li>28 242 Clocks</li> <li>29 Store Information</li> <li>30 Circulation Space</li> <li>31 409 Confectionery</li> <li>32 687 &amp; 688 Holland &amp; Barrett</li> <li>33 371 Stationery</li> <li>34 389 Newspapers &amp; Periodicals</li> <li>35 380 Greeting Cards</li> <li>36 250 Gifts Of Britain</li> <li>37 649 Our Price</li> <li>38 Miss Selfridge</li> <li>39 469 Drugs &amp; Toiletries</li> <li>40 218 Bras &amp; Girdles &amp; 212 Daywear Lingerie</li> <li>41 130 Scarves &amp; Hanks</li> <li>42 123 Gucci</li> <li>43 124 Handbags</li> <li>44 516 Fendi</li> <li>45 129 Y.S.L.</li> <li>46 126 Fancy Leathers</li> </ul> | <ul style="list-style-type: none"> <li>47 139 Umbrellas</li> <li>48 695 Cameras</li> <li>49 136 Belts</li> <li>50 134 Gloves</li> <li>51 Circulation Space</li> <li>52 371 Posters</li> <li>53 Escalator from First Floor</li> <li>54 Escalator from Basement</li> <li>55 Escalator to Basement</li> <li>56 Escalator to First Floor</li> <li>57 Escalator to First Floor</li> <li>58 Escalator from Basement</li> <li>59 Escalator to Basement</li> <li>60 Escalator from First Floor</li> <li>61 Escalator from Basement</li> <li>62 Escalator to Basement</li> <li>63 Escalator to First Floor</li> <li>64 Escalator to Basement</li> <li>65 Escalator to First Floor</li> <li>66 Entrance</li> <li>67 Entrance to Miss Selfridge</li> <li>68 Entrance to 48 &amp; 43</li> <li>69 Entrance to 48 &amp; 43</li> <li>70 Entrance to Gucci</li> <li>71 Entrance to 19</li> <li>72 Entrance to 18</li> <li>73 Entrance to 15</li> <li>74 Entrance to 8</li> <li>75 Entrance to 4</li> <li>76 Entrance to 1</li> <li>77 Entrance to 1</li> <li>78 Entrance to 1</li> <li>79 Entrance to 34</li> <li>80 Entrance to 35</li> <li>81 713 Leonidas Chocolates</li> <li>82 Lift 1</li> <li>83 Lift 2</li> <li>84 Lift 3</li> <li>85 Lift 4</li> <li>86 Basement Floor</li> <li>87 First Floor</li> <li>88 Edward Mews</li> <li>89 Duke Street</li> <li>90 Orchard Street</li> <li>91 Oxford Street</li> <li>92 Perfumery</li> </ul> |
|--|--|

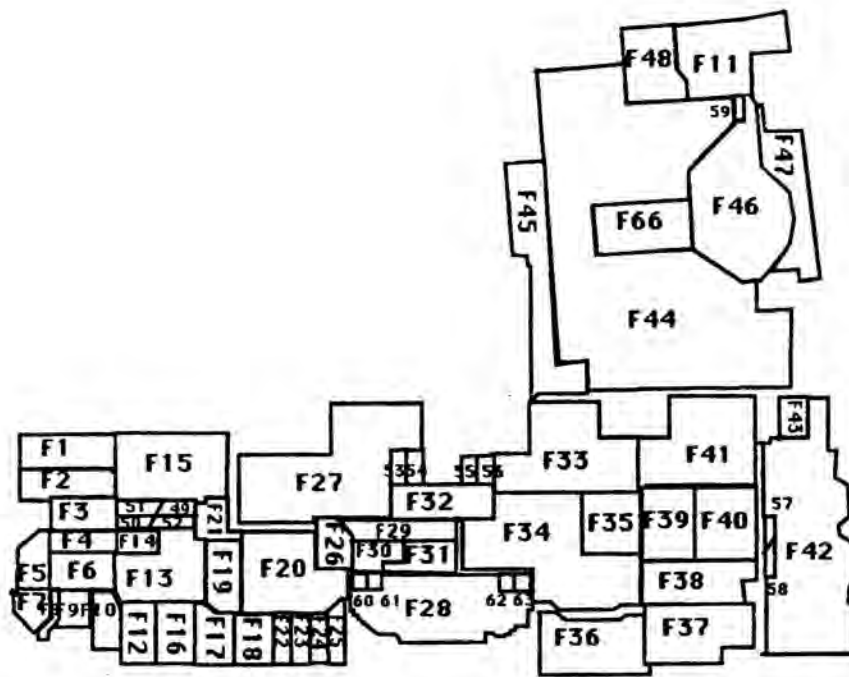
**Figure 3.8**



Basement Floor

- |     |   |     |                               |
|-----|---|-----|-------------------------------|
| B1  | 322 Bathroom Fittings                   | B35 | 400 Portable Audio            |
| B2  | 319 Paint & Wallpaper                   | B36 | 393 Video                     |
| B3  | 322 D.I.Y.                              | B37 | 401 Accessories               |
| B4  | 305 Pets                                | B38 | 394 Hi-Fi                     |
| B5  | 306 Cleaning Shop                       | B39 | 324 Lamp Shades               |
| B6  | 596 Carvery Restaurant                  | B40 | 402 Cabinets                  |
| B7  | 675 Ice Cream Parlour                   | B41 | 392 Televisions               |
| B8  | 301 Gardening                           | B42 | Corridor                      |
| B9  | 321 & 328 Tools                         | B43 | Public Telephones             |
| B10 | 303 Bridal Registry                     | B44 | 715 K. Prowse                 |
| B11 | 302 Lawn Mowers                         | B45 | 665 Shoe Repairs              |
| B12 | 289 Imported Glassware                  | B46 | 616 Alliance & Leicester      |
| B13 | 298 Glassware                           | B47 | 614 Thomas Cook               |
| B14 | 413 Luxury Leather                      | B48 | 663 Watch Repairs             |
| B15 | 408 Samsonite                           | B49 | 662 Sketchley                 |
| B16 | 335 Luggage                             | B50 | 498 Radio & TV Repair         |
| B17 | 295 Villeroy & Boch                     | B51 | 599 Arcade Cafe               |
| B18 | 291 China + 296 Earthen<br>& Oven Ware  | B52 | Lift 1                        |
| B19 | 547 Waterford/ Wedgwood China           | B53 | Lift 2                        |
| B20 | 549 Worcester Royal China & 548 Dir Exp | B54 | Lift 3                        |
| B21 | 716 Doulton Tableware & 723 Dir Exp     | B55 | Lift 4                        |
| B22 | 709 Denby                               | B56 | Escalator to Ground Floor     |
| B23 | 310 Silverware                          | B57 | Escalator from Ground Floor   |
| B24 | 308 Kitchen Gadgets                     | B58 | Escalator to Ground Floor     |
| B25 | 294 Kitchen China & Glass               | B59 | Escalator from Ground Floor   |
| B26 | 312 Small Electric Appliances           | B60 | Escalator to Ground Floor     |
| B27 | 313 Major Appliances                    | B61 | Escalator from Ground Floor   |
| B28 | 346 Kitchen Furniture                   | B62 | Escalator from Ground Floor   |
| B29 | 243 & 244 Fitted Kitchens               | B63 | Ground Floor                  |
| B30 | 300 Hardware                            | B64 | 308 Kitchen Gadgets           |
| B31 | 522 Shavers                             | B65 | 312 Small Electric Appliances |
| B32 | 320 Lamps & Accessories                 | B66 | 312 Small Electric Appliances |
| B33 | 325 Light Fittings                      | B67 | 312 Small Electric Appliances |
| B34 | 526 Focus Crystal                       | B68 | 614 Thomas Cook               |
|     |   | B69 | 538 Gift Wrappers             |

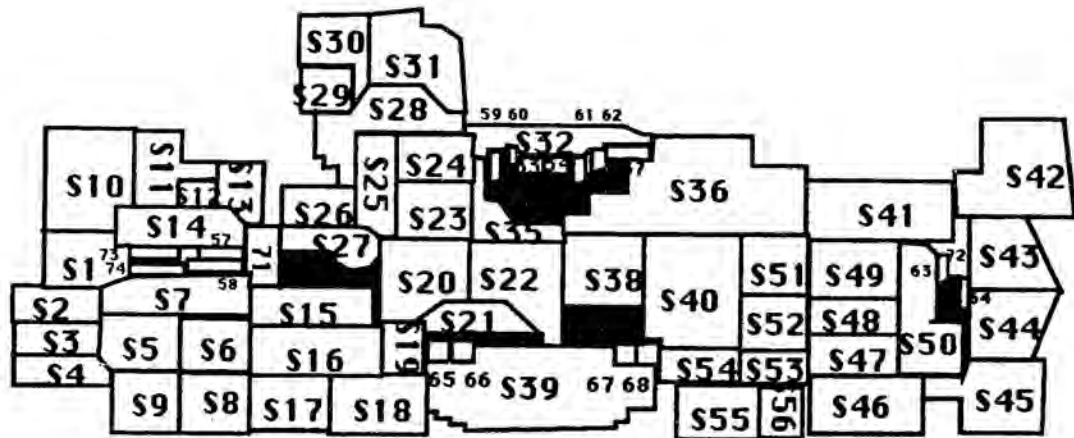
Figure 3.9



First Floor

- |     |  |     |                              |
|-----|--|-----|------------------------------|
| F1  | 425 Men's Overcoats                    | F34 | 265 Bed Linens               |
| F2  | 426 Men's Raincoats                    | F35 | 269 Quilts                   |
| F3  | 427 Burberry                           | F36 | 265 Dorma Co-ordinates       |
| F4  | 654 Aquascutum                         | F37 | 274 Net Curtains             |
| F5  | 646 Austin Reed                        | F38 | 277 Soft Furnishing Workroom |
| F6  | 668 British Tailor                     | F39 | 270 Furnishing Fabrics       |
| F7  | 645 Chester Barrie                     | F40 | 272 Ready Made Curtains      |
| F8  | 658 Men's Tailoring                    | F41 | 275 Tracks & Blinds          |
| F9  | 648 Gieves & Hawkes                    | F42 | 284 & 281 & 330 Carpets      |
| F10 | 644 Jaeger Man                         | F43 | 288 Vinyl                    |
| F11 | Credit & Export Bureau                 | F44 | 341 Upholstered Furniture    |
| F12 | 686 Cristian Dior                      | F45 | 336 Dining / Repro' Furn.    |
| F13 | 422 Men's Suits+430Jackets+432Trousers | F46 | 331 Beds                     |
| F14 | 418 Daks                               | F47 | 335 Bedroom Furniture        |
| F15 | 658 Men's Shoes                        | F48 | Midland Bank                 |
| F16 | 115 Y.S.L.                             | F49 | Escalator From Ground Floor  |
| F17 | 421 Sidi Suits                         | F50 | Escalator To Ground Floor    |
| F18 | 416 Paul Smith                         | F51 | Escalator From Second Floor  |
| F19 | 416 Men's Designer Room                | F52 | Escalator To Second Floor    |
| F20 | 436 Men's Leisure Clothing             | F53 | Escalator From Second Floor  |
| F21 | 114 Men's Hats                         | F54 | Escalator To Ground Floor    |
| F22 | 423 Gian Franco Ferre                  | F55 | Escalator From Ground Floor  |
| F23 | 417 Cerruti                            | F56 | Escalator To Second Floor    |
| F24 | 437 Valentino                          | F57 | Escalator From Ground Floor  |
| F25 | 437 Feraud                             | F58 | Escalator To Second Floor    |
| F26 | 436 Barbour                            | F59 | Escalator From Ground Floor  |
| F27 | 386 Books                              | F60 | Lift 1                       |
| F28 | 264 Towels                             | F61 | Lift 2                       |
| F29 | 377 Everything With Chips              | F62 | Lift 3                       |
| F30 | 725 Empecey Phones                     | F63 | Lift 4                       |
| F31 | 369 The Silica Shop                    | F64 | Ground Floor                 |
| F32 | Circulation Space                      | F65 | Second Floor                 |
| F33 | 266 Table Linen                        | F66 | 366 Dining / Repro' Furn.    |

Figure 3.10

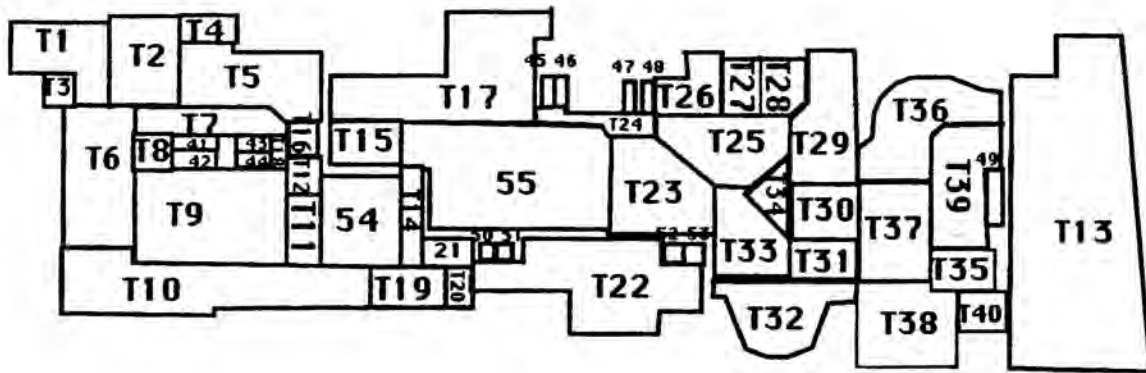


## Second Floor

S1	502 Alexon	S38	175 Ladies' Suits
S2	501 Reldan	S39	157 Designer Clothes
S3	Ladies Clothes	S40	178 Evening Separates
S4	Ladies Clothes	S41	655 Roland Carier
S5	503 Planet	S42	592 Coffee On Two
S6	508 Windsmoor	S43	524 Brands Shoes
S7	684 Precis	S44	656 Ladies Shoes
S8	515 Country Casuals	S45	521 Kurt Geiger
S9	500 Viyella	S46	529 Carvella
S10	186 Ladies Swimwear	S47	685 Benetton
S11	188 Fashion Leisurewear	S48	693 Carol
S12	190 Oui Set	S49	518 Designer Shoes
S13	666 Dash	S50	704 Dolcis
S14	193 Liz Claybourne	S51	167 Frank Usher
S15	505 Aquascutum	S52	178 Evening Separates
S16	682 Cashe D'or	S53	157 Cerruti 1881
S17	511 Mansfield	S54	157 Y.S.L.
S18	506 Jaeger	S55	159 Loius Feraud
S19	681 Crocheta	S66	514 Nicole Fahri
S20	165 Career Collection	S57	Escalator To First Floor
S21	182 Escada	S58	Escalator From Third Floor
S22	149 Marella	S59	Escalator To First Floor
S23	147 Betty Barclay	S60	Escalator From Third Floor
S24	187 Jaques Vert	S61	Escalator To Third Floor
S25	185 Skirts	S62	Escalator From First Floor
S26	692 J. H. Collectables	S63	Escalator To Third Floor
S27	694 Genesis	S64	Escalator From First Floor
S28	184 Blouses	S65	Lift 1
S29	183 Tartan Fashions	S66	Lift 2
S30	181 Knitwear	S67	Lift 3
S31	180 Fashion Knitwear	S68	Lift 4
S32	Circulation Space	S69	First Floor
S33	472 Dior Accessories	S70	Third Floor
S34	478 Kanebo Accessories	S71	190 Oui Set
S35	177 Mondri	S72	Circulation Space
S36	156 Dresses	S73	Escalator To Third Floor
S37	125 Liz Claybourne Acc.	S74	Escalator From First Floor

**Figure3.11**

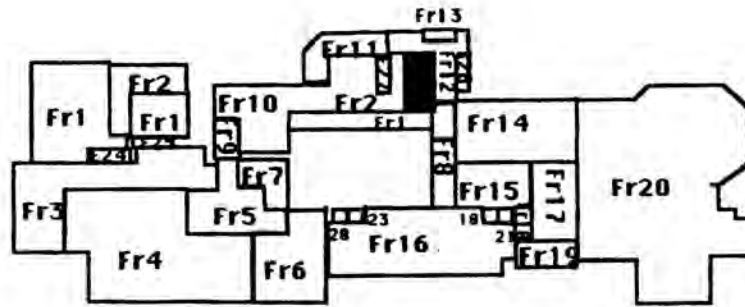




Third Floor

- |     |                                 |     |                             |
|-----|---------------------------------|-----|-----------------------------|
| T1  | 230 Sewing Centre               | T29 | 170 Ladies Hats             |
| T2  | 238 Wools & Needle Work         | T30 | 509 Danimac                 |
| T3  | 541 Sewing Machines             | T31 | 651 Fun Furs                |
| T4  | 208 Knit Mach. & Paper Patterns | T32 | 151 Ladies Coats            |
| T5  | 201 Plain Fabrics               | T33 | 192 Rainwear                |
| T6  | 657 Children's Shoes            | T34 | 152 Four Seasons            |
| T7  | 461 Tiny Tots Clothing          | T35 | Circulation Space           |
| T8  | Circulation Space               | T36 | 189 Your Size Separates     |
| T9  | 465 Prams & Nursery             | T37 | 211 Night Wear              |
| T10 | 463 Baby Linen                  | T38 | 512 Bridal Wear             |
| T11 | 440 Girls Large Sizes           | T39 | 162 Your Size Dresses       |
| T12 | 441 Girls Wear                  | T40 | Circulation Space           |
| T13 | 546 Ladies & Men Hairdresser    | T41 | Escalator From Fourth Floor |
| T14 | Patrizia Wigan                  | T42 | Escalator To Second Floor   |
| T15 | 679 Children's Benetton         | T43 | Escalator From Second Floor |
| T16 | 454 Boys Clothes                | T44 | Escalator To Fourth Floor   |
| T17 | 458 Boys Large Sizes            | T45 | Escalator From Fourth Floor |
| T18 | Circulation Space               | T46 | Escalator To Second Floor   |
| T19 | 670 Child's Dash                | T47 | Escalator From Second Floor |
| T20 | Circulation Space               | T48 | Escalator To Fourth Floor   |
| T21 | Circulation Space               | T49 | Escalator From Second Floor |
| T22 | 600 The Selfridge Restaurant    | T50 | Lift 1                      |
| T23 | 176 Burberry                    | T51 | Lift 2                      |
| T24 | Circulation Space               | T52 | Lift 3                      |
| T25 | 142 Ladies Jackets              | T53 | Lift 4                      |
| T26 | Timberland                      | T54 | 7 & 12                      |
| T27 | 690 Eastex                      | T55 | 7 & 11 & 12                 |
| T28 | 160 Maternity                   | T56 | Second Floor                |
|     |                                 | T57 | Fourth Floor                |

Figure 3.12



Fourth Floor

- |      |   |      |                            |
|------|---|------|----------------------------|
| Fr1  | 535 Olympus Equipment                           | Fr15 | Pictures & Mirrors         |
| Fr2  | 534 Olympus Clothes                             | Fr16 | Garden Furniture           |
| Fr3  | 353 Soft Toys                                   | Fr17 | Adult Games                |
| Fr4  | 354 Boys Toys                                   | Fr18 | Lift 3                     |
| Fr5  | 356 Big Toys                                    | Fr19 | Candles                    |
| Fr6  | 357 Indoor Games                                | Fr20 | Top Of The Shop Restaurant |
| Fr7  | 315 Cycles                                      | Fr21 | Lift 4                     |
| Fr8  | 259 Table Mats                                  | Fr22 | Olympus Equipment          |
| Fr9  | 536 Olympus Ski- Wear                           | Fr23 | Lift 2                     |
| Fr10 | 532 Olympus Zero Rated &<br>534 Olympus Clothes | Fr24 | Escalator From Third Floor |
| Fr11 | Olympus Footwear                                | Fr25 | Escalator To Third Floor   |
| Fr12 | Circulation Space                               | Fr26 | Escalator To Third Floor   |
| Fr13 | Scholl  | Fr27 | Escalator From Third Floor |
| Fr14 | Gifts   | Fr28 | Lift 1                     |
|      |   | Fr29 | 535 Olympus Equipment      |
|      |   | Fr30 | Third Floor                |

Figure3.13

comprises the drugs & toiletries, men's fragrances, men's retail lines such as shirts, ties, belts, scarves, gloves, socks, accessories, underwear, beachwear, knitwear, nightwear, food hall, wines, tobacco shop, confectionery, stationery, souvenirs, greeting cards, newspapers & magazines, clocks, sunglasses, optician, wigs, records & tapes, fine jewellery and watches, photographic equipments, umbrellas, ladies retail lines such as cosmetics, perfumery, handbags, scarves, belts, gloves, lingerie, hosiery. There is a restaurant and a coffee shop on this floor in two distant locations from each other.

The basement floor (**figures 3.3 & 3.9**) contains mainly china, glassware, crystals, cutlery & silverware, kitchenware, kitchen furniture, bathroom accessories, cleaning materials, decorating materials, DIY, gardening, luggage, pets accessories, electrical appliances, as well as a restaurant and an ice cream parlour. It contains services such as a building society, a change bureau, theatre tickets, a travel bureau, tourist information, lost property, key cutting, watch repairs, dry cleaning and gift wrapping.

The first floor (**figures 3.4 & 3.10**) contains men's retail lines such as clothes; suits, jackets, trousers, coats and shoes. It also contains books, phones, computers and calculators etc., and household objects such as towels, table & bed linens, quilts, curtains, carpets. Furniture, upholstery and beds are also found in this floor. There is a bank and a credit & export bureau.

The second floor (**figures 3.5 & 3.11**) contains mainly designer ladies clothes and shoes and has a coffee shop.

The third floor (**figures 3.6 & 3.12**) continues with the ladies clothes; coats, hats, nightwear, bridal wear, maternity wear. It also contains a section for children; boys and girls clothes & shoes, a section for babies clothes and prams. In addition, there is a sewing centre for machines and plain fabrics. There is also a hairdresser for men and women and a restaurant on this floor.

The fourth floor (**figures 3.7 & 3.13**) is the last sales floor. It mainly comprises sportswear and sport equipments, toys, games, gifts, pictures, mirrors, garden

furniture and a restaurant.

### 3.3 Boundary Analysis

As the sales and profits information supplied by the store management, accounted for the individual departments in the store, it was reasonable to construct the boundary spaces coinciding with the division of departments.

**Figures 3.8-3.13** show the division of spaces according to department boundaries, added to them the escalators and lifts spaces only.<sup>27</sup> **Tables 3.1 & 3.2** record the departments of the store sorted in a descending order of integration and integration radius three respectively. **Tables 3.3-3.14 in appendix I** record the departments of each individual floor sorted in a descending order of integration and integration radius three respectively.

### 3.4 Depth

#### 3.4.1 Depth from Oxford Street:

**Figure 3.14** is the justified permeability graph of the whole store drawn from Oxford Street as a carrier considering it to be the shallowest one of the four streets surrounding the store in terms of the urban grid of London.<sup>28</sup> So Orchard and Duke Streets are 1 step away from the carrier and Edward Mews is 2 steps away.

It is interesting to note that although the basement and the first floor both are 1 floor away from the ground floor yet in the justified permeability graph the basement floor reaches depth 9 while the first floor reaches only depth 8. This happens because the basement has more departments than the first floor.

The Ground Floor ranges from depths: 1 to 6 constituting 6 depth values.

The Basement Floor ranges from depths: 4 to 9 constituting 5 depth values.

The First Floor ranges from depths: 4 to 8 constituting 4 depth values.

The Second Floor ranges from depths: 5 to 11 constituting 6 depth values.

<sup>27</sup> All the stairs had the label "Fire Exit" hung over their entrances so they were discounted as connecting spaces in the system.

<sup>28</sup> Kim, Hua, Seminar on the analysis of the city of Westminster presented at UAS, Bartlett School of Architecture and Planning, July 1991. She discovered that Oxford Street was the most integrated street of the four streets surrounding Selfridges.

- Streets
- Ground Floor
- Basement Floor
- First Floor
- Second Floor
- Third Floor
- Fourth Floor

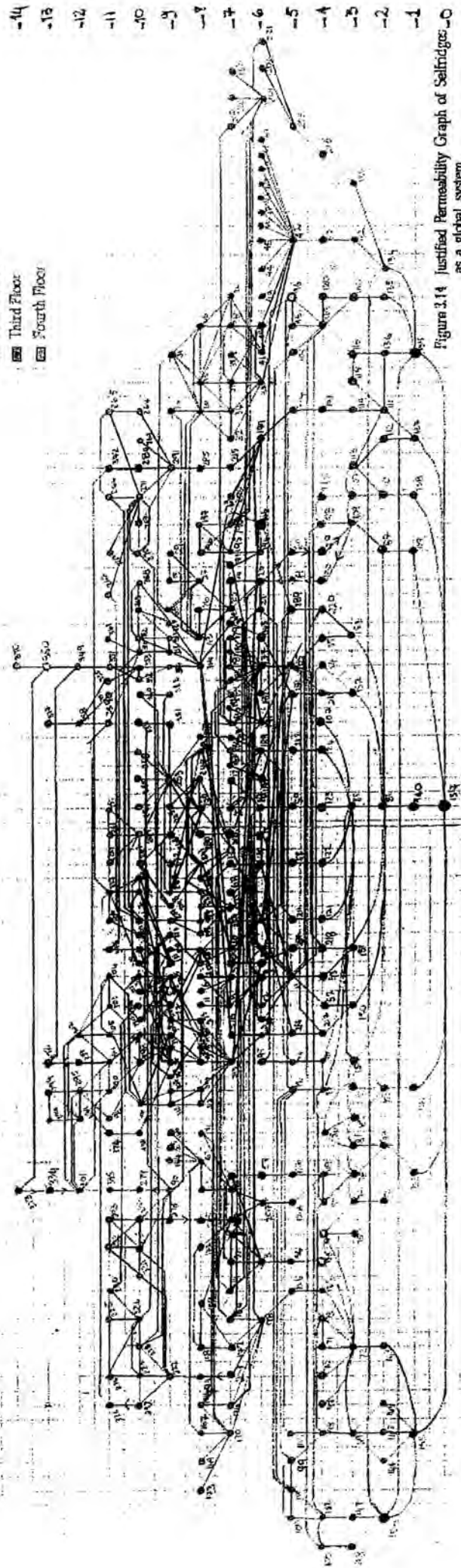


Figure 3.14 Justified Permeability Graph of Selfridges - 0 as a global system

Table 3.1 Descending Order of Integration (1/x RRA) for the Global System

Space No	Department Name	1/x RRA	1/x RRA (9)
173	254 472 Dior Accessories	.844	1.572
174	255 478 Kanabo Accessories	.844	1.572
175	113 129 Y.S.L	.843	1.934
176	285 Second Fl Escalator from First Floor	.843	1.610
177	272 167 Frank Usher	.842	1.857
178	134 Entrance	.842	1.743
179	154 Edward Mews	.841	1.931
180	75 112 Scarves	.841	1.884
181	310 458 Boys Large Size & 454	.841	2.140
182	111 124 Handbags	.840	1.934
183	203 331 Beds	.837	1.626
184	74 721 Dunhill	.836	1.792
185	112 516 Fendi	.835	1.729
186	3 322 D.I.Y.	.833	1.985
187	61 Basement Escalator from Ground Floor	.832	1.422
188	14 413 Luxury Leather	.832	1.787
189	318 142 Ladies Jackets	.831	2.322
190	270 518 Designer Shoes	.829	2.060
191	175 416 Paul Smith	.827	1.667
192	145 Entrance to 1	.825	1.576
193	144 Entrance to 1	.825	1.576
194	146 Entrance to 1	.825	1.576
195	228 684 Fracs	.824	2.033
196	279 Second Fl Escalator From Third Floor	.823	1.479
197	227 508 Windsor	.823	1.985
198	179 423 Gian Franco Ferre	.823	1.473
199	99 409 Confectionery	.823	1.834
200	180 417 Cerruti 1881	.823	1.403
201	69 Food Hall	.822	2.079
202	308 679 Children's Benetton	.821	2.100
203	163 668 British Tailor	.820	2.210
204	171 418 Daks	.819	1.842
205	247 692 J. H. Collectables	.817	1.700
206	126 Ground Fl Escalator From Basement	.816	1.717
207	15 408 Sarnonite	.814	1.539
208	101 371 Stationery	.812	2.302
209	149 713 Leonidas Chocolates	.811	1.569
210	307 440 Patrizia Wigan	.811	1.932
211	4 305 Pets	.809	1.884
212	221 336 Dining/ Repr' Furniture	.809	1.387
213	269 693 Carol	.806	1.896
214	327 152 Four Seasons	.805	1.931
215	56 Basement Escalator To Ground Floor	.803	1.485
216	200 288 Vinyl	.803	1.121
217	312 670 Child's Dash	.803	1.792
218	68 538 Gift Wrappers	.803	1.417
219	70 598 Brass Rail	.799	1.535
220	97 Store Information	.799	1.535
221	216 First Fl Escalator to Ground Floor	.799	1.177
222	25 294 Kitchen China & Glass	.797	2.099
223	324 651 Fun Furs	.796	1.942
224	103 380 Greeting Cards	.796	2.418
225	135 Entrance to Miss Selfridge	.794	1.500
226	235 193 Liz Claybourne	.794	1.800
227	294 666 Dash	.793	1.667
228	5 306 Cleaning Shop	.791	1.782
229	8 301 Gardening	.790	1.633
230	158 425 Men Overcoats	.790	1.041
231	291 Circulation Space	.788	2.012
232	168 Credit & Export Bureau	.787	1.177
233	205 Lewis Bank	.787	1.177
234	162 646 Austin Reed	.787	1.545
235	268 685 Benetton	.785	2.102
236	267 529 Carvela	.785	1.934
237	229 515 Country Casuale	.784	1.613
238	271 704 Dolcis Shoes	.784	2.310
239	24 308 Kitchen Gadgets	.783	1.452
240	174 421 Sidi Suits	.782	1.674
241	133 Ground Fl Escalator To First Floor	.781	1.220
242	167 644 Jaeger Man	.780	1.800
243	96 242 Clocks	.779	1.750
244	356 259 Table Mats	.778	2.050
245	341 Third Fl Escalator to Fourth Floor	.772	1.643
246	277 514 Nicole Fahri	.772	1.606
247	338 Third Fl Escalator from Fourth Floor	.770	1.610
248	22 709 Derby	.769	1.359
249	309 454 Boys Clothing	.768	2.106
250	354 357 Indoor Games	.767	1.729
251	298 201 Plain Fabrics	.766	1.975
252	319 172 Timberland	.765	1.894
253	95 710 & 711 Optician	.764	1.121
254	343 343 Pictures & Mirrors	.763	1.785
255	284 Second Fl Escalator To Third Floor	.763	1.599
256	335 Third Fl Escalator to Second Floor	.760	1.399
257	367 258 Candles	.758	1.464
258	132 Ground Fl Escalator To Basement	.757	1.418

2 out of 3

cont...

Space No	Department Name	1/x RRA	1/x RRA (9)
259	173 115 Y.S.L	.755	1.490
260	251 181 Knitwear	.755	1.327
261	252 180 Fashion Knitwear	.755	1.283
262	250 183 Tartan Fashions	.755	1.283
263	169 686 Cristian Dior	.755	1.480
264	147 Entrance to 34	.754	1.359
265	2 319 Paint & Wallpaper	.753	1.490
266	233 190 Quiset	.750	1.612
267	100 687 & 688 Holland & Barret	.747	1.604
268	102 389 Newspapers & Periodicals	.747	1.842
269	323 509 Denimac	.744	2.151
270	322 170 Ladies Hats	.744	2.012
271	293 Second Fl Escalator from First Floor	.743	.682
272	303 463 Baby Linen	.739	2.012
273	347 461 & 441	.738	2.012
274	148 Entrance to 35	.738	1.098
275	106 Miss Selfridge	.738	1.552
276	330 211 Night Wear	.736	2.143
277	204 335 Bedroom Furniture	.735	.885
278	1 317 Bathroom Fittings	.734	1.537
279	320 690 Eastex	.730	1.490
280	321 160 Maternity	.730	1.438
281	360 Circulation Space	.730	2.040
282	266 521 Kart Gaiser	.729	1.604
283	226 503 Planet	.728	1.814
284	223 501 Kalden	.727	1.606
285	290 500 Vivella	.726	1.626
286	166 648 Scarves & Hawies	.722	1.464
287	165 658 Men's Tailoring	.722	1.387
288	164 645 Chester Barrie	.722	1.387
289	63 308 Kitchen Gadgets	.721	2.079
290	104 250 Gifts Of Britain	.719	1.540
291	300 461 Tiny Toys Clothing	.717	2.178
292	120 371 Posters	.717	1.403
293	105 649 Our Price	.713	1.467
294	27 313 Major Appliances	.713	1.791
295	26 312 Small Electric Appliances	.712	1.465
296	331 512 Berharts Bridal Wear	.711	1.829
297	342 Third Fl Escalator from Second Floor	.711	1.375
298	301 Circulation Space	.711	2.027
299	362 258 Gifts	.708	1.791
300	302 465 Frames & Nursery	.707	2.112
301	332 162 Your Size Dresses	.707	1.793
302	299 657 Children Shoes	.707	2.228
303	232 188 Fashion Leisurewear	.704	1.387
304	251 186 Ladies Swimwear	.703	1.318
305	377 535 Olympus Equipment	.702	1.539
306	311 Circulation Space	.702	2.130
307	305 441 Girls Wear	.700	1.992
308	7 675 Ice Cream Parlour	.699	1.010
309	6 596 Carvery Restaurant	.699	1.010
310	11 302 Lawn Mowers	.698	.871
311	353 356 Big Toys	.698	1.612
312	264 524 Brands Shoes	.697	1.318
313	295 238 Woods & Needle Work	.697	1.842
314	263 592 Coffee On Two	.697	1.146
315	375 Fourth Fl Escalator from 3rd Floor	.696	1.470
316	352 354 Boys Toys	.694	1.426
317	265 656 Ladies Shoe	.694	1.467
318	374 Fourth Fl Escalator to 3rd Floor	.693	1.286
319	365 257 Adult Games	.690	1.403
320	368 594 Top Of The Shop Restaurant	.690	1.344
321	62 Basement Escalator from Ground Floor	.689	1.837
322	329 189 Your Size Separates	.688	1.814
323	304 440 Girls Large Sizes	.684	1.674
324	297 208 Knit Mach. & Paper Patterns	.681	1.359
325	328 189 Your Size Separates	.676	1.648
326	359 533 Olympus Footwear	.675	1.670
327	358 532 Oly. Zero Rated+ 534 Oly. Clothes	.672	2.079
328	222 502 Alcon	.669	1.239
329	30 300 Hardware	.662	2.210
330	357 536 Olympus Ski-Wear	.659	1.731
331	57 Basement Escalator from Ground Floor	.655	1.000
332	65 312 Small Electric Appliances	.653	1.814
333	64 312 Small Electric Appliances	.652	1.545
334	361 469 Scholl	.651	1.171
335	351 353 Soft Toys	.651	1.698
336	225 Ladies clothes	.650	1.299
337	224 Ladies clothes	.650	1.299
338	333 Circulation Space	.648	1.301
339	355 315 Cycles	.648	1.480
340	334 Third Fl Escalator from Fourth Floor	.645	1.382
341	306 546 Ladies & Men Hairdresser	.643	1.487
342	294 230 Sewing Centre	.642	1.480
343	42 Circulation Space	.639	3.919
344	28 344 Kitchen Furniture	.638	1.070

Space No	Department Name	1/2 RRA	1/2 RRA (3)
1	218 First Fl Lift 2	1.304	1.844
2	219 First Fl Lift 3	1.304	1.844
3	217 First Fl Lift 1	1.304	1.844
4	220 First Fl Lift 4	1.304	1.844
5	150 Ground Fl Lift 1	1.258	1.904
6	152 Ground Fl Lift 3	1.258	1.904
7	151 Ground Fl Lift 2	1.258	1.904
8	153 Ground Fl Lift 4	1.258	1.904
9	287 Second Fl Lift 2	1.254	1.923
10	288 Second Fl Lift 3	1.254	1.923
11	289 Second Fl Lift 4	1.254	1.923
12	286 Second Fl Lift 1	1.254	1.923
13	46 472 Cosmetics I (Perfumery)	1.188	2.583
14	185 264 Towels	1.183	2.334
15	88 473-5 & 477 Cosmetics	1.145	2.758
16	260 157 Designer Clothes	1.136	2.513
17	343 Third Fl Lift 1	1.125	1.895
18	345 Third Fl Lift 3	1.125	1.895
19	344 Third Fl Lift 2	1.125	1.895
20	346 Third Fl Lift 4	1.125	1.895
21	189 Circulation Space	1.118	2.242
22	191 265 Bed Linen	1.117	2.407
23	52 Basement Lift 1	1.097	1.761
24	55 Basement Lift 4	1.097	1.761
25	53 Basement Lift 2	1.097	1.761
26	54 Basement Lift 3	1.097	1.761
27	87 121 Hosiery	1.073	2.164
28	211 First Fl Escalator to Ground Floor	1.058	1.603
29	212 First Fl Escalator from Ground Floor	1.058	1.603
30	85 480 Aramis	1.056	2.215
31	124 Ground Fl Escalator To First Floor	1.056	1.644
32	121 Ground Fl Escalator From First Floor	1.056	1.644
33	188 369 The Silica Shop	1.052	1.953
34	83 476 Men's Fragrance	1.047	2.174
35	140 Entrance to 18	1.042	1.978
36	184 386 Books	1.040	2.207
37	109 130 Scarves & Hanks	1.036	2.407
38	213 First Fl Escalator to Second Floor	1.035	1.590
39	210 First Fl Escalator from Second Floor	1.035	1.590
40	182 437 Lotus Peraud	1.027	1.869
41	186 377 Everything With Chips	1.019	1.926
42	108 218 Bras & Girdles & 212 Daywear LL...	1.019	2.313
43	89 698 & 699 Mappin & Webb	1.018	2.341
44	315 600 The Selfridge Restaurant	1.018	2.549
45	240 681 Crochetta	1.017	2.206
46	243 149 Marella	1.013	2.176
47	13 298 Glassware	1.008	2.589
48	280 Second Fl Escalator To First Floor	.996	1.743
49	283 Second Fl Escalator from First Floor	.996	1.743
50	123 Ground Fl Escalator To Basement	.994	1.873
51	242 182 Escada	.992	1.988
52	91 Costume Jewellery	.991	2.244
53	190 266 Table Linen	.991	2.061
54	122 Ground Fl Escalator From Basement	.989	1.861
55	157 Oxford Street	.987	2.310
56	178 114 Men's Hats	.986	2.471
57	275 157 Y. S. L.	.986	2.136
58	160 427 Burberry	.983	2.019
59	253 Corridor	.982	2.715
60	239 506 Jaeger	.980	1.904
61	107 469 Drugs & Toiletries	.979	1.888
62	195 277 Soft Furniture Workshop	.975	1.931
63	79 103 Men's Knitwear & Beachwear	.972	2.136
64	73 411 & 412 Tobaccos	.972	2.303
65	129 Ground Fl Escalator From Basement	.971	1.888
66	369 Fourth Fl Lift 4	.970	1.632
67	366 Fourth Fl Lift 3	.970	1.632
68	376 Fourth Fl Lift 1	.970	1.632
69	371 Fourth Fl Lift 2	.970	1.632
70	256 177 Mondri	.965	2.372
71	192 269 Quilts	.959	1.717
72	193 265 Dorma Co-ordinates	.955	1.563
73	177 436 Men's Leisure Clothing	.952	2.160
74	207 First Fl Escalator to Ground Floor	.947	1.641
75	90 104 Y.S.L. Shirts	.947	2.078
76	187 725 Emporio Pnocer	.947	1.549
77	236 505 Aquasutum	.947	2.377
78	119 Circulation Space	.944	2.000
79	206 First Fl Escalator from Ground Floor	.940	1.667
80	211 165 Cancer Collection	.940	2.240
81	141 Entrance to 15	.937	1.794
82	84 108 Horn	.934	1.734
83	78 105 Men's Suits	.930	2.102
84	199 284 & 281 & 330 Carpets	.927	1.949
85	110 123 Gaud	.927	1.945
86	117 136 Ballo	.927	2.072

Space No	Department Name	1/2 RRA	1/2 RRA (3)
87	16 335 Luggage	.926	2.180
88	257 156 Dresses	.926	2.181
89	128 Ground Fl Escalator From First Floor	.923	1.470
90	82 107 Pyjamas	.922	1.834
91	72 Circulation Space	.922	2.611
92	183 436 Barbours	.920	1.836
93	208 First Fl Escalator from Second Floor	.920	1.438
94	348 441 & 440 & 441	.920	2.306
95	21 716 Doulton Tableware & 723 Dir. Exp	.918	2.100
96	244 147 Betty Barclay	.917	1.953
97	259 175 Ladies Suits	.917	2.000
98	316 176 Burberry	.916	2.356
99	19 547 Waterford/Wedgwood China	.914	2.274
100	130 Ground Fl Escalator To Basement	.914	1.590
101	116 695 Cameras	.914	1.802
102	125 Ground Fl Escalator To First Floor	.913	1.725
103	115 139 Umbrellas	.911	1.834
104	290 190 Out Set	.909	2.160
105	156 Orchard Street	.909	2.098
106	172 658 Men's Shoes	.909	1.808
107	261 178 Evening Separates	.908	2.098
108	9 321-328 Tools	.907	2.588
109	281 341 Upholstered Furniture	.906	2.046
110	77 110 Men's Ties	.905	2.243
111	198 275 Tracks & Blinds	.905	2.099
112	155 Duke Street	.903	2.099
113	181 437 Valentino	.902	1.523
114	278 Second Fl Escalator To First Floor	.901	1.493
115	92 Sun Glasses	.901	2.019
116	326 192 Rainwear	.898	2.213
117	12 289 Imported Glassware	.898	2.059
118	161 654 Aquasutum	.898	1.949
119	237 682 Cash D'or	.897	1.888
120	59 Basement Escalator from Ground Floor	.896	1.563
121	138 Entrance to Gucci	.894	1.743
122	245 187 Jacques Vert	.894	2.211
123	281 Second Fl Escalator From Third Floor	.893	1.761
124	282 Second Fl Escalator To Third Floor	.893	1.761
125	58 Basement Escalator To Ground Floor	.890	1.682
126	23 310 Silverware	.888	2.023
127	176 416 Men's Designer Room	.886	2.116
128	314 440 & 441 & 461	.886	1.895
129	118 134 Gloves	.886	1.641
130	325 151 Ladies Coats	.885	1.909
131	313 Circulation Space	.884	1.808
132	142 Entrance to 8	.884	1.895
133	60 Basement Escalator To Ground Floor	.878	1.535
134	93 381 Pens	.878	2.072
135	76 111 Men's Accessories	.874	1.734
136	10 303 Bridal Registry	.874	1.808
137	215 First Fl Escalator to Second Floor	.872	1.465
138	80 101 Men's Socks	.871	1.782
139	194 274 Net Curtains	.871	1.537
140	214 First Fl Escalator from Ground Floor	.870	1.375
141	317 Circulation Space	.870	2.448
142	274 157 Carruti 1881	.870	1.985
143	273 178 Evening Separates	.870	1.933
144	143 Entrance to 4	.870	1.904
145	248 694 Coscic	.869	1.931
146	202 336 Dining/ Repro' Furniture	.869	1.880
147	137 Entrance to 48 & 43	.869	1.669
148	196 270 Furnishing Fabrics	.867	1.667
149	71 414 Wines & Spirits	.866	1.808
150	197 272 Ready Made Curtains	.866	1.500
151	159 426 Men Raincoats	.865	1.452
152	364 395 Garden Furniture	.865	2.317
153	81 102 Men's Underwear	.864	1.667
154	289 184 Blouses	.863	2.168
155	94 718 Wigs	.863	1.632
156	114 126 Fancy Leathers	.863	1.860
157	170 422 Suits & 430 Jackets & 432 Trousers	.862	2.296
158	238 511 Mansfield	.862	1.438
159	18 291 China & 242 Earthen & Oven Ware	.861	1.792
160	98 Circulation Space	.858	1.895
161	262 655 Roland Cartier	.858	2.227
162	246 185 Ladies Skirts	.858	2.019
163	20 549 Worcester Royal China & 548 Dir. ...	.853	2.061
164	258 125 Liz Claybourne Acc.	.857	1.863
165	17 295 Villeroy & Boch	.851	1.883
166	276 159 Lotus Peraud	.850	1.465
167	339 Third Fl Escalator to Second Floor	.848	1.688
168	289 First Fl Escalator to Second Floor	.848	1.485
169	340 Third Fl Escalator from Second Floor	.848	1.688
170	199 Entrance to 19	.848	1.582
171	136 Entrance to 48 & 43	.847	1.725
172	131 Ground Fl Escalator To First Floor	.846	1.327

Table 3.1

## Descending Order of Integration (1/x RRA) for the Global System

3 out of 3

	Space No	Department Name	1/x RRA	1/x RRA (3)
345	29	243 & 244 Fitted Kitchens	.638	1.070
346	337	Third Fl Escalator to Fourth Floor	.637	1.390
347	296	541 Sewing Machines	.632	1.291
348	350	534 Olympus Clothes	.630	2.015
349	356	Third Fl Escalator from Second Floor	.629	1.291
350	34	526 Focus Crystal	.619	1.839
351	32	320 Lamps & Accessories	.618	1.756
352	349	535 Olympus Equipment	.610	1.536
353	373	Fourth Fl Escalator to 3rd Floor	.608	1.375
354	35	400 Portable Audio	.607	2.138
355	66	312 Small Electric Appliances	.607	1.963
356	33	325 Light Fittings	.600	2.404
357	31	522 Shavers	.598	1.750
358	127	Ground Fl Escalator To Basement	.590	.499
359	40	402 Cabinets	.588	2.356
360	41	392 Televisions	.587	2.177
361	372	Fourth Fl Escalator from 3rd Floor	.584	1.171
362	37	401 Accessories	.578	1.834
363	38	394 Hi-Fi	.578	1.784
364	47	614 Thomas Cook	.577	1.667
365	45	665 Shoe Repair	.577	1.667
366	44	715 K. Prowse	.577	1.667
367	50	498 Radio & TV Repair	.577	1.667
368	51	599 Arcade Cafe	.577	1.667
369	43	Public Telephones	.577	1.667
370	48	643 Watch Repairs	.577	1.667
371	49	662 Stutchley	.577	1.667
372	67	614 Thomas Cook	.577	1.667
373	66	616 Alliance & Leicester	.577	1.667
374	36	393 Video	.577	1.599
375	370	535 Olympus Equipment	.570	1.121
376	292	Second Fl Escalator To Third Floor	.570	.627
377	39	324 Lamp Shades	.545	1.286



Table 3.2 Descending Order of Integration Radius Three (1/x RRA(3)) for the Global System

2 out of 3 cont...

Space No	Department Name	1/x RRA	1/x RRA(3)
173	65 312 Small Electric Appliances	.653	1.814
174	226 503 Planet	.728	1.814
175	329 189 Your Size Separates	.688	1.814
176	172 658 Men's Shoes	.909	1.808
177	10 303 Bridal Registry	.874	1.808
178	313 Circulation Space	.884	1.808
179	71 414 Wines & Spirits	.866	1.808
180	116 695 Cameras	.914	1.802
181	167 644 Jaeger Man	.780	1.800
182	235 193 Liz Claybourne	.794	1.800
183	141 Entrance to 15	.937	1.794
184	332 162 Your Size Dresses	.707	1.793
185	74 721 Dunhill	.836	1.792
186	312 670 Child's Dash	.803	1.792
187	18 291 China & 242 Earthen & Oven Ware	.861	1.792
188	362 258 Gifts	.708	1.791
189	27 313 Major Appliances	.713	1.791
190	14 413 Luxury Leather	.832	1.787
191	363 343 Pictures & Mirrors	.763	1.785
192	38 394 Hi-Fi	.578	1.784
193	5 306 Cleaning Shop	.791	1.782
194	80 101 Men's Socks	.871	1.782
195	282 Second Fl Escalator To Third Floor	.893	1.761
196	54 Basement Lift 3	1.097	1.761
197	55 Basement Lift 4	1.097	1.761
198	52 Basement Lift 1	1.097	1.761
199	53 Basement Lift 2	1.097	1.761
200	281 Second Fl Escalator From Third Floor	.893	1.761
201	32 320 Lamps & Accessories	.618	1.756
202	31 522 Shavers	.598	1.750
203	96 242 Clocks	.779	1.750
204	280 Second Fl Escalator To First Floor	.996	1.743
205	138 Entrance to Gucci	.894	1.743
206	283 Second Fl Escalator from First Floor	.996	1.743
207	134 Entrance	.842	1.743
208	84 108 Horn	.934	1.734
209	76 111 Men's Accessories	.874	1.734
210	357 536 Olympus Ski-Wear	.659	1.731
211	354 357 Indoor Games	.767	1.729
212	112 516 Fendi	.835	1.729
213	125 Ground Fl Escalator To First Floor	.913	1.725
214	136 Entrance to 48 & 43	.847	1.725
215	192 269 Quilts	.959	1.717
216	126 Ground Fl Escalator From Basement	.816	1.717
217	247 692 J. H. Collectables	.817	1.700
218	351 353 Soft Toys	.651	1.698
219	340 Third Fl Escalator from Second Floor	.848	1.688
220	339 Third Fl Escalator to Second Floor	.848	1.688
221	58 Basement Escalator To Ground Floor	.890	1.682
222	174 421 Ski Suits	.782	1.674
223	304 440 Girls Large Sizes	.684	1.674
224	359 533 Olympus Footwear	.675	1.670
225	137 Entrance to 48 & 43	.869	1.669
226	175 416 Paul Smith	.827	1.667
227	81 102 Men's Underwear	.864	1.667
228	206 First Fl Escalator from Ground Floor	.940	1.667
229	43 Public Telephones	.577	1.667
230	67 614 Thomas Cook	.577	1.667
231	294 646 Dash	.793	1.667
232	45 665 Shoe Repair	.577	1.667
233	44 715 K. Prowse	.577	1.667
234	48 663 Watch Repairs	.577	1.667
235	49 662 Starchley	.577	1.667
236	51 599 Arcade Cafe	.577	1.667
237	47 614 Thomas Cook	.577	1.667
238	50 498 Radio & TV Repair	.577	1.667
239	196 270 Furnishing Fabrics	.867	1.667
240	46 616 Alliance & Lincaster	.577	1.667
241	328 189 Your Size Separates	.676	1.648
242	341 Third Fl Escalator to Fourth Floor	.772	1.643
243	207 First Fl Escalator to Ground Floor	.947	1.641
244	118 134 Cloves	.886	1.641
245	8 301 Gardening	.790	1.633
246	376 Fourth Fl Lift 1	.970	1.632
247	371 Fourth Fl Lift 2	.970	1.632
248	369 Fourth Fl Lift 4	.970	1.632
249	366 Fourth Fl Lift 3	.970	1.632
250	94 718 Wigs	.863	1.632
251	230 500 Vivalta	.726	1.626
252	203 331 Beds	.837	1.626
253	229 515 Country Casuals	.784	1.613
254	233 190 Outer	.750	1.612
255	353 356 Big Toys	.698	1.612
256	285 Second Fl Escalator from First Floor	.843	1.610
257	338 Third Fl Escalator from Fourth Floor	.770	1.610
258	223 501 Reidan	.727	1.606

Space No	Department Name	1/x RRA	1/x RRA(3)
259	277 514 Nicole Fahri	.772	1.606
260	264 521 Kurt Geiger	.729	1.604
261	100 687 & 688 Holland & Barrett	.747	1.604
262	367 258 Candles	.758	1.604
263	211 First Fl Escalator to Ground Floor	1.058	1.603
264	212 First Fl Escalator from Ground Floor	1.058	1.603
265	284 Second Fl Escalator To Third Floor	.763	1.599
266	36 393 Video	.577	1.599
267	210 First Fl Escalator from Second Floor	1.035	1.590
268	130 Ground Fl Escalator To Basement	.914	1.590
269	213 First Fl Escalator to Second Floor	1.035	1.590
270	146 Entrance to 1	.825	1.576
271	144 Entrance to 1	.825	1.576
272	145 Entrance to 1	.825	1.576
273	255 478 Kanabo Accessories	.844	1.572
274	254 472 Dior Accessories	.844	1.572
275	149 713 Leonidas Chocolates	.811	1.569
276	59 Basement Escalator from Ground Floor	.896	1.563
277	193 265 Dorma Co-ordinates	.955	1.563
278	15 408 Samselite	.814	1.559
279	147 Entrance to 34	.754	1.559
280	377 335 Olympus Equipment	.702	1.559
281	106 Miss Selfridge	.738	1.552
282	187 725 Empoxy Phones	.947	1.549
283	64 312 Small Electric Appliances	.652	1.545
284	162 646 Austin Reed	.787	1.545
285	104 250 Gifts Of Britain	.719	1.540
286	194 274 Net Curtains	.871	1.537
287	1 317 Bathroom Fittings	.734	1.537
288	349 335 Olympus Equipment	.610	1.536
289	60 Basement Escalator To Ground Floor	.878	1.535
290	70 596 Brass Rail	.799	1.535
291	97 Store Information	.799	1.535
292	181 437 Valentino	.902	1.523
293	135 Entrance to Miss Selfridge	.794	1.500
294	197 272 Ready Made Curtains	.866	1.500
295	278 Second Fl Escalator To First Floor	.901	1.493
296	2 319 Paint & Wallpaper	.753	1.490
297	173 115 Y.S.L.	.755	1.490
298	320 690 Eastex	.730	1.490
299	306 546 Ladies & Men Hairdresser	.643	1.487
300	209 First Fl Escalator to Second Floor	.848	1.485
301	56 Basement Escalator To Ground Floor	.803	1.485
302	294 230 Sewing Centre	.642	1.480
303	282 336 Dining/ Repro' Furniture	.869	1.480
304	169 686 Cristian Dior	.755	1.480
305	355 315 Cycles	.648	1.480
306	279 Second Fl Escalator From Third Floor	.823	1.479
307	179 423 Gian Franco Ferre	.823	1.473
308	128 Ground Fl Escalator From First Floor	.923	1.470
309	375 Fourth Fl Escalator from 3rd Floor	.696	1.470
310	265 656 Ladies Shoes	.694	1.467
311	105 649 Our Price	.713	1.467
312	215 First Fl Escalator to Second Floor	.872	1.465
313	26 312 Small Electric Appliances	.712	1.465
314	276 159 Lotus Peraud	.850	1.465
315	166 648 Gloves & Hosiery	.722	1.464
316	159 426 Men Raincoats	.845	1.452
317	24 308 Kitchen Gadgets	.783	1.452
318	321 160 Maternity	.730	1.458
319	238 511 Mansfield	.862	1.438
320	208 First Fl Escalator from Second Floor	.920	1.438
321	352 354 Boys Toys	.694	1.426
322	61 Basement Escalator from Ground Floor	.832	1.422
323	132 Ground Fl Escalator To Basement	.757	1.418
324	68 538 Gift Wrappers	.803	1.417
325	180 417 Cerruti 1881	.823	1.403
326	365 257 Adult Games	.690	1.403
327	120 371 Posters	.717	1.403
328	335 Third Fl Escalator to Second Floor	.760	1.399
329	337 Third Fl Escalator to Fourth Floor	.637	1.390
330	232 188 Fashion Leisurewear	.704	1.387
331	165 658 Men's Tailoring	.722	1.387
332	221 336 Dining/ Repro' Furniture	.809	1.387
333	164 645 Chester Barrie	.722	1.387
334	139 Entrance to 19	.848	1.382
335	334 Third Fl Escalator from Fourth Floor	.645	1.382
336	373 Fourth Fl Escalator to 3rd Floor	.688	1.375
337	342 Third Fl Escalator from Second Floor	.711	1.375
338	214 First Fl Escalator from Ground Floor	.870	1.375
339	297 208 Knit Mech. & Paper Patterns	.681	1.359
340	22 709 Deaby	.769	1.359
341	348 594 Top Of The Shop Restaurant	.490	1.344
342	251 181 Knitwear	.755	1.327
343	131 Ground Fl Escalator To First Floor	.846	1.327
344	264 524 Brands Shoes	.897	1.318

Table 3.2

Descending Order of Integration Radius Three (1/x RRA(3)) for  
the Global System

3 out of 3

	Space No	Department Name	1/x RRA	1/x RRA (3)
345	231	186 Ladies Swimwear	.703	1.318
346	333	Circulation Space	.648	1.301
347	225	Ladies clothes	.650	1.299
348	224	Ladies clothes	.650	1.299
349	336	Third Fl Escalator from Second Floor	.629	1.291
350	296	341 Sewing Machines	.632	1.291
351	374	Fourth Fl Escalator to 3rd Floor	.693	1.286
352	39	324 Lamp Shades	.545	1.286
353	252	180 Fashion Knitwear	.755	1.283
354	250	183 Tartan Fashions	.755	1.283
355	222	302 Alexon	.669	1.239
356	133	Ground Fl Escalator To First Floor	.781	1.220
357	205	Lewis Bank	.787	1.177
358	148	Credit & Export Bureau	.787	1.177
359	216	First Fl Escalator to Ground Floor	.799	1.177
360	372	Fourth Fl Escalator from 3rd Floor	.584	1.171
361	361	469 Scholl	.651	1.171
362	263	592 Coffee On Two	.697	1.146
363	95	710 & 711 Optician	.764	1.121
364	200	288 Vinyl	.803	1.121
365	370	335 Olympus Equipment	.570	1.121
366	148	Entrance to 35	.738	1.098
367	28	346 Kitchen Furniture	.638	1.070
368	29	243 & 244 Pitted Kitchens	.638	1.070
369	158	425 Men Overcoats	.790	1.041
370	7	675 Ice Cream Parlour	.699	1.010
371	6	596 Carvery Restaurant	.699	1.010
372	57	Basement Escalator from Ground Floor	.655	1.000
373	204	335 Bedroom Furniture	.735	.885
374	11	302 Lawn Mowers	.698	.871
375	293	Second Fl Escalator from First Floor	.743	.682
376	292	Second Fl Escalator To Third Floor	.570	.627
377	127	Ground Fl Escalator To Basement	.590	.499

The Third Floor ranges from depths: 6 to 13 constituting 7 depth values.

The Fourth Floor ranges from depths: 7 to 14 constituting 8 depth values.

The "relative shallowness" of the system can be measured by the following formula:

$$\text{Relative Shallowness} = \frac{\text{Total Number of Spaces in the System}^a}{\text{Total Depth in the Justified Graph}}$$

The relative shallowness of the global system =  $377/14 = 26.92$

The measure accounts for the mean spaces per depth.<sup>30</sup>

The Relative Shallowness of Selfridges is significant when we look at particular examples: The Optician department (95) in the Ground Floor is at the same depth as the Designer Clothes department (157) in the Second Floor (figure 3.14).

The shallowness with respect to all entrances may be a beneficial aspect of the global system; accessibility from the street level has been maximised by the fifteen entrances of the store. Another characteristic feature is the ringiness of the system. Departments are densely interconnected on and between floors. The implications of these two features; the change in the relative depth and the ringiness seems to suggest that unless the customer had previously experienced the shortest route he/she is bound to go deeper than necessary in the building or follow a longer sequence before reaching his/her destination.

### 3.4.2 Depth for Each Floor:

The other way to do the justified permeability graphs is for each floor from the floor before it to the floor above it. This corresponds to when customers are destined for a specific floor, like ladies clothes on the second floor. Because of the presence of lifts and escalators induced by the contemporary technology, the effort experienced by a customer to reach for example the Olympus Equipment department (535) on the fourth floor in depth 14 (figure 3.14), after entering the

<sup>29</sup> Including the Carrier.

<sup>30</sup> For comparison purposes higher values indicate greater relative shallowness.

store from entrance (74) in depth 1, is much less compared to the effort exerted by another customer entering the store from the same entrance destined to the Optician department (95) on depth 6 on the ground floor. According to this argument the justified permeability graphs drawn for each individual floor becomes a valid representation for the examination of the performance of departments according to depths; as real depths leading to physical fatigue are represented by the deep departments on the same floor. However, the transportation system among between floors needs *time* rather than physical effort while depth on the same floor needs both.

**Figures 3.15-3.20** are the justified permeability graphs of each individual floor drawn from the floor below, except for the ground floor from Oxford Street and the basement from the ground floor. All floors show a consistency in the overall depth being five except the ground and the basement floors, where it increased to 6. The ground floor is both deep and ringy as well as the second floor. The basement floor has fewer global rings, the first and third floor seem to elaborate rings deep but simplify towards the carrier and the fourth floor is not only much shallower but also much simpler and less ringy.

The relative shallowness of each floor is as follows:

$$\text{Ground Floor} = 89/6 = 14.68$$

$$\text{Basement Floor} = 68/6 = 11.33$$

$$\text{First Floor} = 64/5 = 12.8$$

$$\text{Second Floor} = 72/5 = 14.4$$

$$\text{Third Floor} = 55/5 = 11$$

$$\text{Fourth Floor} = 29/5 = 5.8$$

### **3.5 Intelligibility**

#### **3.5.1 Intelligibility for the Global System (Boundary):**

This property is correlated for the global system and each floor individually. **Figure 3.21** is the correlation of integration and connectivity of the global system which represents the intelligibility. The result is a weak correlation of a coefficient ( $r= 0.195$ ). Department stores in general are not intelligible systems in so far as the spatial configuration is concerned as they consist of several

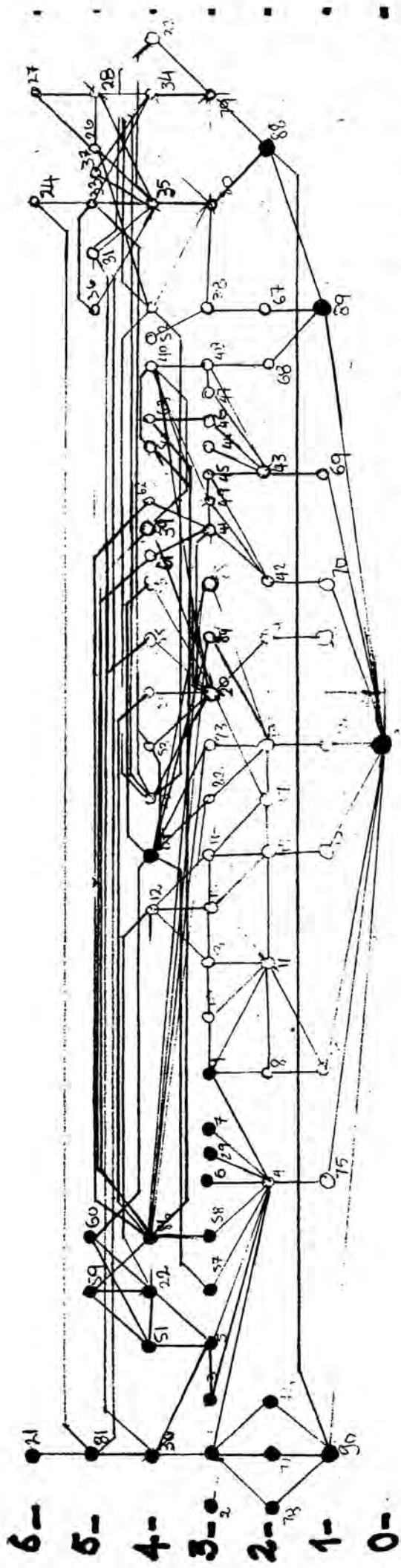


Figure 3.15 Justified Permeability Graph of Ground Floor

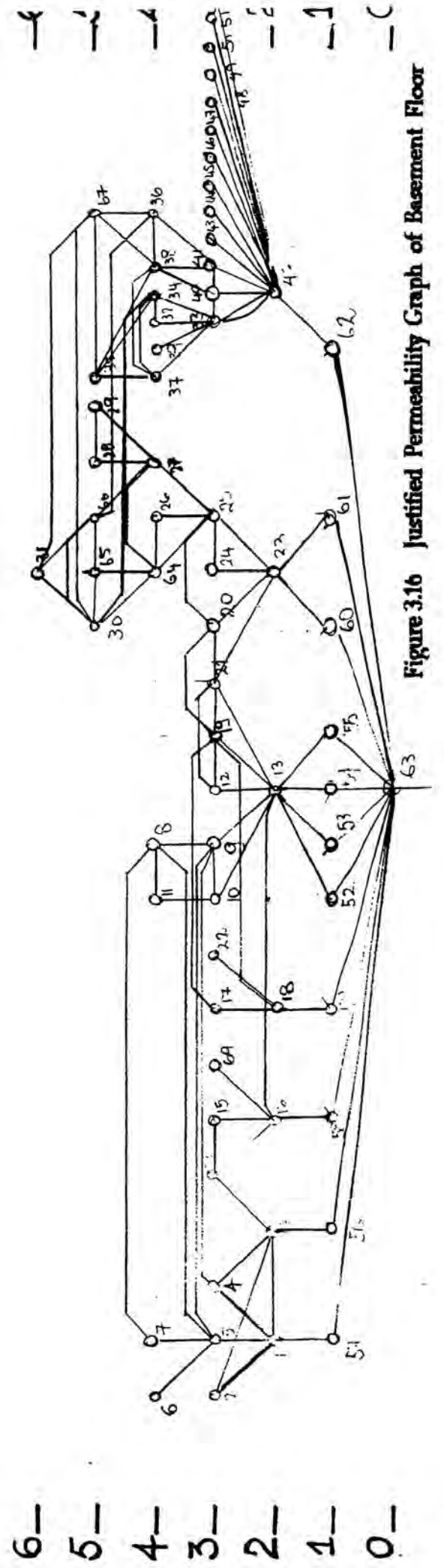


Figure 3.16 Justified Permeability Graph of Basement Floor

-5  
-4  
-3  
-2  
-1  
-0

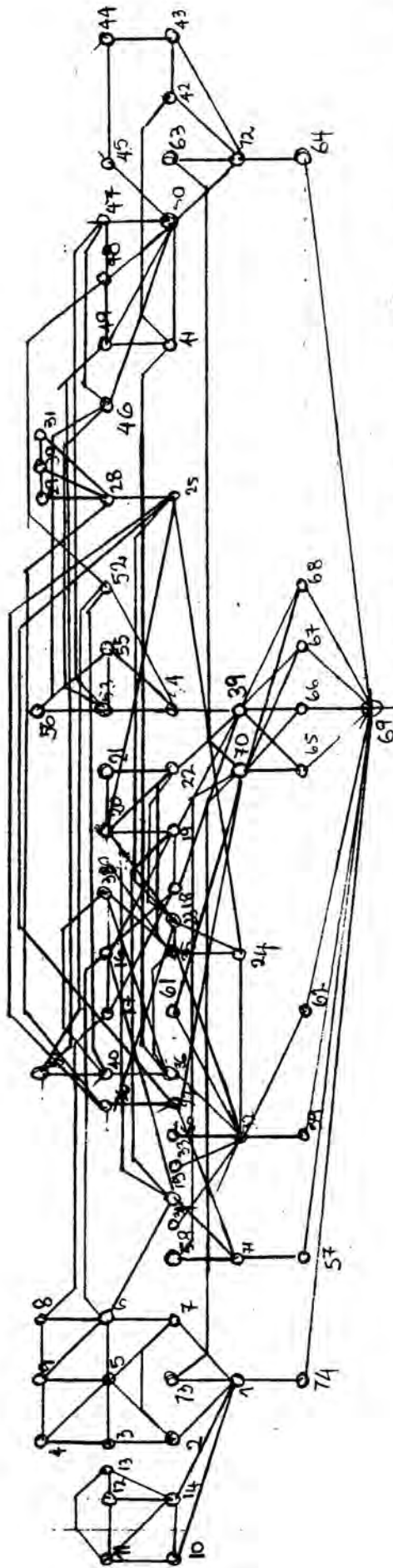


Figure 3.18 Justified Permeability Graph of Second Floor

-5  
-4  
-3  
-2  
-1  
-0

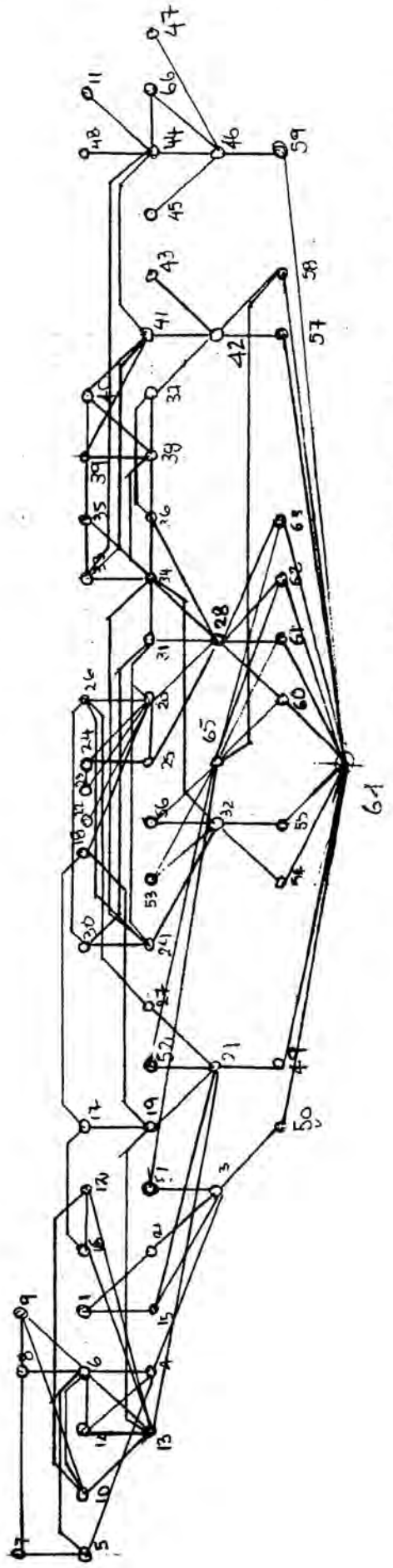


Figure 3.17 Justified Permeability Graph of First Floor

-5  
-4  
-3  
-2  
-1  
-0

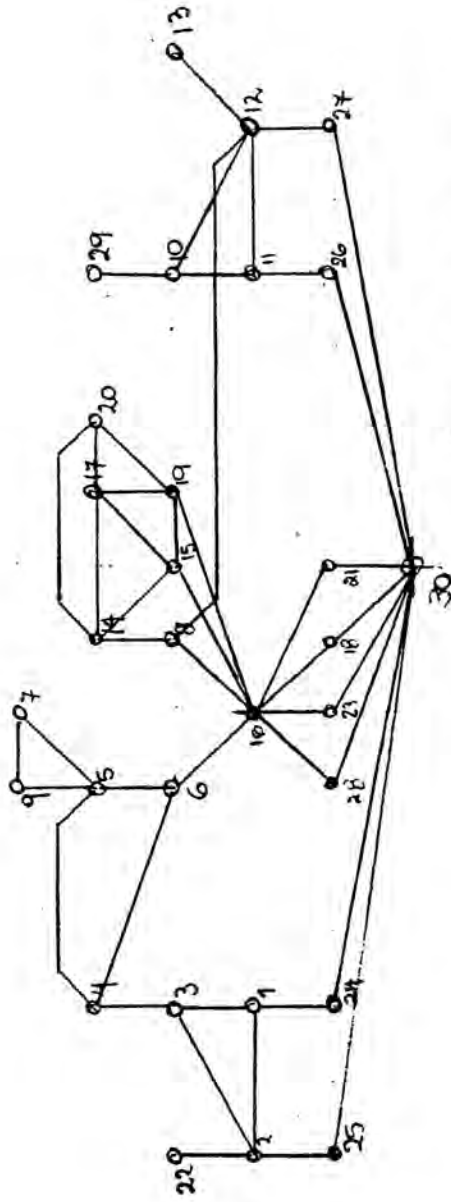


Figure 3.20 Justified Permeability Graph of Fourth Floor

-5  
-4  
-3  
-2  
-1  
-0

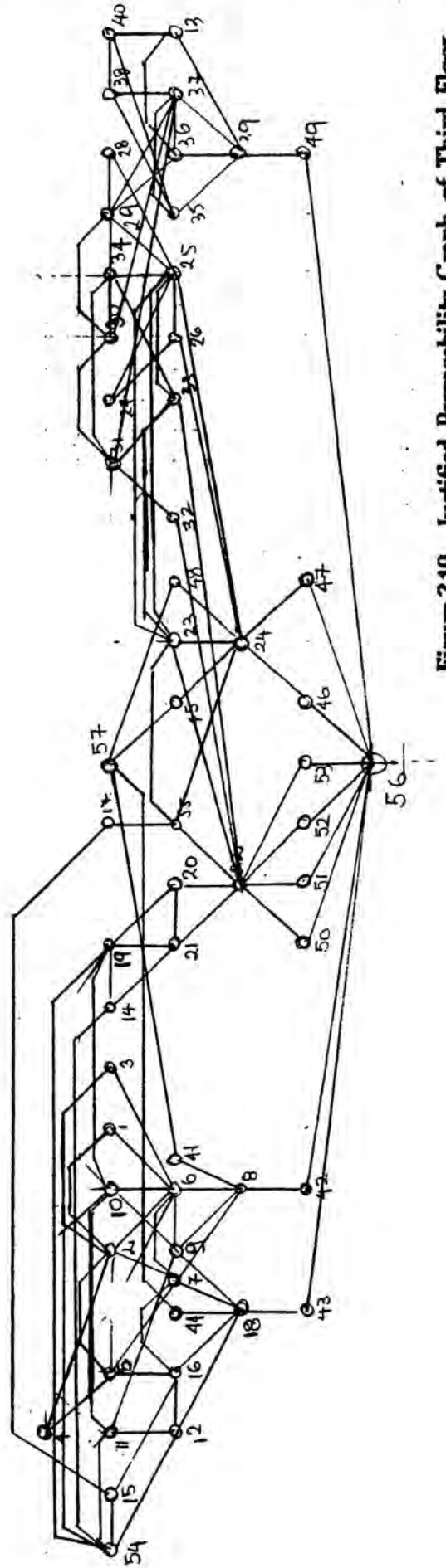
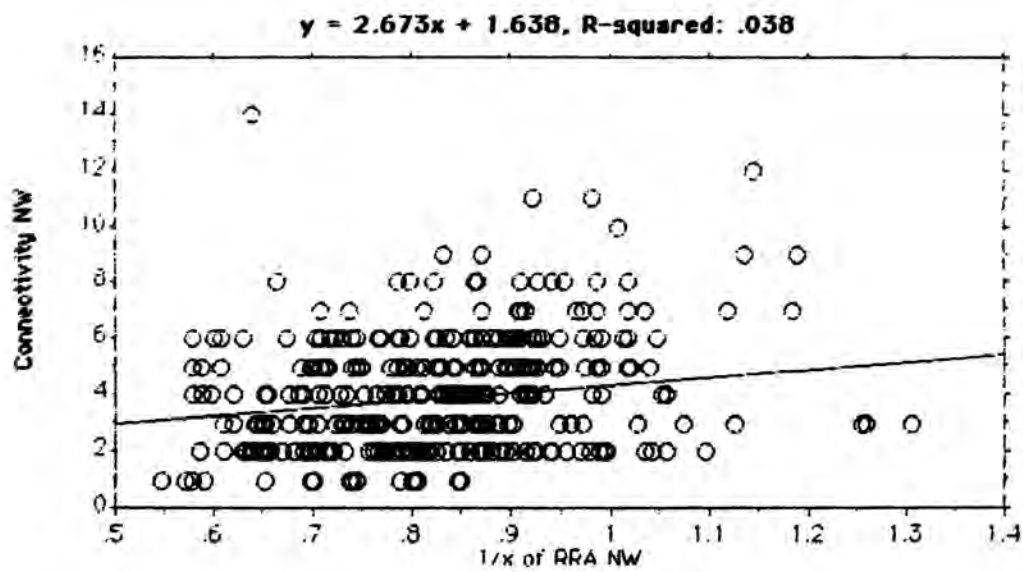


Figure 3.19 Justified Permeability Graph of Third Floor



**Figure321 The Boundary Spatial Intelligibility of Selfridges as a Global System**



floors which decreases the intelligibility significantly. This helps forcing the customers into more intervening spaces before reaching their targets. The more unintelligible the configuration, the more likely the customers are exposed to unprogrammed search. But this may also have the disadvantage of tiring or frustrating a decided customer before he/she can start his/her destined search journey. The relation between intelligibility and the quantity of sales is going to be examined in the following chapter.

### 3.5.2 Intelligibility for Individual Floors:

The spatial intelligibility for floors studied separately, corresponds to the situation in which the customer moves only among departments on the considered floor. e.g. ladies wear in the second floor or men's clothes on the first floor. However, this situation is characteristic of the ground floor. It is typical to the case of a "tourist" customer with a limited amount of time to spend in the store where he/she chooses to wander along the ground floor.

**Figures 3.22 a-f** represent the intelligibility of each floor individually. The rank of the floors is as follows:

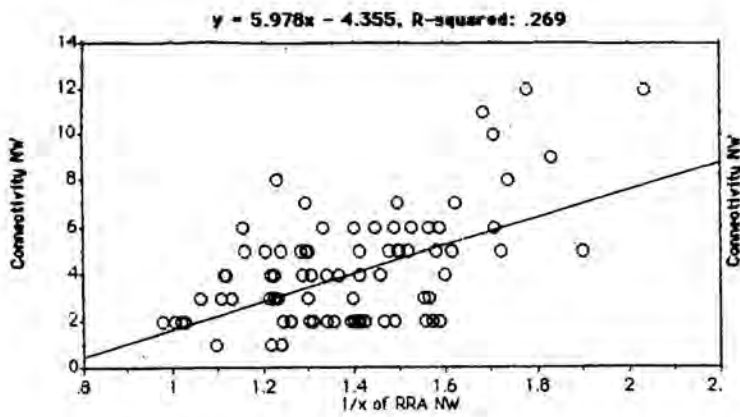
4th( $r=0.687$ ) > 2nd( $r= 0.54$ ) > 1st( $r=0.528$ ) > Gr( $r=0.518$ ) > Base( $r=0.46$ ) > 3rd( $r=0.41$ )

So far, the spatial intelligibility of the store and of individual floors has been examined for the boundary (departmental) convention. This property has been viewed in relation to departments as autonomous spaces displaying specific products. The same property can be examined in relation to axial lines of permeability linking various departments on a floor and across floors.

### 3.6 Axial Analysis

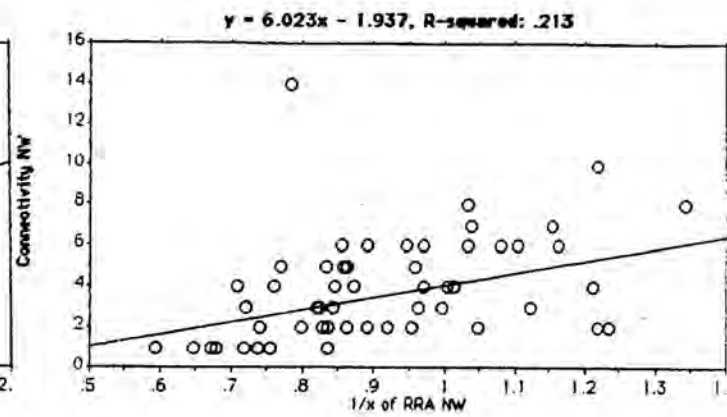
The plans from Selfridges were blank, i.e. not constituting display counters, stands, cash tills, etc., so the six floors of the store were surveyed in order to produce detailed and up to date plans which include the position of all display stands and individual elements of furniture. This took place from the 3rd to the 18th of June 1991.

**Figure 3.23** represents the axial integration core of the entire store joined



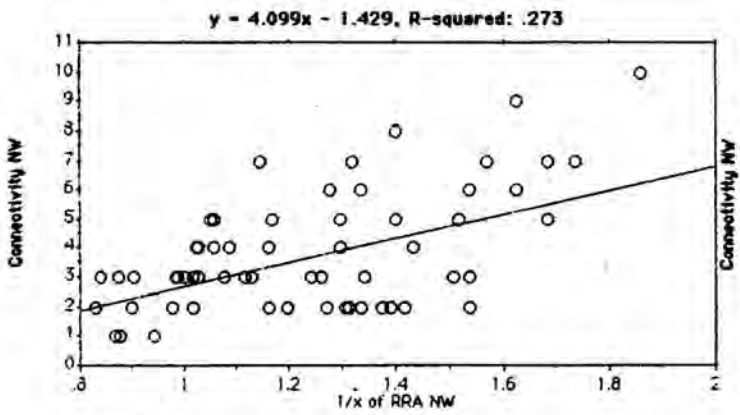
$r = 0.519$

Ground Floor



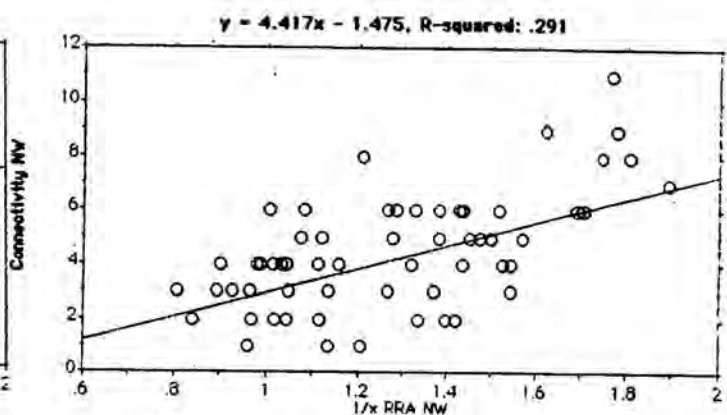
$r = 0.461$

Basement Floor



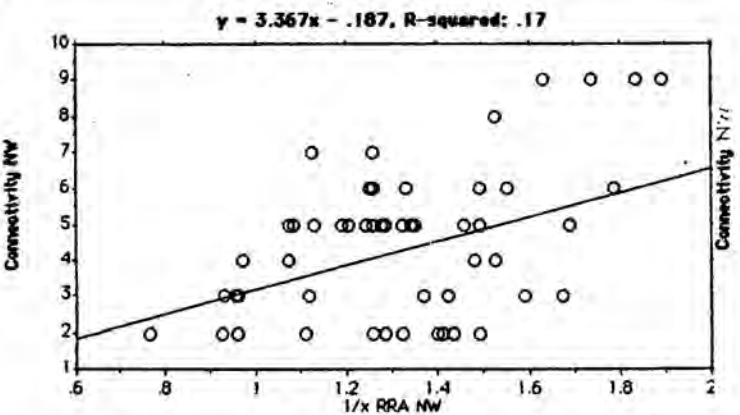
$r = 0.522$

First Floor



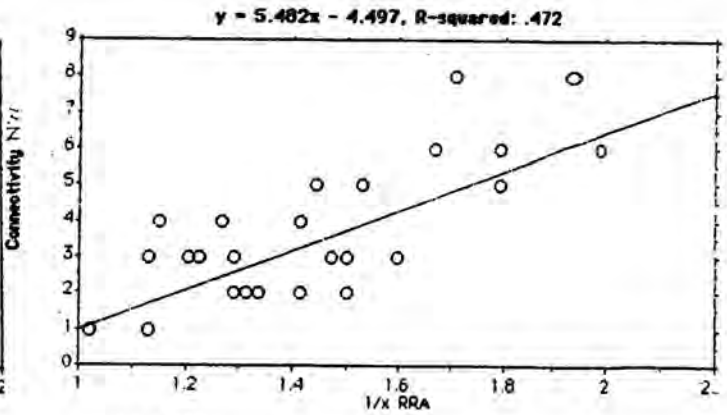
$r = 0.539$

Second Floor



$r = 0.412$

Third Floor



$r = 0.687$

Fourth Floor

Figures 3.22 a-f

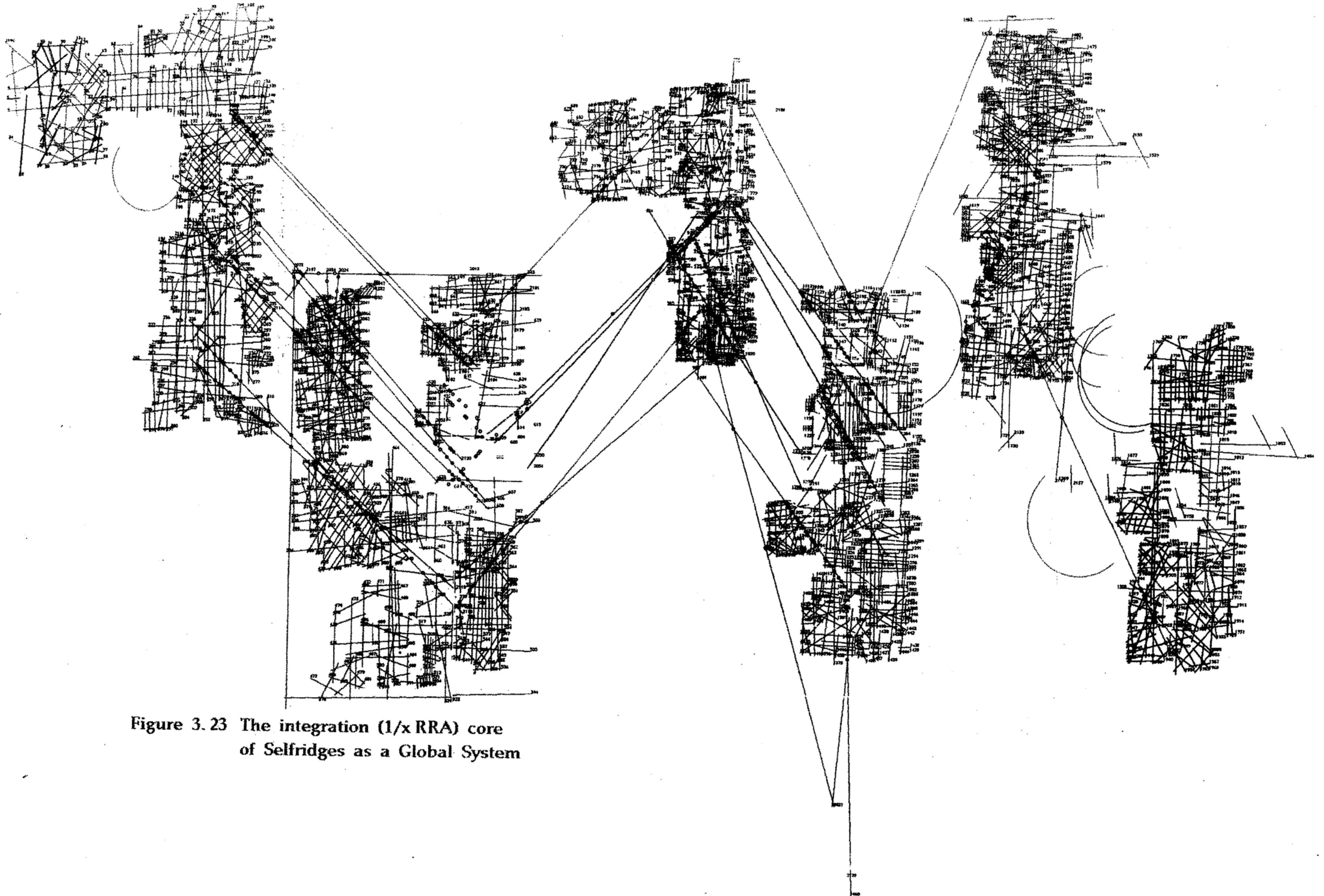


Figure 3.23 The integration (1/x RRA) core of Selfridges as a Global System

together through lifts and escalators across the different floors. Integration is ranked descendingly from red to blue. The most integrated lines are the lines of the escalators joining the first and second floors. The most segregated lines are the lines in the peripheries of the basement and the fourth floors. **Figures 3.24-3.29** represent the axial integration maps of each individual floor dictated by the layout of display counters. **Figure 3.30** represents the axial integration radius three of the store connected together through lifts and escalator across the floors. **Figures 3.31-3.36** represent the axial integration radius three of each floor.

From the integration core, the following can be noted: The strongly integrated lines are the long ones which cross several departments and subsequently intersect with a large number of lines. These lines run parallel to the streets surrounding the store. This pattern of movement suggests a simulation of the street shopping activity inside the store, which as Pepponis<sup>31</sup> points out that the street combines specialisation with non-commitment, thus walking along the aisle of a department store could combine specialisation and commitment.

None of the long integrated lines in the ground floor runs through from one street to the parallel one on the other side of the store, unlike Harrods<sup>32</sup> where axial lines run through the ground floor from one entrance to another which makes it easier for customers to find their way out. On the other hand the ground floor of Selfridges does not have this property, which makes the floor more structured and less intelligible with a suggestion for customers to go deeper into it rather than find the next exit and leave the store.

The integration and radius three integration cores of the ground floor (**figures 3.24 & 3.31**) show differences in the arrangement of different departments and groups of departments. The men's wear group of departments represent an orthogonal grid with some diagonal lines at the edges. The large spaces between the structured axial lines of the food hall reveal the big counters of the hall. The diagonal lines with three orthogonal lines joining them with the

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<sup>31</sup> Pepponis, John, *The Elusive Architecture of Shop Displays and Interiors*. Op.cit.

<sup>32</sup> Naaman, Hala, *The Department Store of Harrods: Managerial Decisions and Spatial Variables*, September 1990.

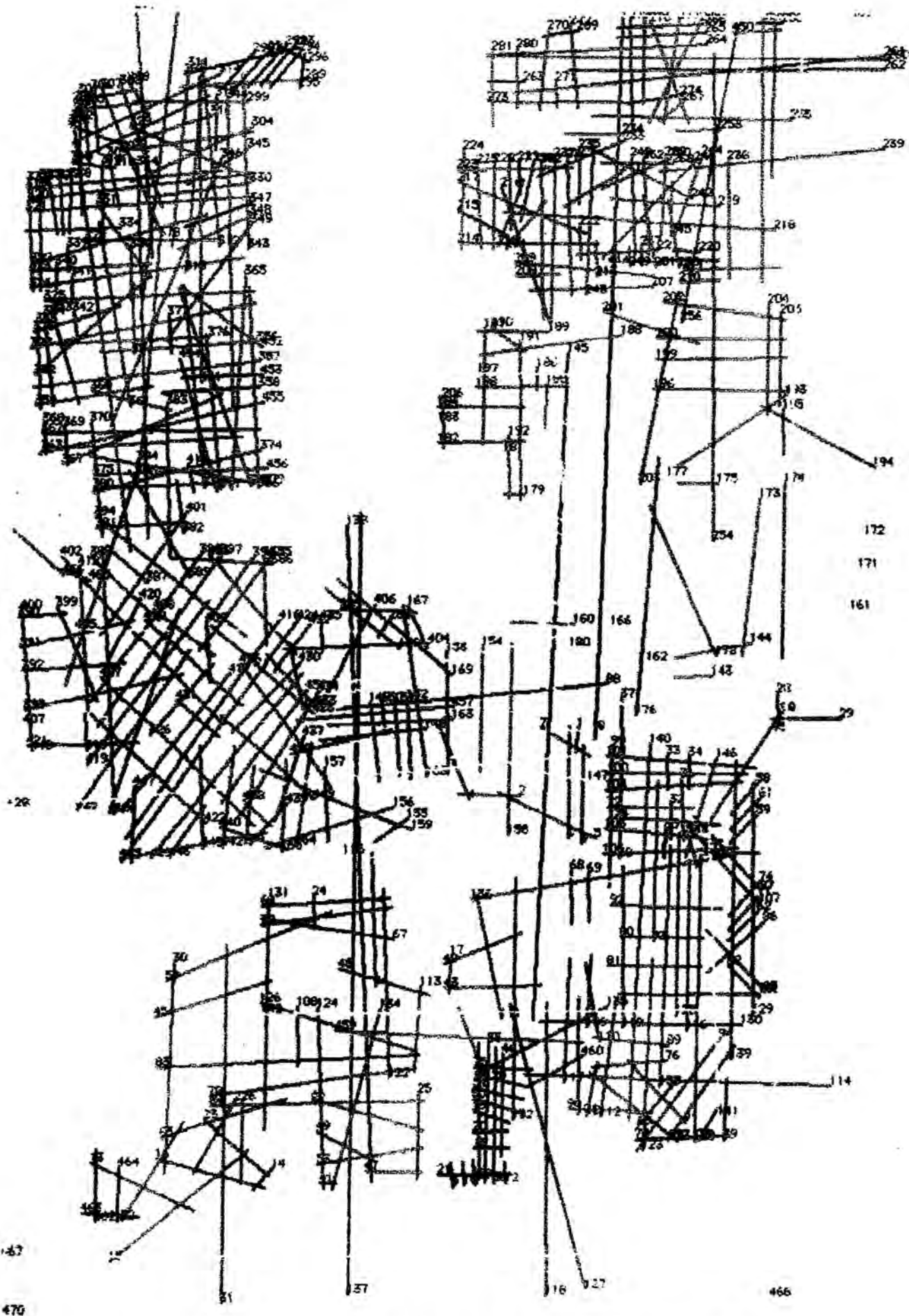


Figure 3.24 The integration (1/x RRA) core of the Ground Floor

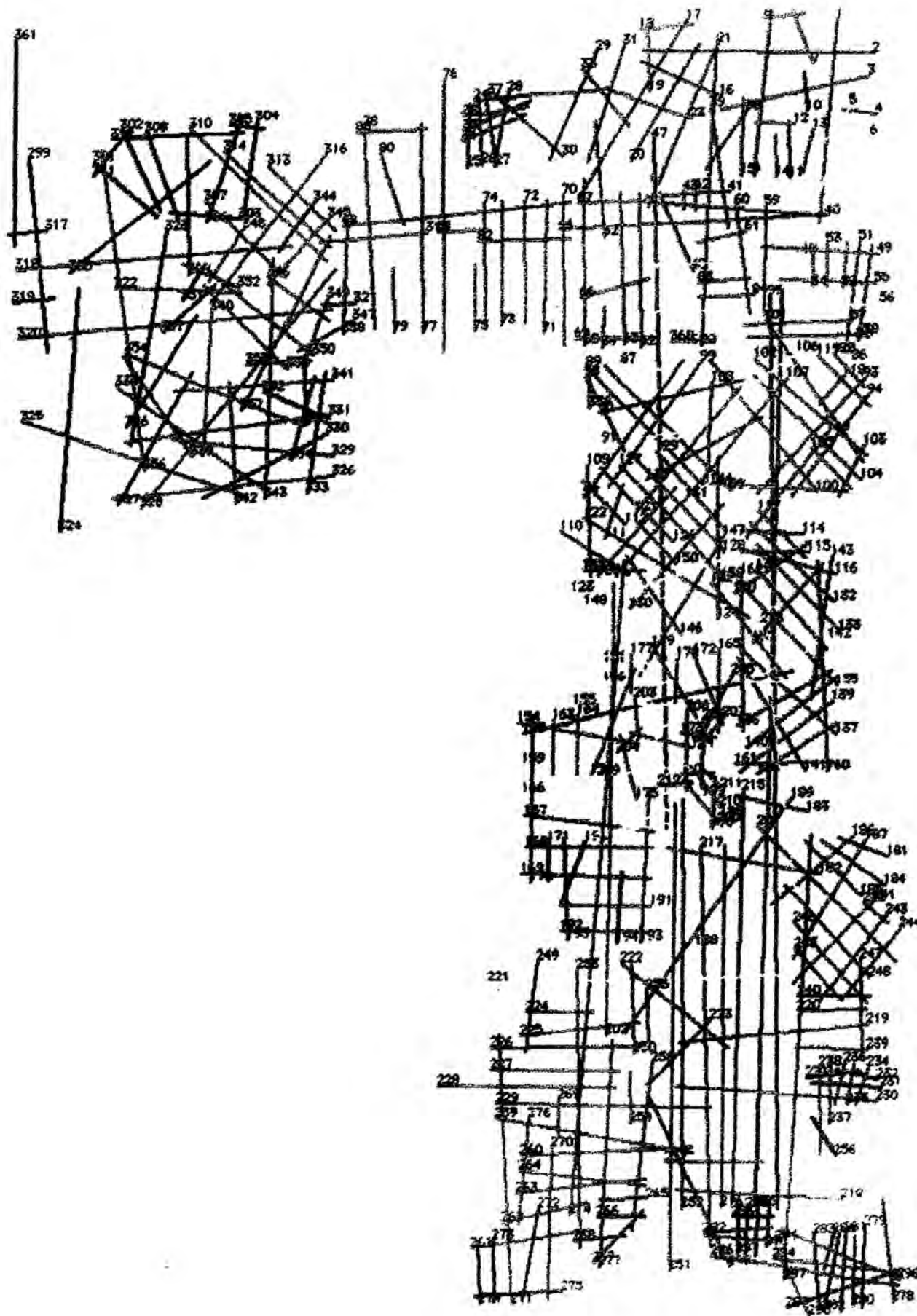


Figure 3.25 The integration (1/x RRA) core of the Basement Floor

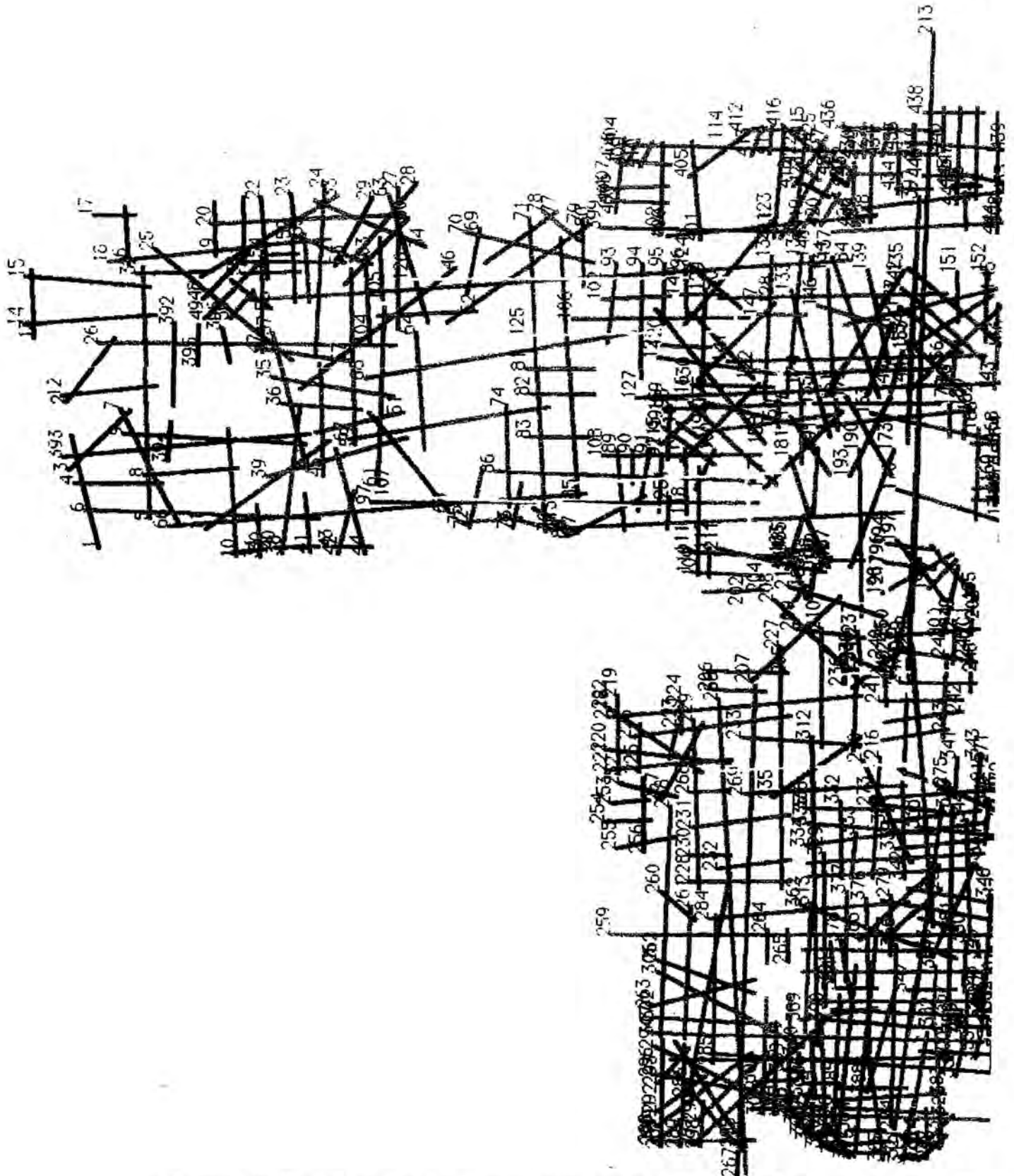


Figure 3. 26 The integration (1/x RRA) core of the First Floor

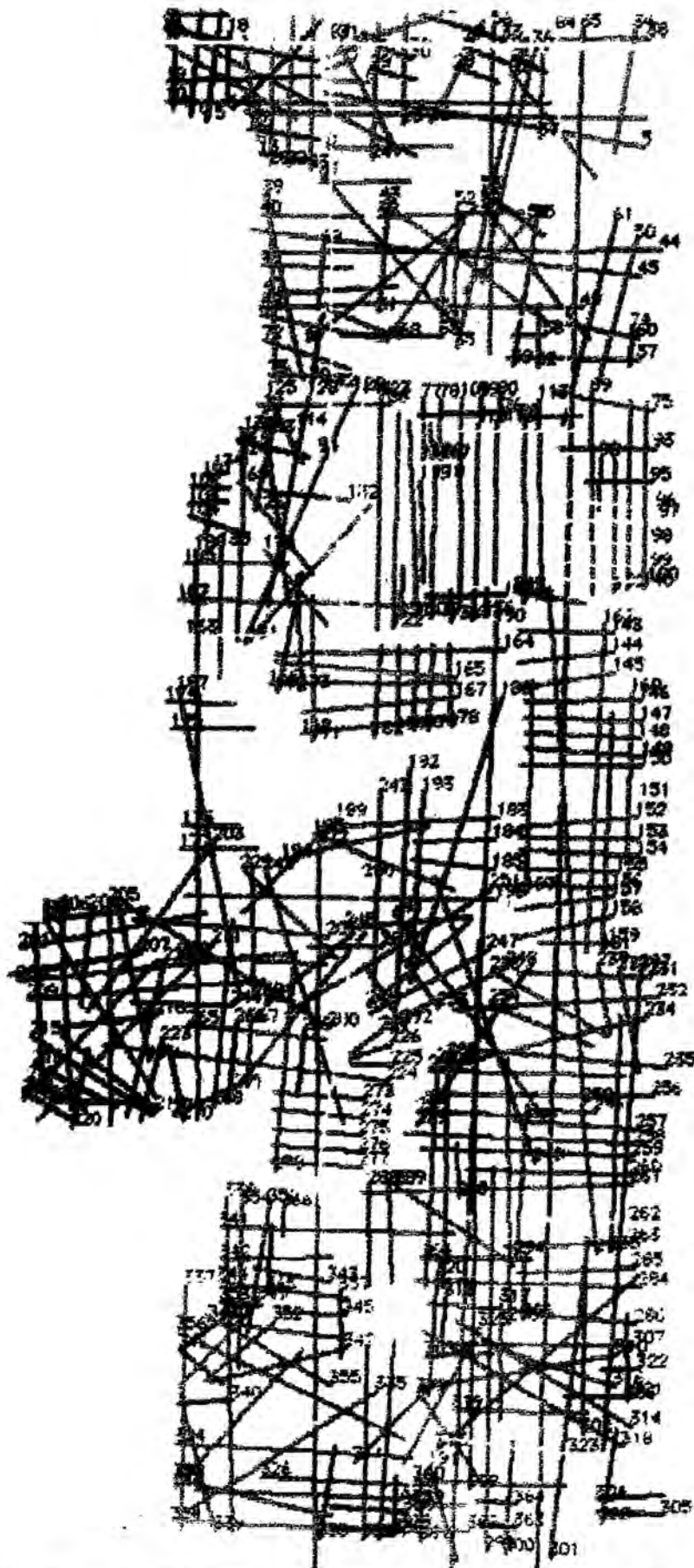
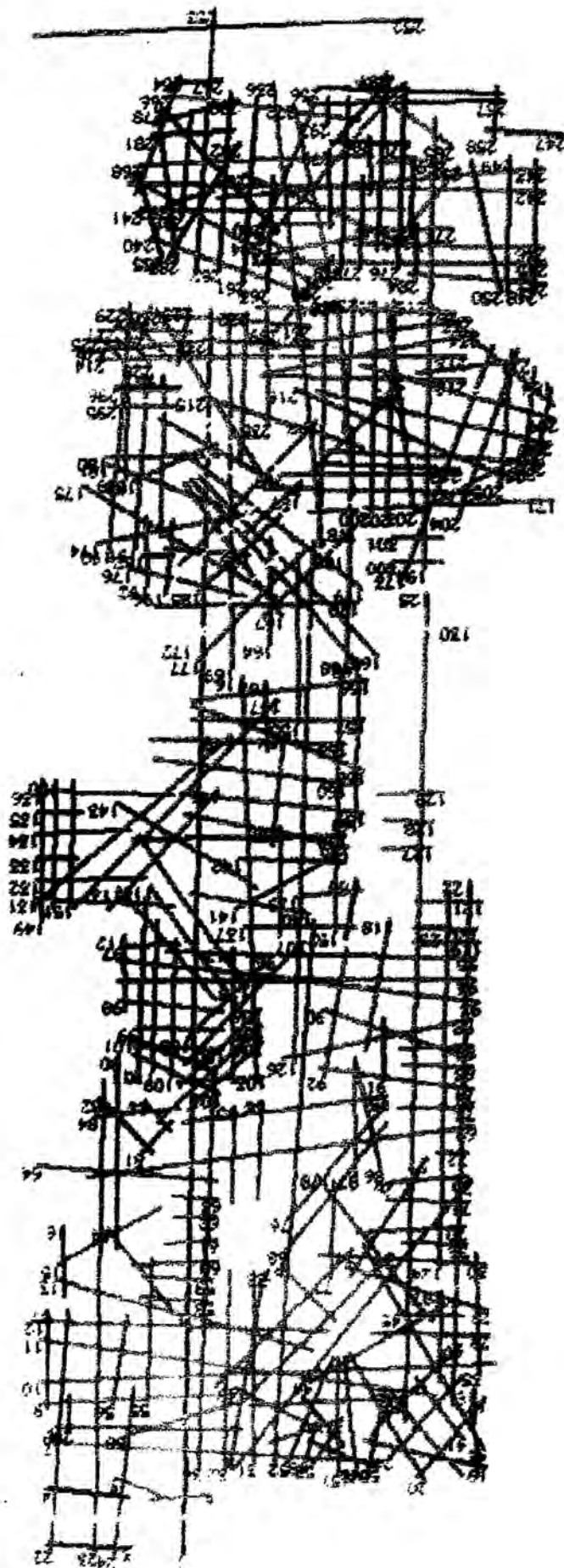


Figure 3.27 The integration (1/x R.R.A) core of the Second Floor





**Figure 3.20 The Integration (1/x B.R.A.) core of the Third Floor**

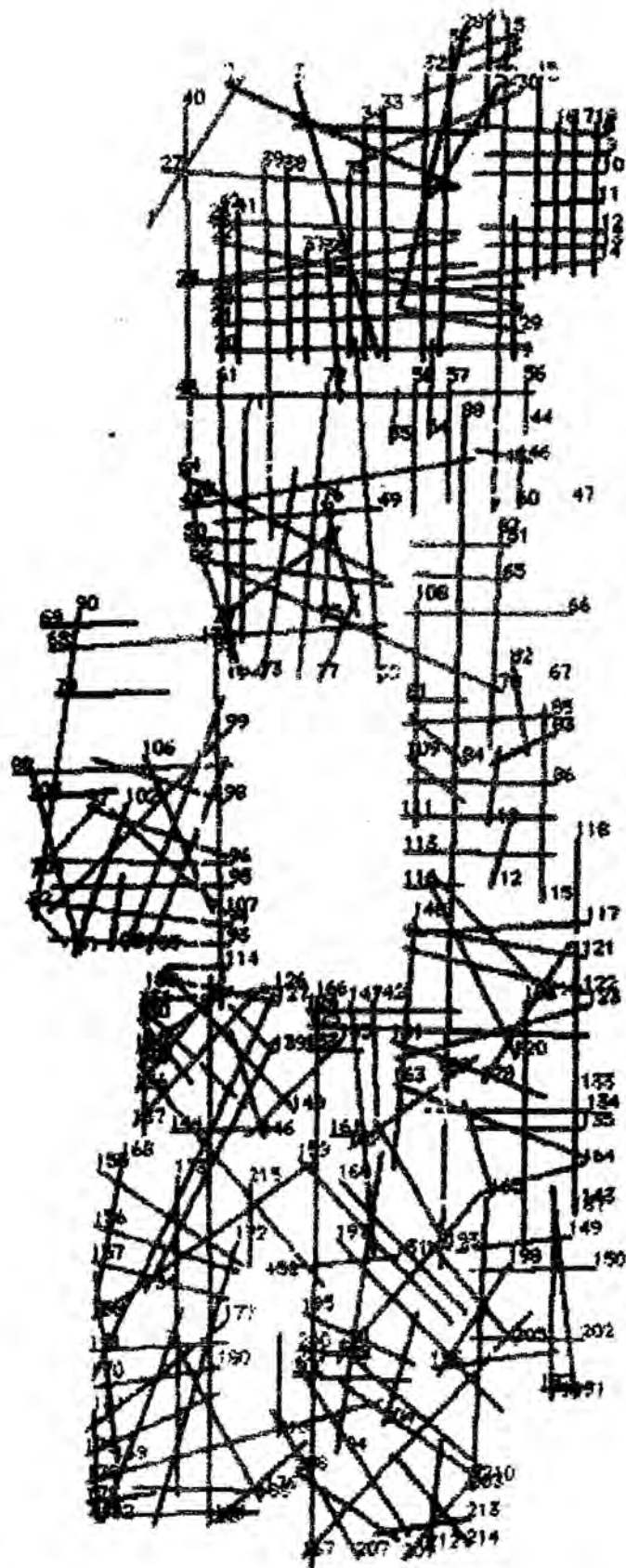


Figure 3.29 The Integration (1/x B.R.A) core of the Fourth Floor

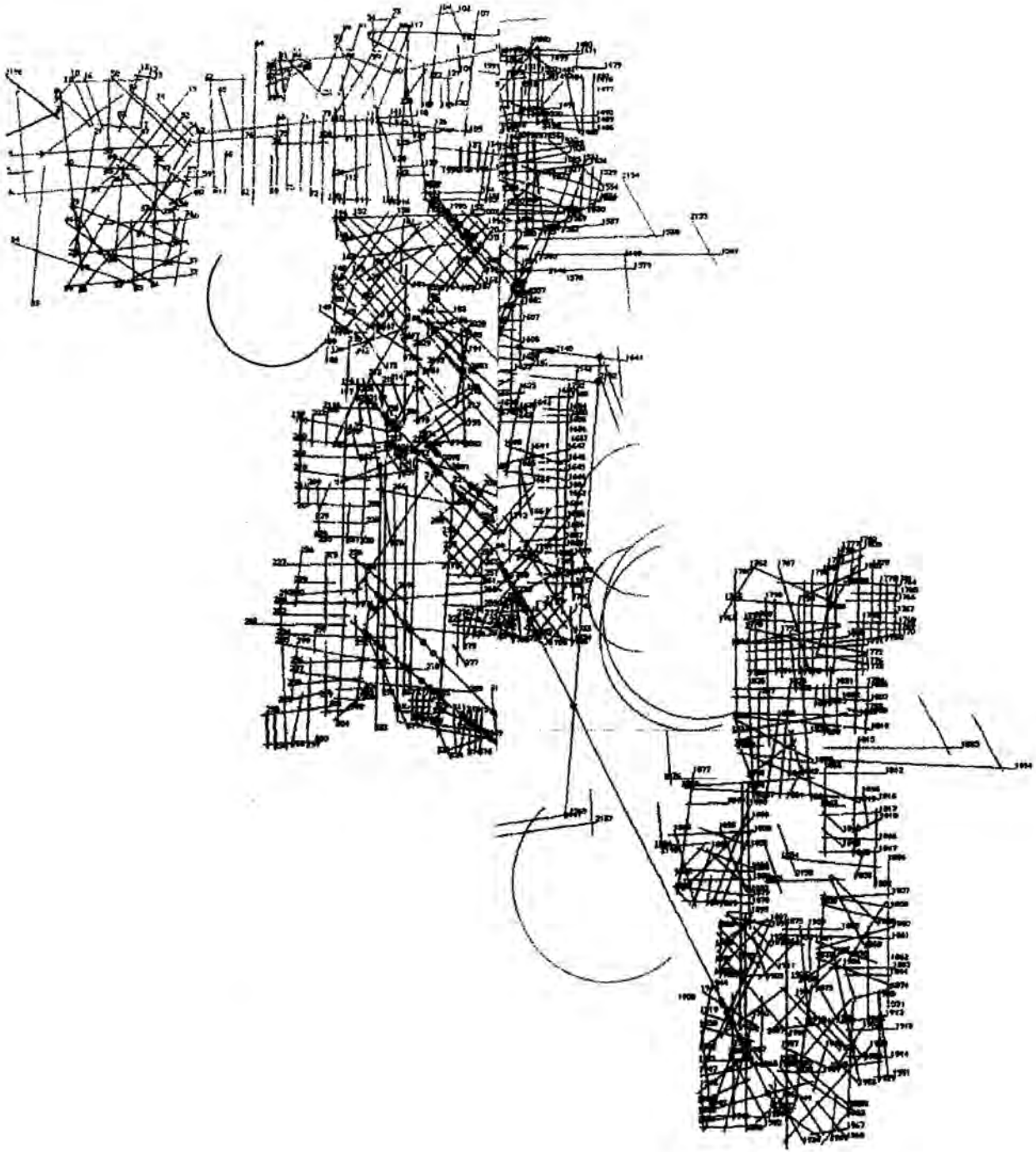


Figure 3.30 The radius of Selfridges

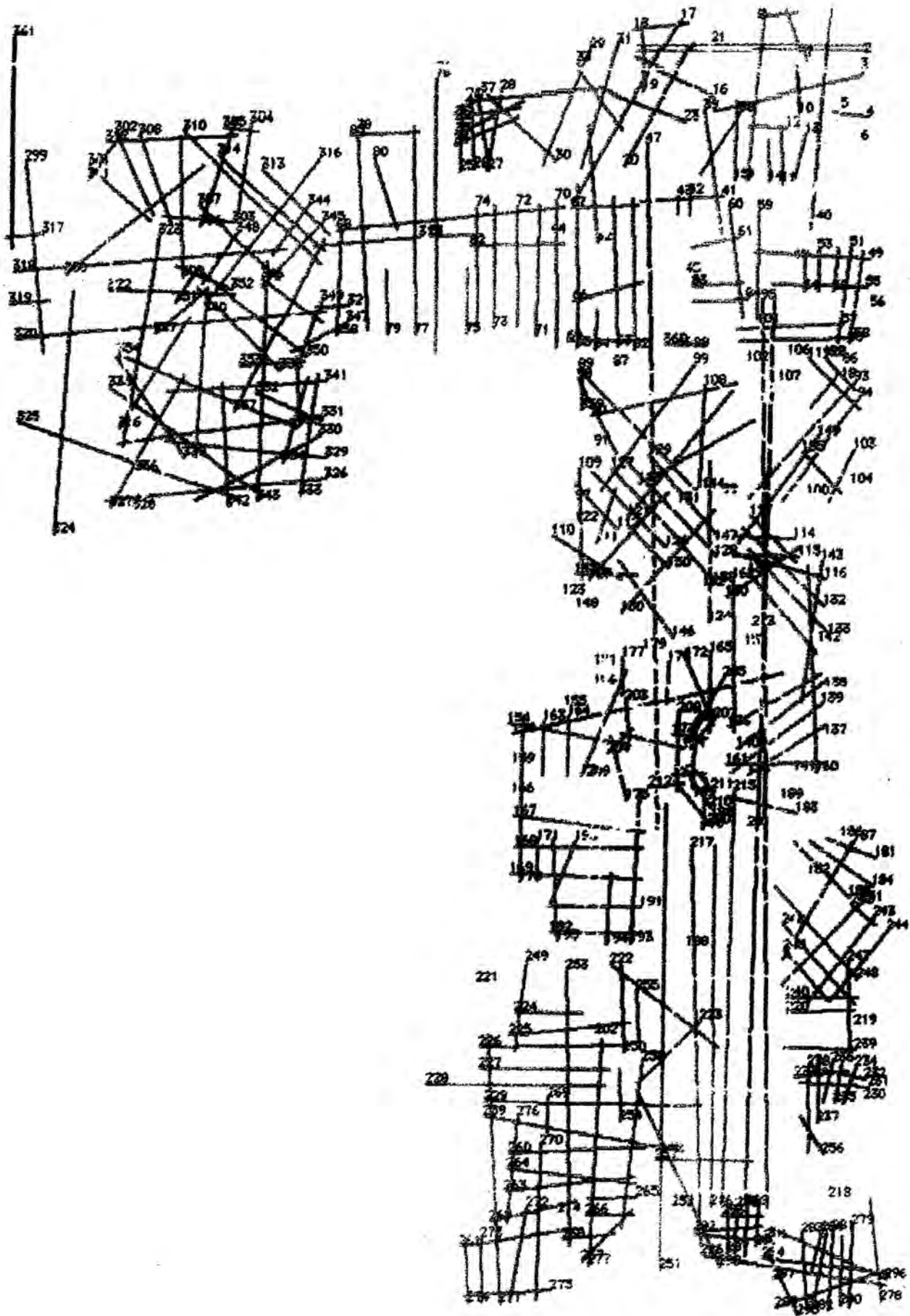


Figure 3.32 The radius three integration (1/x RRA 3) core of the Basement Floor

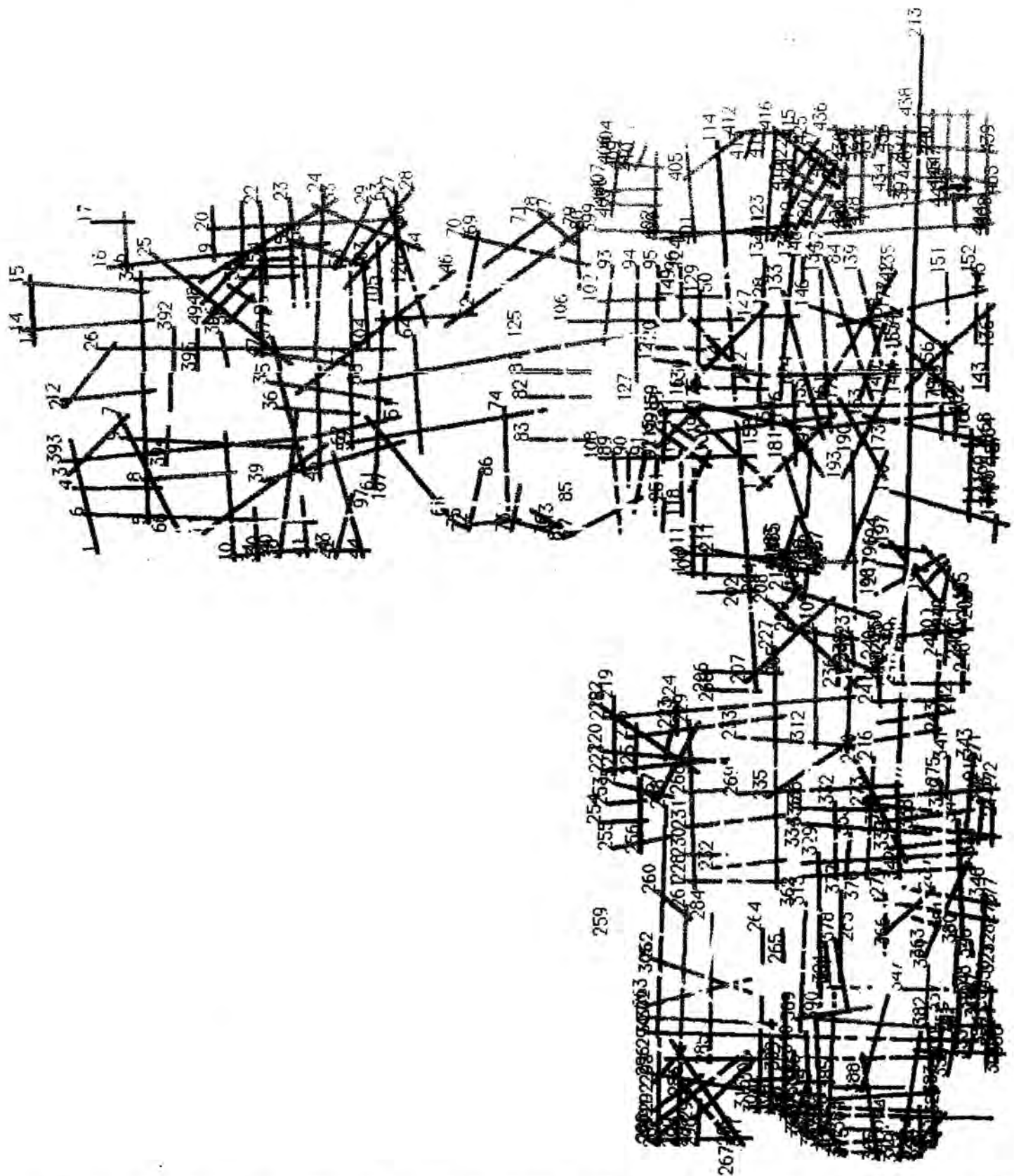


Figure 3.33 The radius three integration (1/x RRA3) core of the First Floor

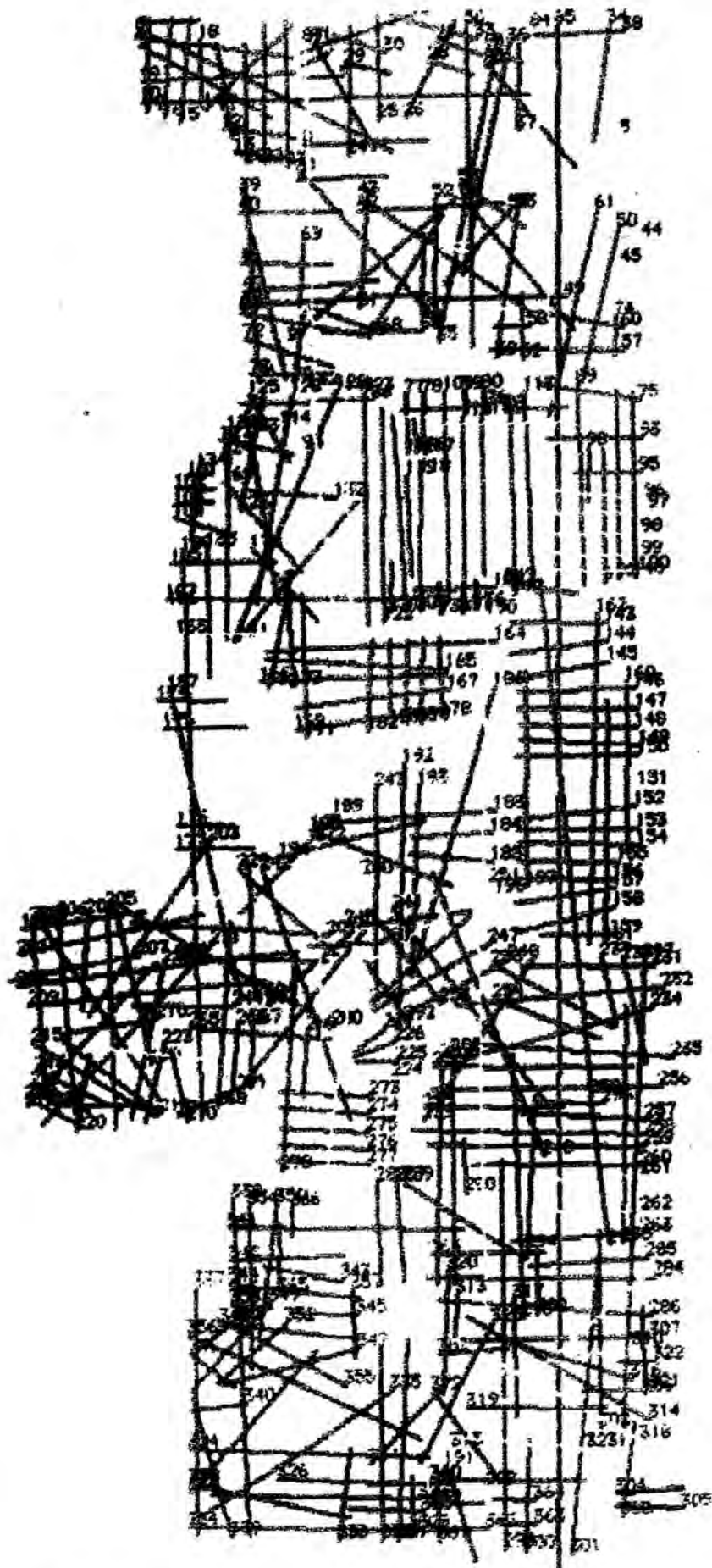


Figure 3.34 The radius three integration core of the Second Floor

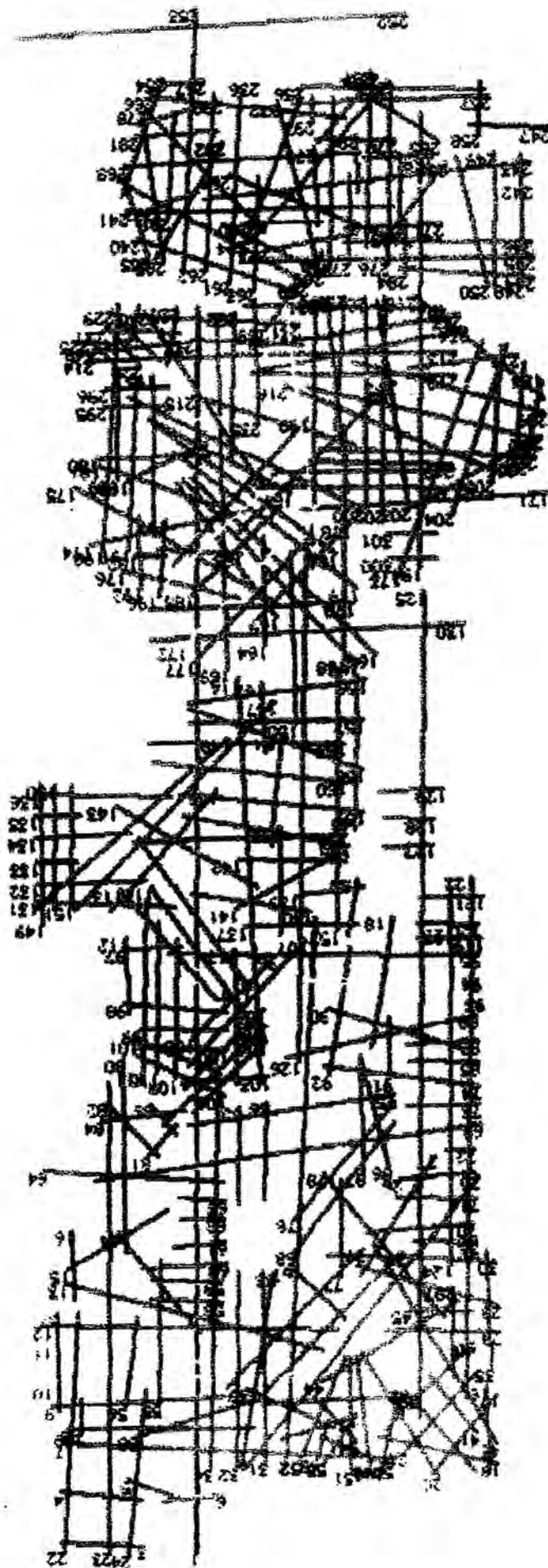


Figure 3.35 The radius three integration (core of the Third Floor

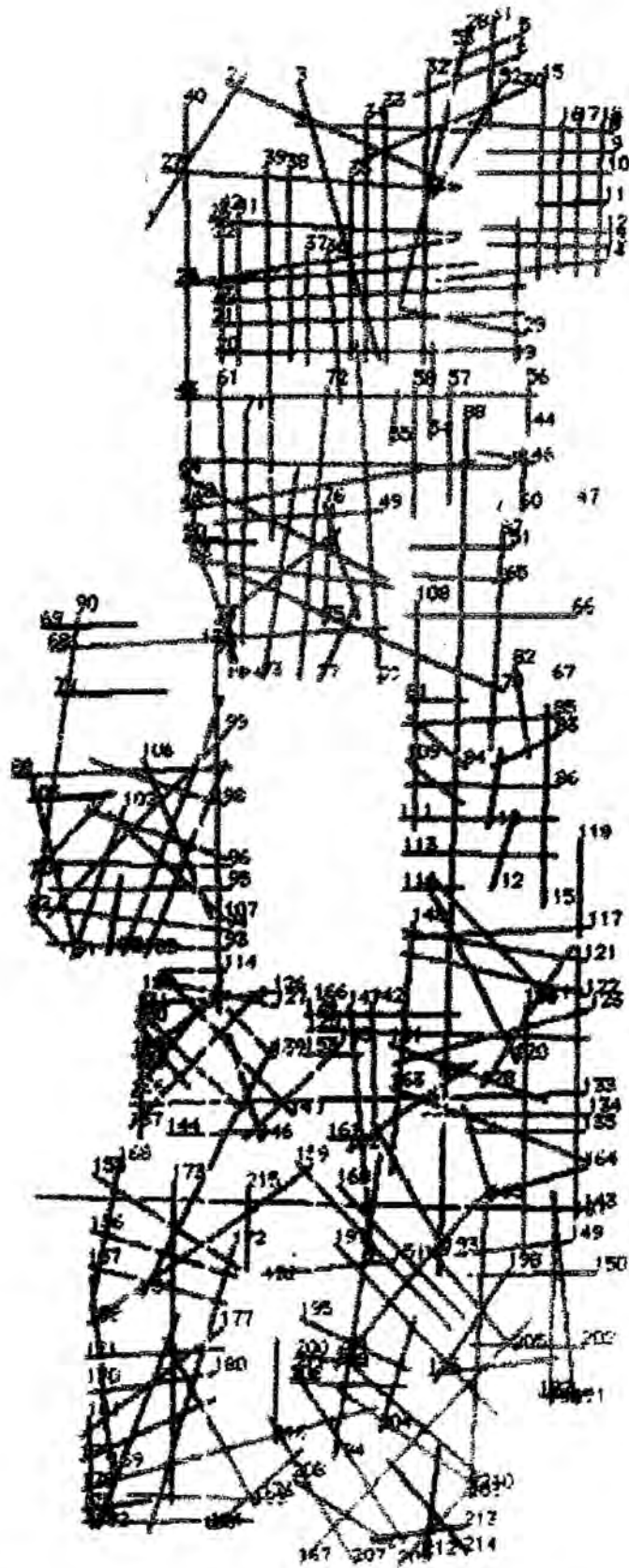


Figure 3.36 The radius three integration core of the Fourth Floor

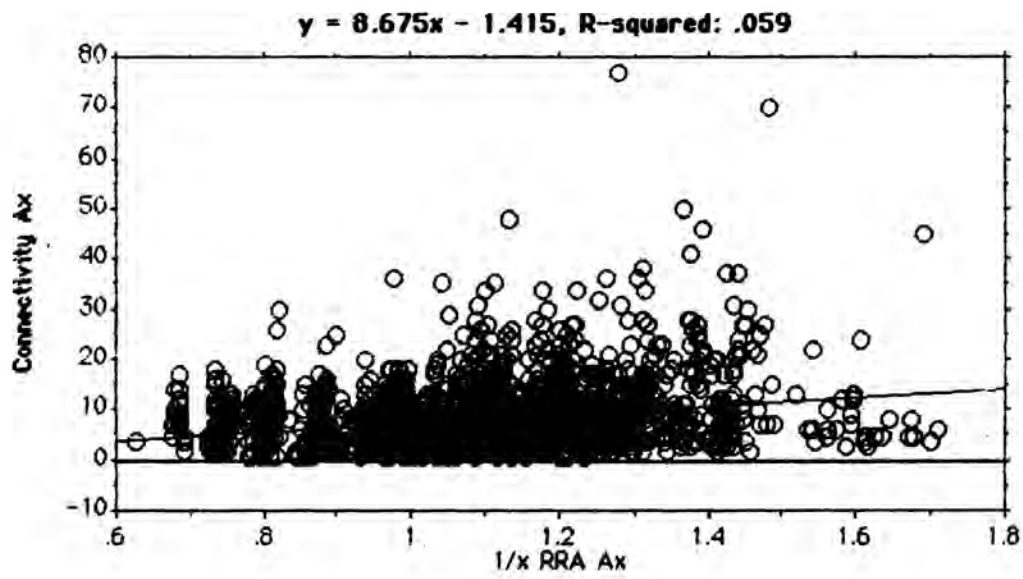


adjacent departments are characteristic of the stationery and greeting cards, ... etc. group of departments. Miss Selfridge shows a dense structure grid with long lines running through, as well as the cameras, handbags, ... etc. and lingerie departments. The perfumery, cosmetics and hosiery departments are characterised by large spaces between axial lines revealing the huge display counters and providing space for customers to move about. Both cores, integration and integration radius three pick the long axial lines running through departments as the most integrated, while radius three also picks the long lines running through local lumps of lines. The cores of the basement floor (figures 3.25 & 3.32) show a structured L-shaped plan. Diagonal lines represent the china, glassware and gardening departments. Almost an ordered grid represents the kitchen gadgets and small electric appliances departments. At long side of the plan long lines run through stopping at a restaurant and kitchen gadgets department at the other. No long lines run through the other side of the plan. The cores of the first floor (figures 3.26 & 3.33) show a very dense structured L-shaped plan. Unlike the basement floor no lines run through any side of the plan from beginning to end. The cores of the second floor (figures 3.27 & 3.34) show a dense interconnected grid of lines; most of which are orthogonal and some are diagonal. The cores of the third floor (figures 3.28 & 3.35) show a structured plan of diagonal lines with one straight line running from side to side parallel to the street. The cores of the fourth floor (figures 3.29 & 3.36) show a characteristic feature of a blank space in its centre representing a court which divides the plan into four parts around it. One long line joins the two parts of the side parallel to the street. In the second, third and fourth floors there is no great difference between integration and integration radius three cores except that the latter integrates the lines more.

### 3.7 Axial Intelligibility

**Figure 3.37** represents the axial global intelligibility of the global system which produced a weak correlation ( $r= 0.242$ ). **Figures 3.38 a-f** represent the axial intelligibility of the individual floors. Accordingly it ranks in the following order:

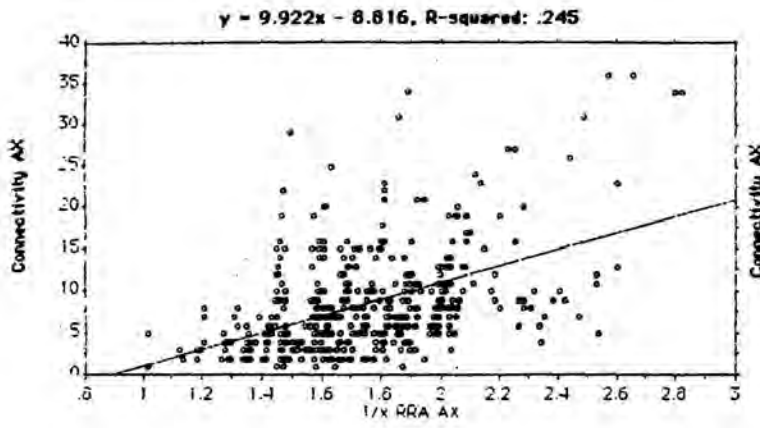
2nd ( $r=.676$ )> Base ( $r=0.65$ ) > 1st & 3rd ( $r=0.573$ ) > 4th ( $r=0.506$ )> Gr ( $r=0.494$ )



**Figure 3.37** The Axial Spatial Intelligibility of Selfridges as a Global System

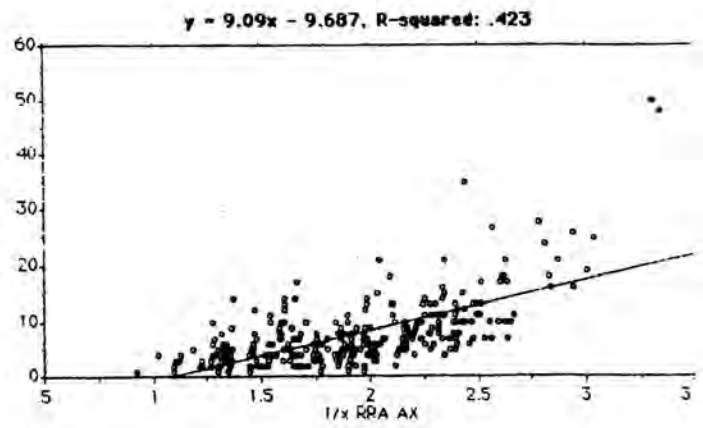
For the intelligibility of each individual floor, in most cases that of axial maps is higher than that of the boundary maps, except for the ground and the fourth where the value of the correlation coefficient is higher for the boundary maps.

This chapter looked at the spatial characteristics of the store, examining it once as a global system, and once as separate individual floors. In both cases, the boundary and axial cores were used for the analysis, each showing different properties. The following chapter will be looking at the spatial properties in relation to the performance of the store in terms of sales and profits.



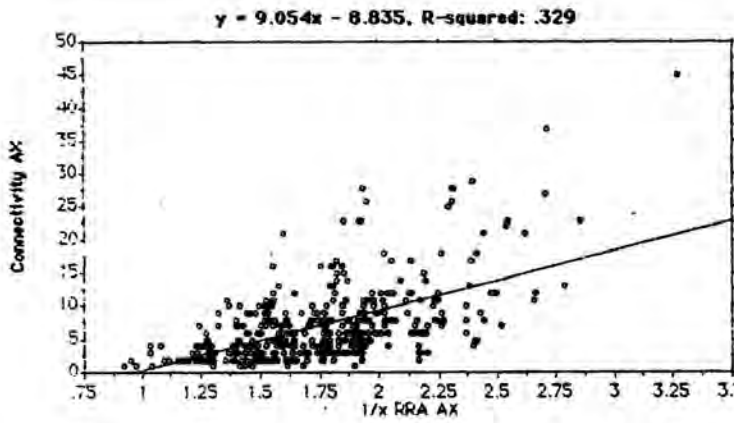
$r = 0.5$

Ground Floor



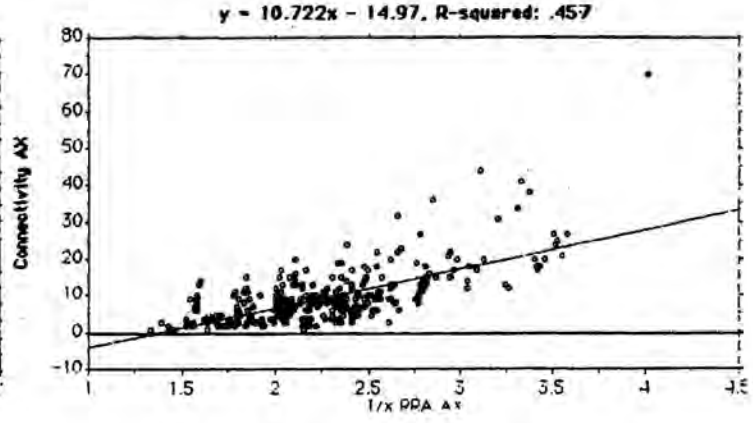
$r = 0.65$

Basement Floor



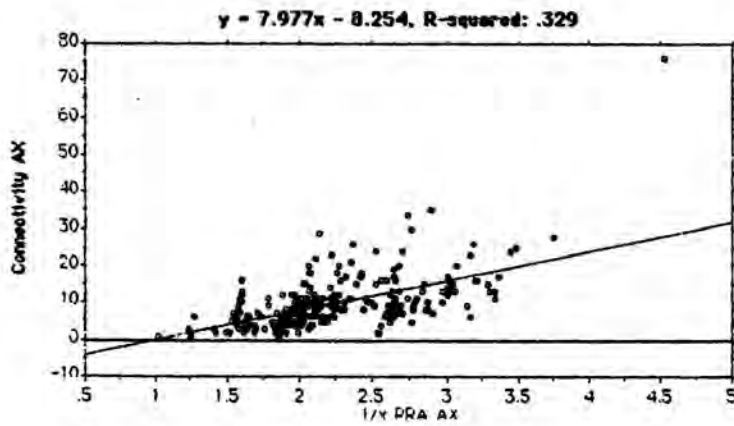
$r = 0.573$

First Floor



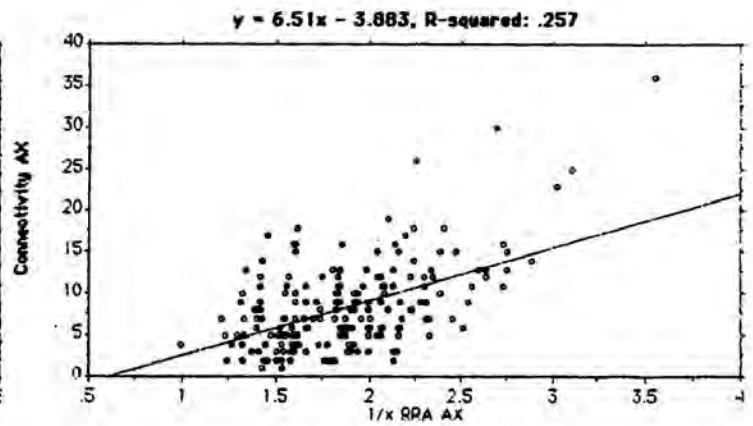
$r = 0.676$

Second Floor



$r = 0.574$

Third Floor



$r = 0.507$

Fourth Floor

Figures 338 a-f

## Chapter Four

This chapter analyses the retail information obtained from the management of Selfridges, in relation to the spatial variables analysed in the previous chapter. Part 4.1 introduces the obtained information. Part 4.2 deals with the retail variables in relation to the spatial variables of the store. Part 4.3 analyses the retail information in relation to each other.

### 4.1 Retail Information<sup>39</sup>

The data supplied consisted of the following figures:

- 1] The gross income<sup>34</sup> of most of the departments in the store for the commercial year from 31 Jan 1990 till 31 Jan 1991.
- 2] The gross profit of the same departments for the same year [which is the gross income - (the wholesale prices of the product + the salaries of the staff of each department)].
- 3] The number of items sold in most of the departments<sup>35</sup> in the store during the week from the 12th to the 17th of August 1991.
- 4] The gross income of the same departments for the same week.
- 5] The gross profit of the same departments for the same week.
- 6] The number of unique items on display for about 60% only of the departments of the store<sup>36</sup> during the same week. This would account for the amount of choice each department offers.
  - Dividing 4 by 3, the average price/item for each department was obtained.
  - Dividing 3 by 6 which is the number of items sold/number of items on display would account for the average stock turnovers of the

---

<sup>39</sup> Because of the sensitivity of the information obtained, the store management requested that the exact figures should not be revealed. Accordingly, a ratio of each variable was obtained by dividing the value of each department that of the highest value to obtain a ratio whereby the biggest number would be 1.0 while the lower values could range from 0.999 to 0.001. That is why the variables appearing in the correlations are called "Name Ratio" e.g. Gross Income Ratio.

<sup>34</sup> When "gross income ratio" or "gross profit ratio" appears in a correlation they mean "gross income/year ratio" and "gross profit/year ratio" respectively. For any other period, the figures are labelled separately.

<sup>35</sup> Except restaurants and coffee shops.

<sup>36</sup> The other 40% of the departments were concessions, the retail data of which was not available to the management of Selfridges, as they are run independently.

departments of the store.

## **4.2 Spatial Variables<sup>2</sup> in Relation to Retail Variables:**

### **4.2.1 Correlations with Integration:**

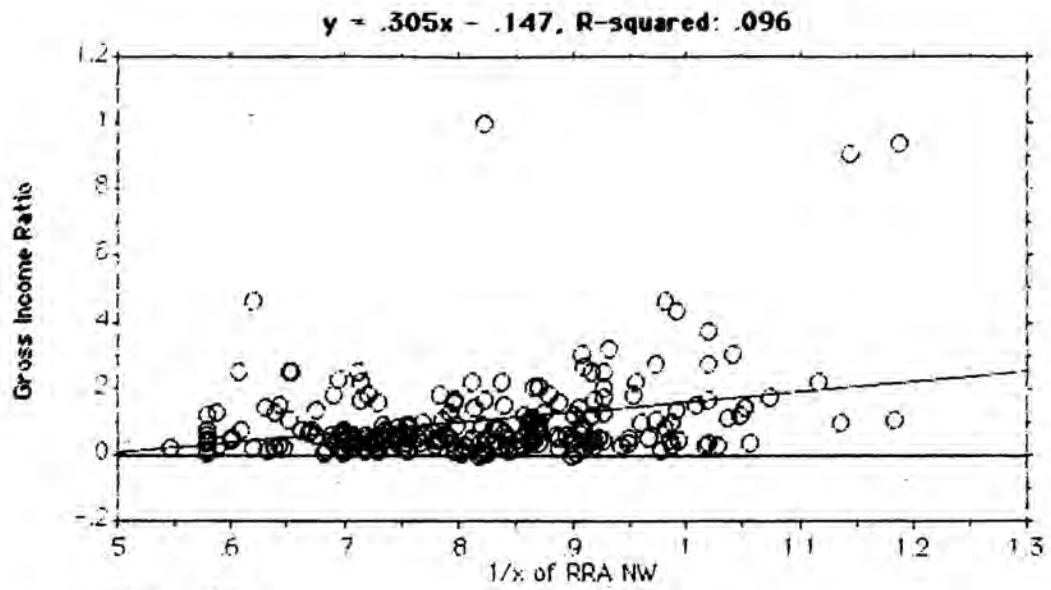
Figures 4.1- 4.7 represent the correlations between integration and the different retail variables for the store as a global system. On the whole, the correlations are weak; the highest correlation coefficient obtained is 0.406 between the integration and the gross profit ratio/year. The next close result is 0.369 between integration and the gross profit ratio for a week. The rest are very low values. Figures (4.8 a-f) to (4.14 a-f) in appendix II represent the same correlations for individual floors. For correlations with gross income ratio (figures 4.8 a-f), the ground floor produces the highest result ( $r=0.606$ ), followed by the basement floor ( $r=0.595$ ), followed by the first floor ( $r=0.418$ ). The rest of the floors produced very weak results. For correlations with gross profit ratio (figures 4.9 a-f), the ground floor produced the highest result ( $r=0.63$ ), followed by the basement floor ( $r=0.548$ ), followed by the first floor ( $r=0.474$ ). The rest of the floors produced very weak correlations. Figures 4.10 a-f represent correlations with number of items sold. The first floor produced a correlation with  $r=0.504$ , the rest of the floors produced weak correlations. Figures 4.11 a-f represent correlations with gross income ratio/week. The best result was obtained from the basement floor ( $r=0.48$ ), followed by the first floor ( $r=0.461$ ), followed by the ground floor ( $r=0.412$ ). The rest of the floors produced weak correlations. Figures 4.12 a-f represent correlations with gross profit ratio/week. The highest correlation obtained was for the first floor ( $r=0.53$ ), followed by the ground floor ( $r=0.493$ ), followed by the basement ( $r=0.45$ ). The rest of the floors produced weak correlations. Correlations with number of items on display (figures 4.13 a-f) as well as with the average price/item (figures 4.14 a-f) produced weak correlations.

### **4.2.2 Correlations with Integration Radius Three:**

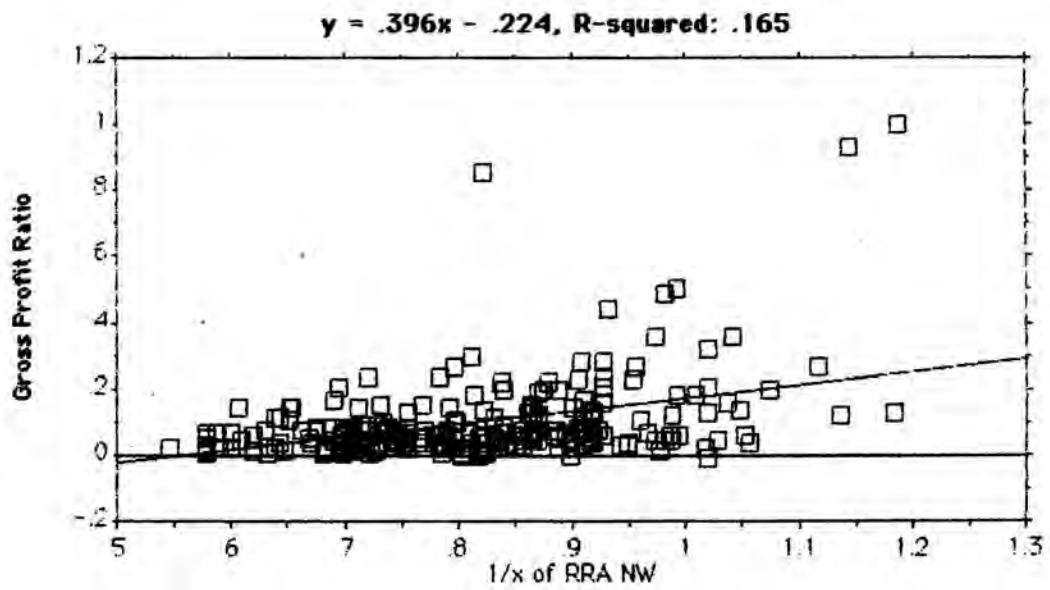
Figures 4.15-4.21 represent the correlations between integration radius three

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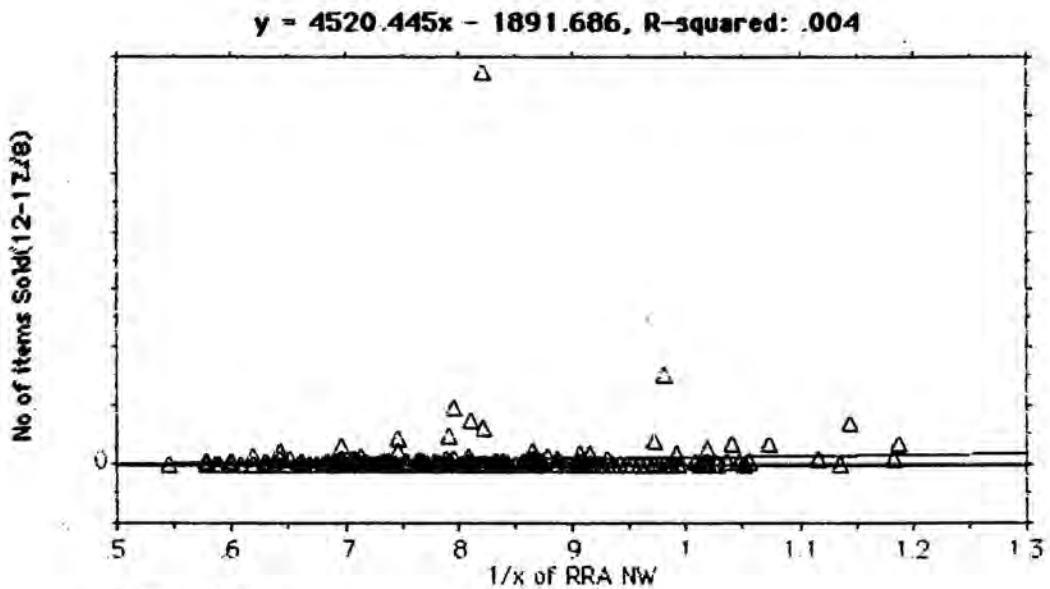
<sup>2</sup>Due to time constraints, correlations were carried out for the boundary spatial variables only. However, the axial spatial variables of the ground floor only were correlated with the retail variables. Because their results were very close to those of the boundary's, the latter was preferred as it accounts directly for departments.



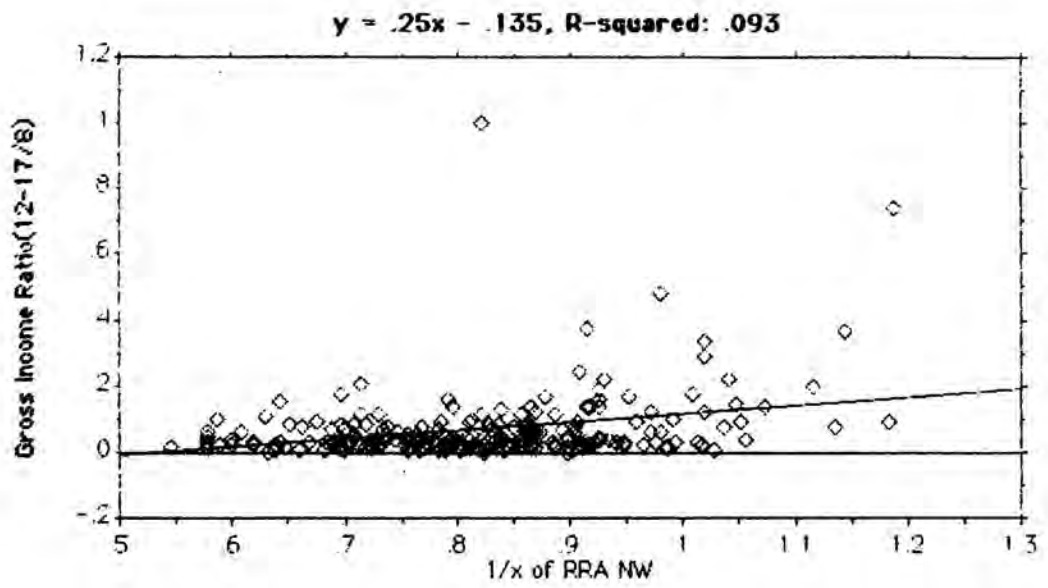
**Figure 41**



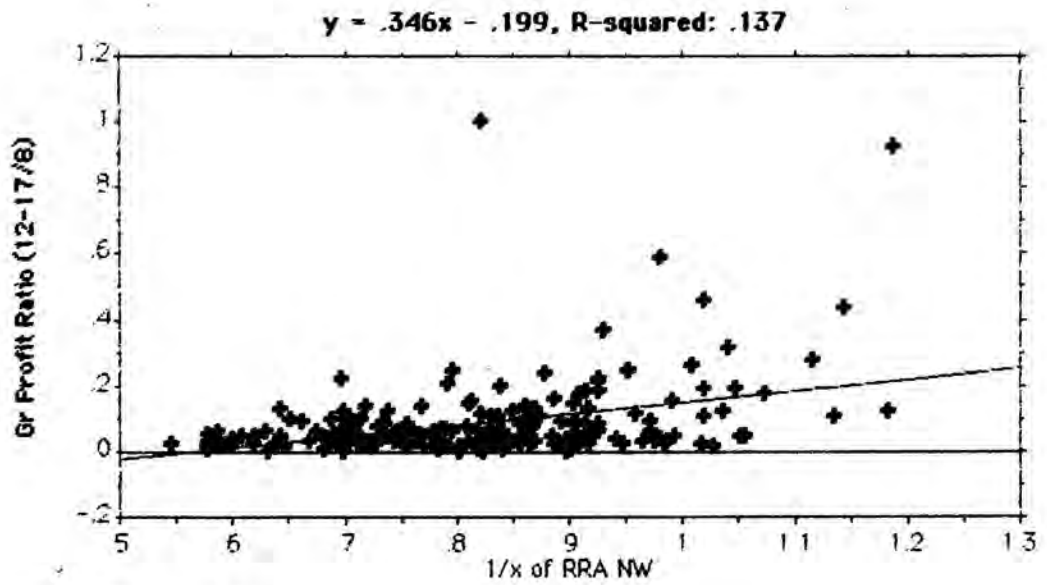
**Figure 42**



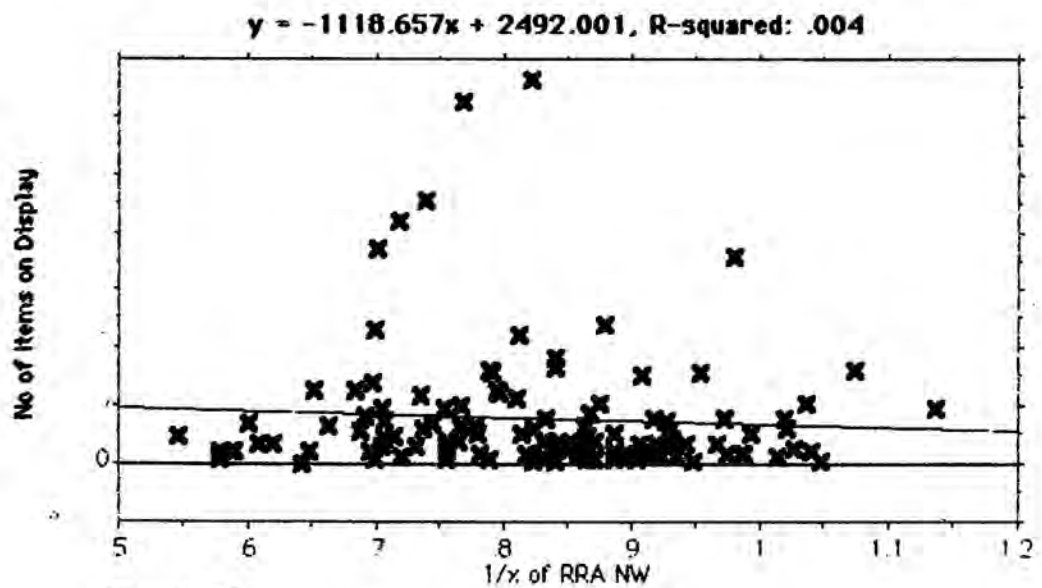
**Figure 43**



**Figure 44**

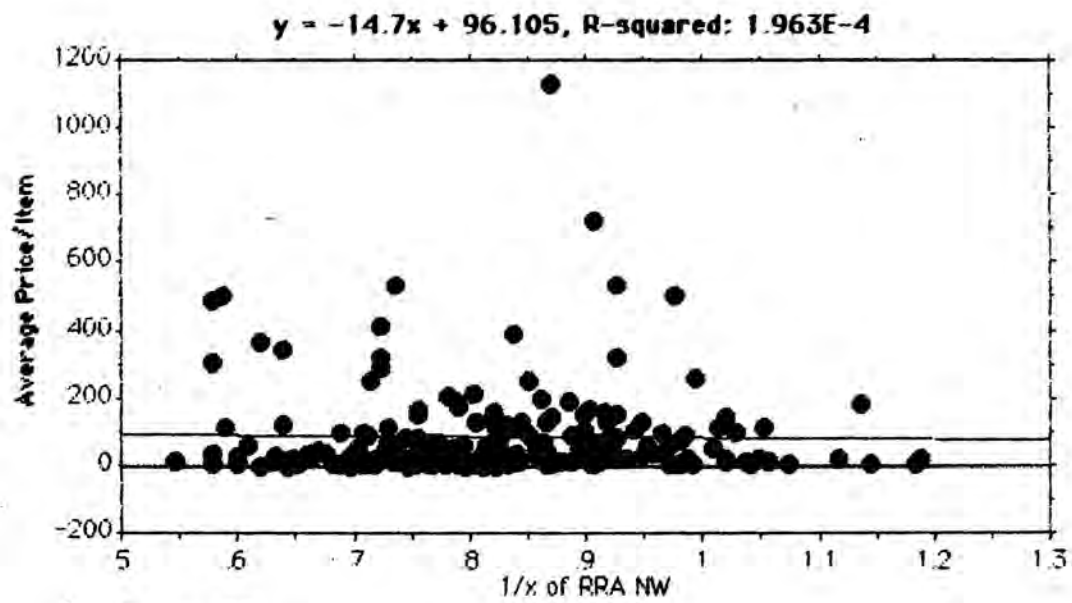


**Figure 45**

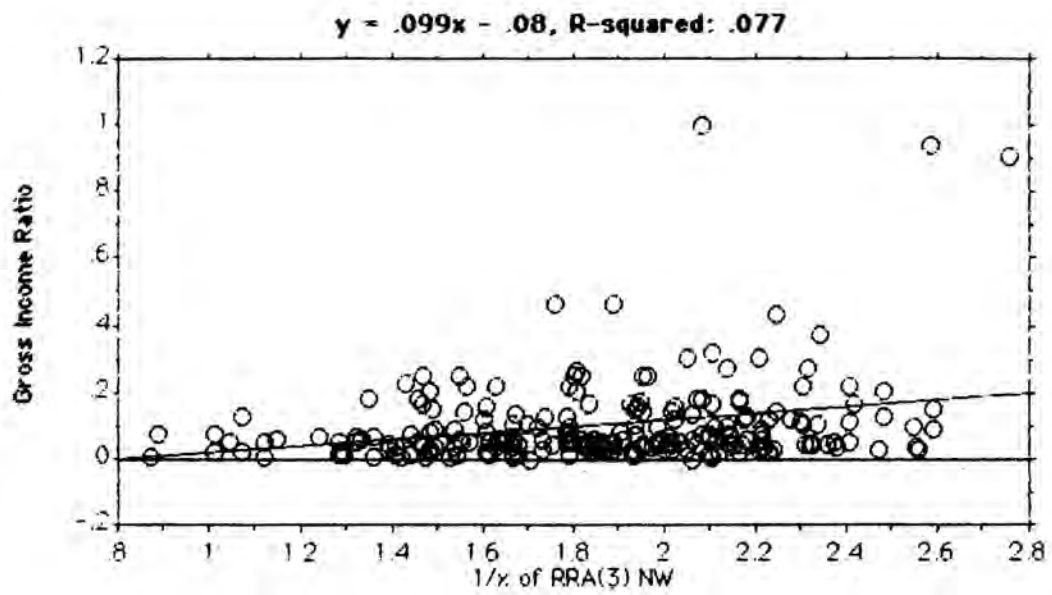


**Figure 46**

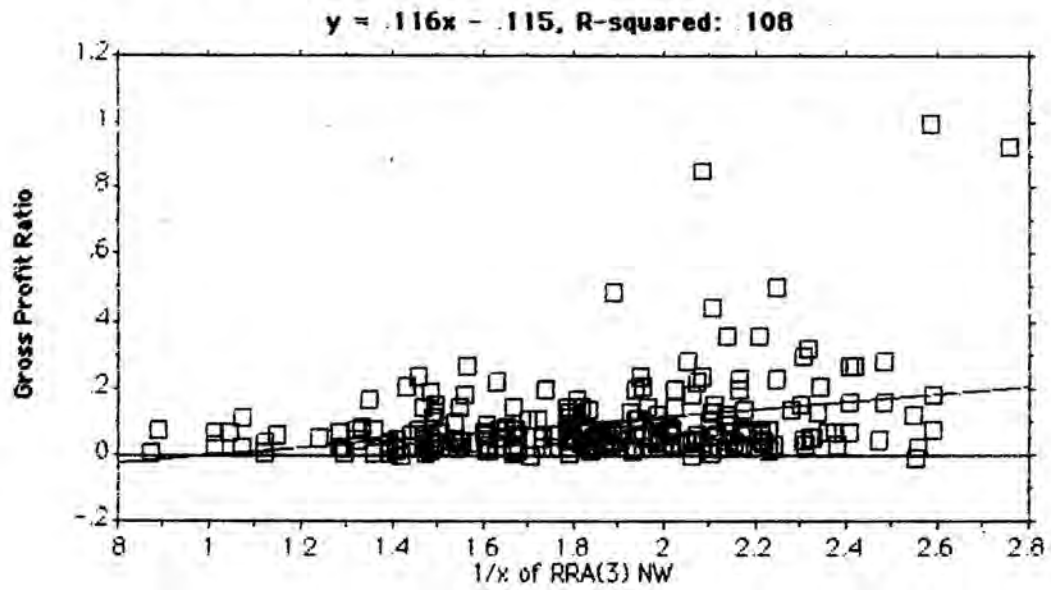




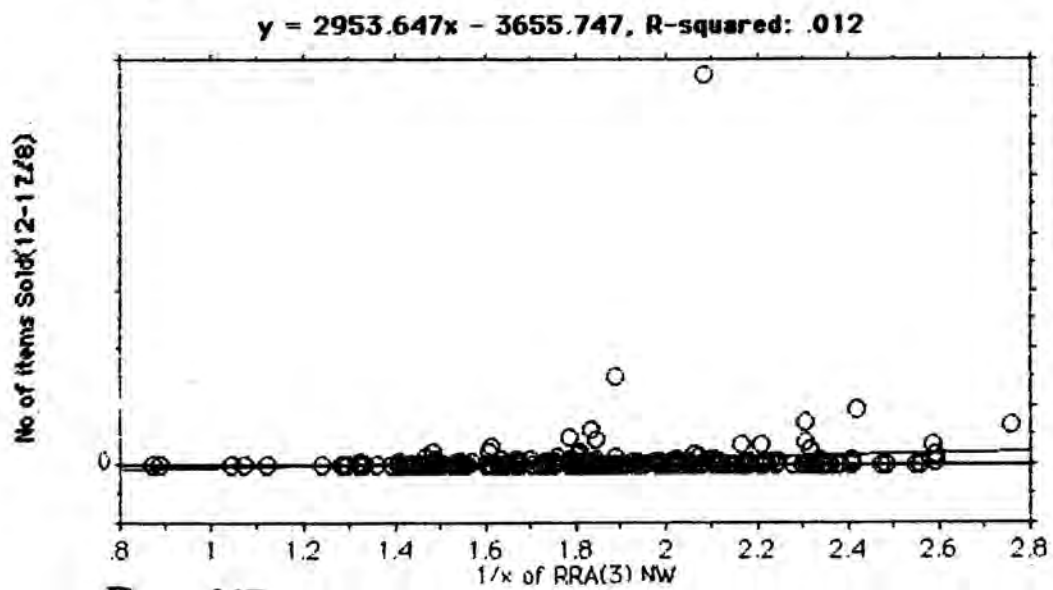
**Figure 47**



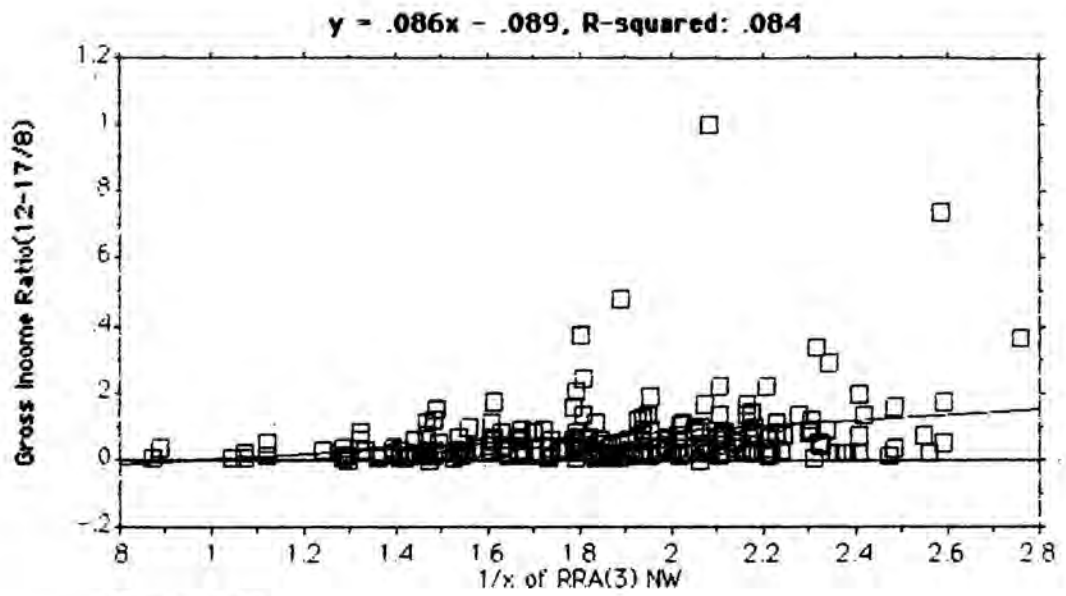
**Figure 4.15**



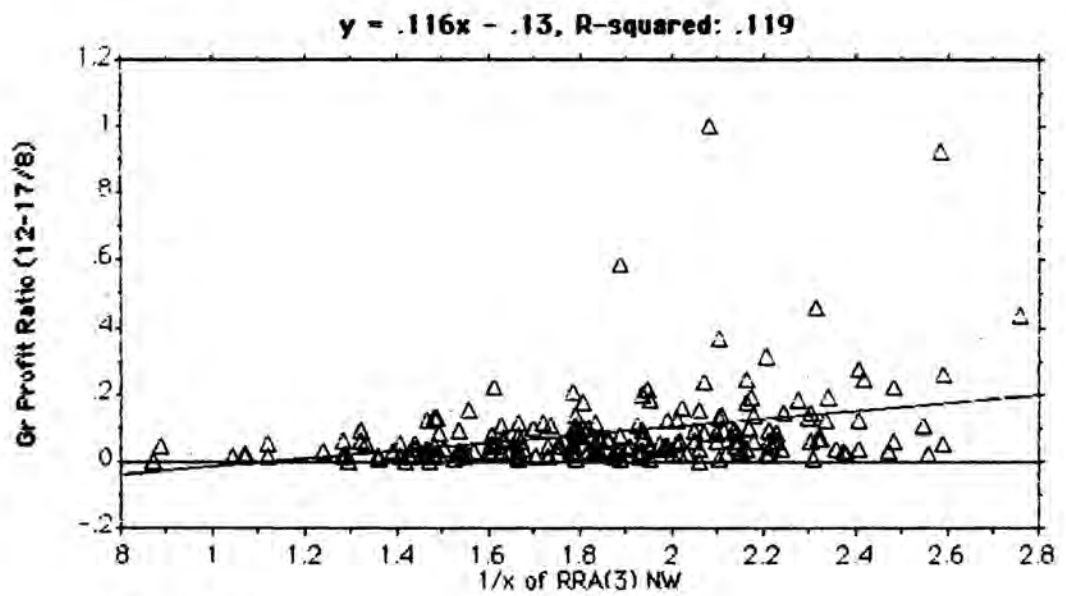
**Figure 4.16**



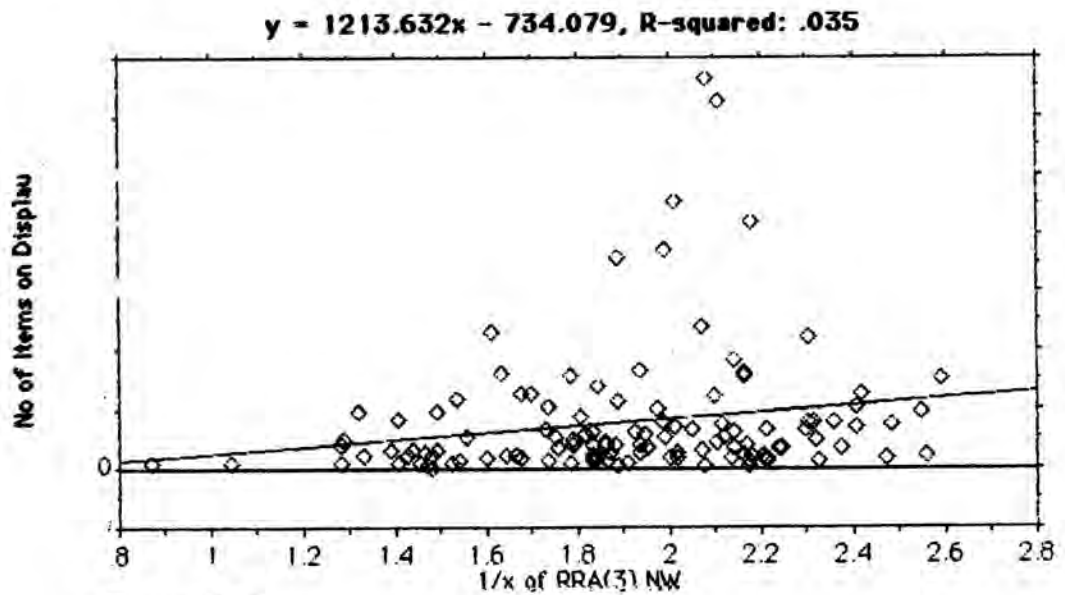
**Figure 4.17**



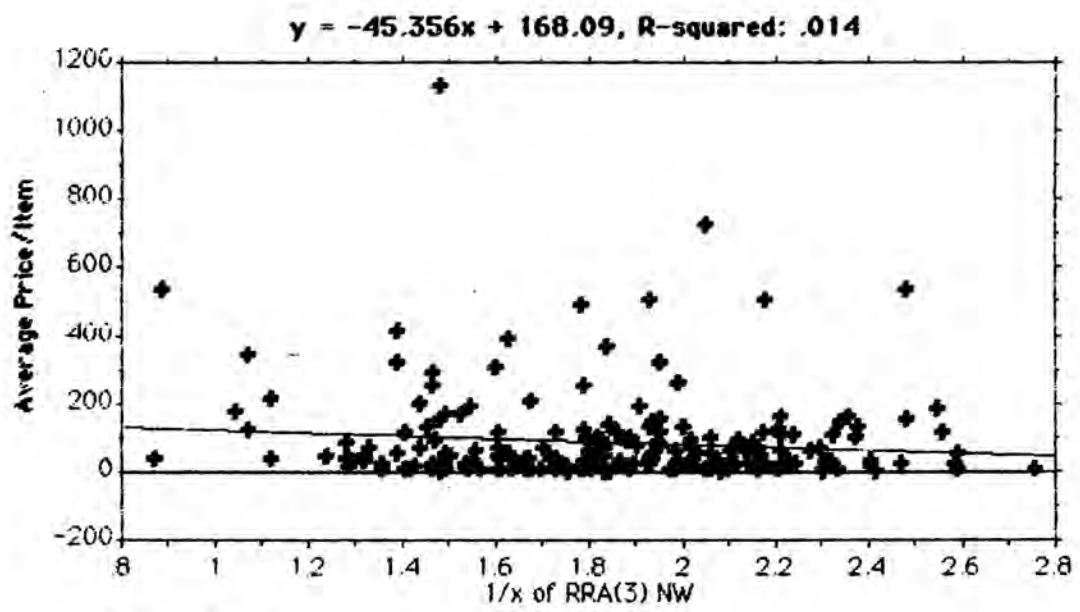
**Figure 4.18**



**Figure 4.19**



**Figure 4.20**



**Figure 421**

and the various retail variables for the store as a global system. The results were weaker and less significant than those of the former and integration. **Figures (4.22 a-f) to (4.28 a-f) in appendix II** represent the same correlations for each individual floor. **Figures 4.22 a-f** represent correlations with gross income ratio. The ground floor produced the highest result ( $r=0.512$ ), followed by the first floor ( $r=0.44$ ). The rest of the floors produced weak correlations. **Figures 4.23 a-f** represent correlations with gross profit ratio. The ground floor produced the highest result ( $r=0.592$ ), followed by the first floor ( $r=0.5$ ). The rest of the floors produced weak correlations. **Figures 4.24 a-f** represent correlations with number of items sold. The first floor produced the highest result ( $r=0.45$ ). The rest of the floors produced weak correlations. **Figures 4.25 a-f** represent correlations with gross income ratio/week. The second floor produced the highest result ( $r=0.45$ ). The rest of the floors produced weak correlations. **Figures 4.26 a-f** represent correlations with gross profit ratio/week. The first floor produced the highest result ( $r=0.548$ ), followed by the ground floor ( $r=0.45$ ). The rest of the floors produced weak correlations. **Figures 4.27 a-f** represent correlations with number of items on display. The only acceptable result was obtained from the second floor ( $r=0.504$ ). The rest of the floors produced weak correlations. Correlations with average price/item (**figures 4.28 a-f**) produced weak results.

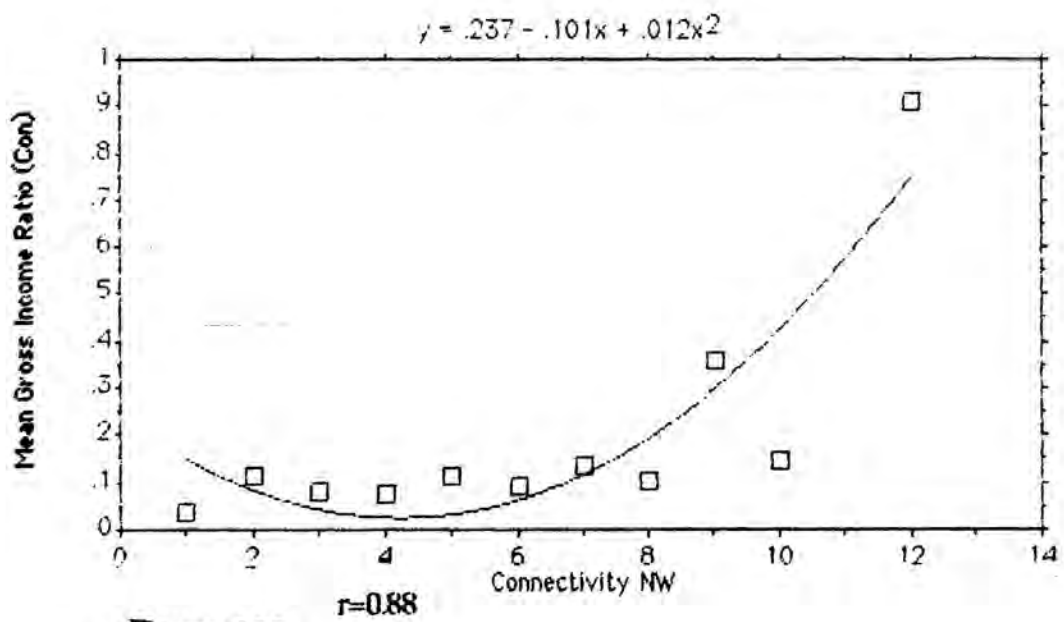
The most important results are those for the gross income/year and gross profit/year as they are not affected by seasonal slumps as those for a week. The results of those correlations point out the importance of the ground floor to which customers are attracted from the street and channelled into other floors of the store. The close high results of the first and basement floors added to the weakness of correlations of the rest of the floors suggest that shallowness and depth of floors in relation to the street may have a profound effect on the sales performance of the different floors of the store.

#### **4.23 Correlations with Connectivity:**

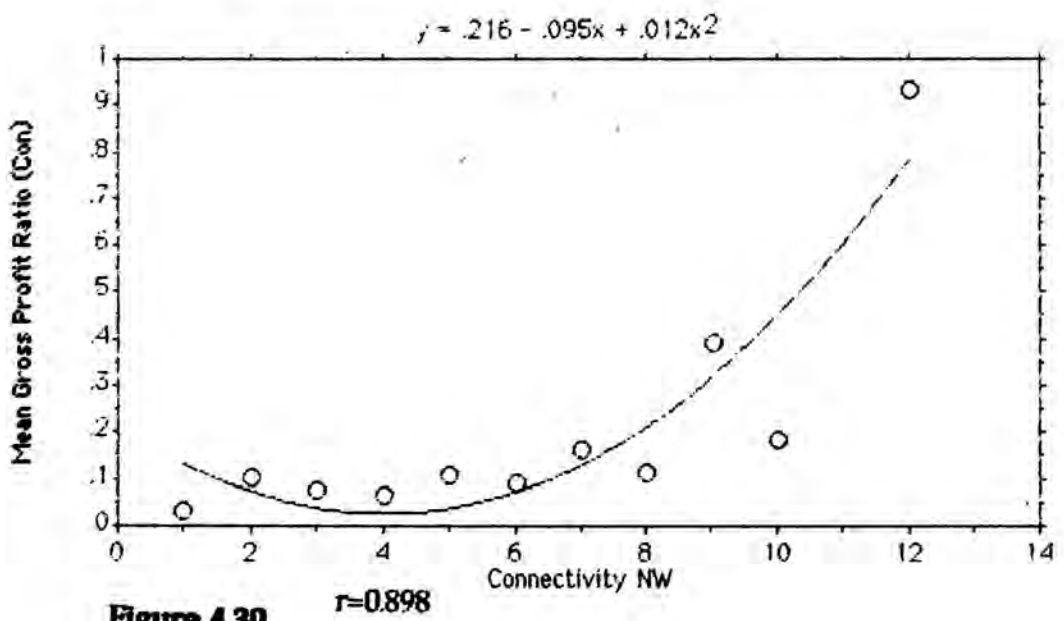
This spatial variable showed strong correlations with the mean <sup>38</sup> of the various retail variables. **Figure 4.29** represents the correlation between

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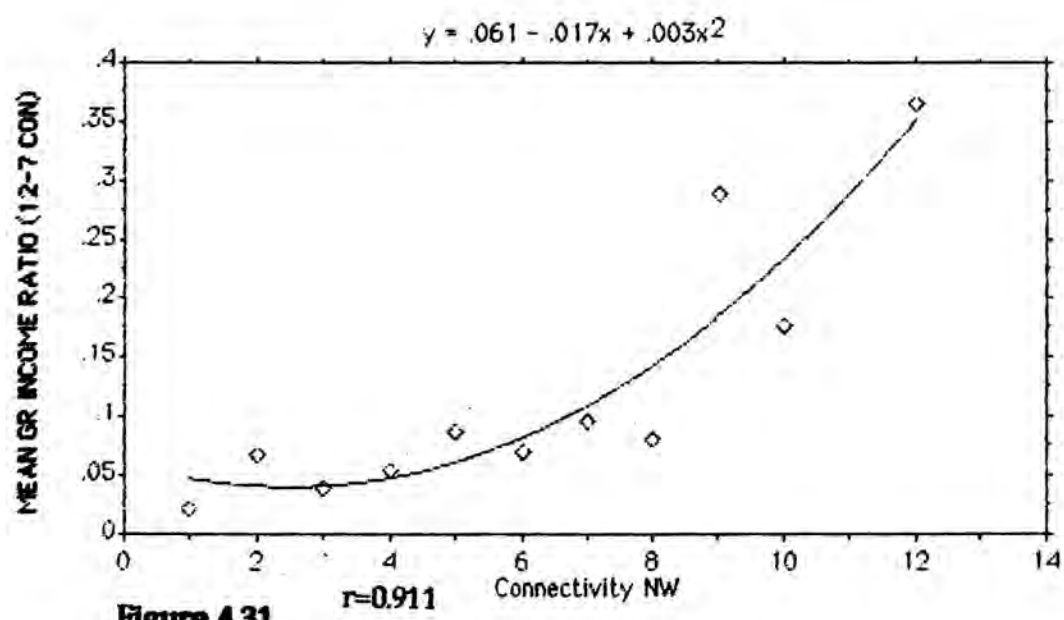
<sup>38</sup> Because connectivity is an integer, a number of departments had the same connectivity value, but different y-axis values. So the mean for each connectivity value of the y-axis was obtained.



**Figure 4.29**



**Figure 4.30**



**Figure 4.31**

connectivity and the mean of gross income ratio for the store as one global system. The correlation is best represented by a polynomial of the second order, producing a correlation coefficient of  $r=0.88$ . The structure of the correlation indicated that departments of low connectivities have low mean of gross income but when the connectivity increases being from 9-12, the gross income consequently increases at a higher rate following a steeper regression line. **Table 4.1** represents the connectivities of the different departments.

**Figure 4.30** represents the correlation between the mean gross profit ratio and connectivity for the global system. The correlation is best represented by a polynomial of the second order, producing a correlation coefficient of  $r=0.898$ . **Figure 4.31** represents the correlation between the mean gross income/week and connectivity ( $r=0.911$ ). **Figure 4.32** represents the correlation between the mean gross profit/week and connectivity. The correlation is best represented by a polynomial of the second order, producing a correlation coefficient of  $r=0.928$ . **Figure 4.33** represents the correlation between the mean number of items sold and connectivity, with  $r=0.773$ . The highest values are given by the cosmetics department which has a connectivity value of 12. **Figure 4.34** represents the correlation between the mean average price/item and connectivity. The correlation is best represented by a polynomial of the second order, producing a correlation coefficient of  $r=0.717$ . The average price/item decreases on average when the connectivity increases. The cosmetics department represents the highest incomes and profits, the highest number of items sold/week and the lowest average price/item. It is a typical impulse department where its depth in the store is of critical importance. The following part investigates the relationship of retail information to the property of depth. **Figures (4.35 a-f) to (4.40 a-f) in appendix II** are the same correlations done for each floor.

#### **4.2.4 Correlations with Depth:**

Depth from Oxford Street showed very strong correlations in relation to the different retail variables. **Figure 4.41** represents the correlation between depth and the mean gross income ratio for the store as a global system. The correlation is best expressed by a polynomial of the second order giving a very strong relationship ( $r=0.98$ ) i.e. as depth goes up the mean income of

**Table 4.1 Connectivity Values For Different Departments**

	CONNECTIVITY 1	CONNECTIVITY 2	CONNECTIVITY 3	CONNECTIVITY 4	CONNECTIVITY 5	CONNECTIVITY 6
1	478 Kanebo Accessories	709 Derby	511 Mansfield	175 Ladies Suits	187 Jaques Vert	124 Handbags
2	592 Coffee On Two	408 Samsonite	115 Y.S.L.	501 Reidan	259 Table Mats	485 Frames & Nursery
3	665 Shoe Repair	250 Gifts Of Britain	357 Indoor Games	512 Berhertex Bridalwear	170 Ladies Hats	503 Planet
4	598 Brass Rail	336 Dining/ Repro' Furniture	159 Lotus Ferand	480 Aramis	670 Child's Dash	532 Olympus Zero Rated
5	616 Alliance & Leicester	265 Dorma Co-ordinates	272 Ready Made Curtains	257 Adult Games	123 Gucci	534 Olympus Clothes
6	472 Dior Accessories	710 & 711 Optician	533 Olympus Footwear	167 Frank Usher	468 Patrizia Wigam	461 Thy Toys Clothing
7	538 Gift Wrappers	180 Fashion Knitwear	258 Candles	522 Shavers	258 Gifts	476 Men's Fragrance
8	324 Lamp Shades	160 Maternity	181 Knitwear	182 Escada	189 Your Size Separates	685 Benetton
9	288 Vinyl	315 Cycles	658 Men's Tailoring	353 Soft Toys	356 Big Toys	454 Boys Clothing
10	596 Carvery Restaurant		546 Ladies & Men Hairdresser	112 Scarves	Food Hall	192 Rainwear
11	302 Lawn Mowers		121 Hosiery	331 Beds	518 Designer Shoes	149 Marella
12	675 Ice Cream Parlour		645 Chester Barrie	188 Fashion Leisurewear	684 Precis	394 Hi-Fi
13	715 K. Frowse		426 Men Raincoats	666 Dash	458 Boys Large Sizes	266 Table Linen
14	599 Arcade Cafe		418 Daks	392 Televisions	139 Umbrellas	178 Evening Separates
15	469 Scholl		423 Gian Franco Ferre	526 Focus Crystal	386 Books	682 Cash D'or
16	663 Watch Repairs		721 Dunhill	506 Jaeger	416 Men's Designer Room	400 Portable Audio
17	335 Bedroom Furniture		521 Kurt Geiger	242 Clocks	277 Soft Furniture Workroom	178 Evening Separates
18	662 Sketchley		417 Corruti 1861	108 Ham	162 Your Size Dresses	681 Crochetta
19			725 Empecey Phones	515 Country Casuals	306 Cleaning Shop	325 Light Fittings
20			381 Gardening	369 The Silica Shop	101 Men's Socks	322 D.I.Y.
21			437 Valentino	295 Villercy & Boch	389 Newspapers & Periodicals	381 Pens
22			686 Cristian Dior	500 Vivella	377 Everything With Chips	411 & 412 Tobaccos
23				718 Wigs	716 Doulton Tableware	Sun Glasses
24				693 Carol	291 China & 242 Earthen & ...	294 Kitchen China & Glass
25				111 Men's Accessories	408 Confectionery	549 Worcester Royal China
26				516 Fendi	238 Woods & Needle Work	427 Burberry
27					654 Aquascutum	
28					275 Tracks & Blinds	

	CONNECTIVITY 7	CONNECTIVITY 8	CONNECTIVITY 9	CONNECTIVITY 10	CONNECTIVITY 12
1	114 Men's Hats	321+328 Tools	142 Ladies Jackets	298 Glassware	473-5 & 477 Cosmetics
2	218 Bras & Girdles & 212 Daywear...	165 Career Collection	157 Designer Clothes		
3	341 Upholstered Furniture	395 Garden Furniture	142 Ladies Jackets		
4	657 Children Shoes	668 British Tailor	157 Designer Clothes		
5	211 Night Wear	300 Hardware	472 Cosmetics I (Perfumery)		
6	265 Bed Linen	380 Greeting Cards			
7	547 Waterford/ Wedgwood China	422 Suits & 430 Jackets & 432 Trousers			
8	264 Towels	156 Dresses			
9	177 Mondri	436 Men's Leisure Clothing			
10	138 Scarves & Hanks	405 Luggage			
11	371 Stationery	704 Dicks Shoes			
12	103 Men's Knitwear & Beachwear	600 The Selfridge Restaurant			



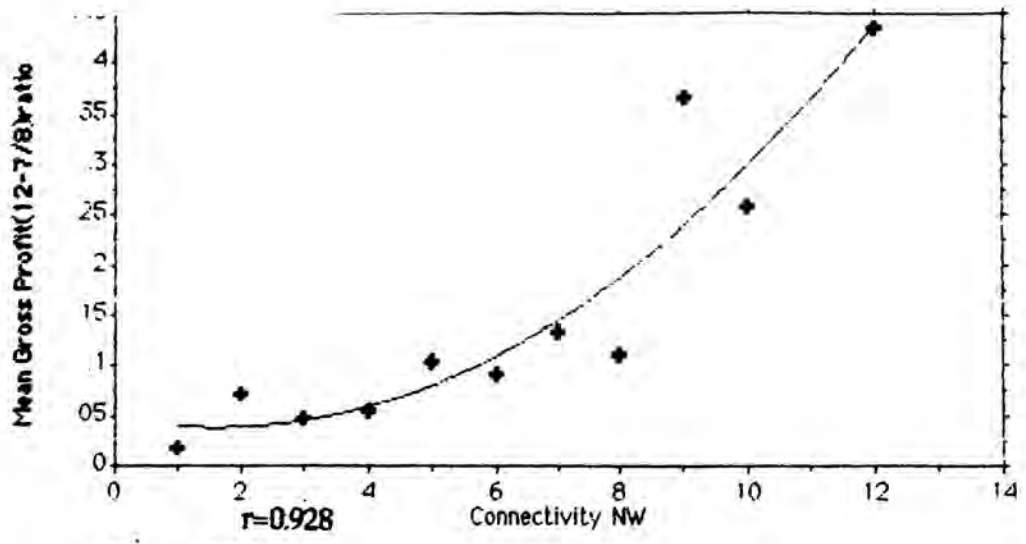


Figure 4.32

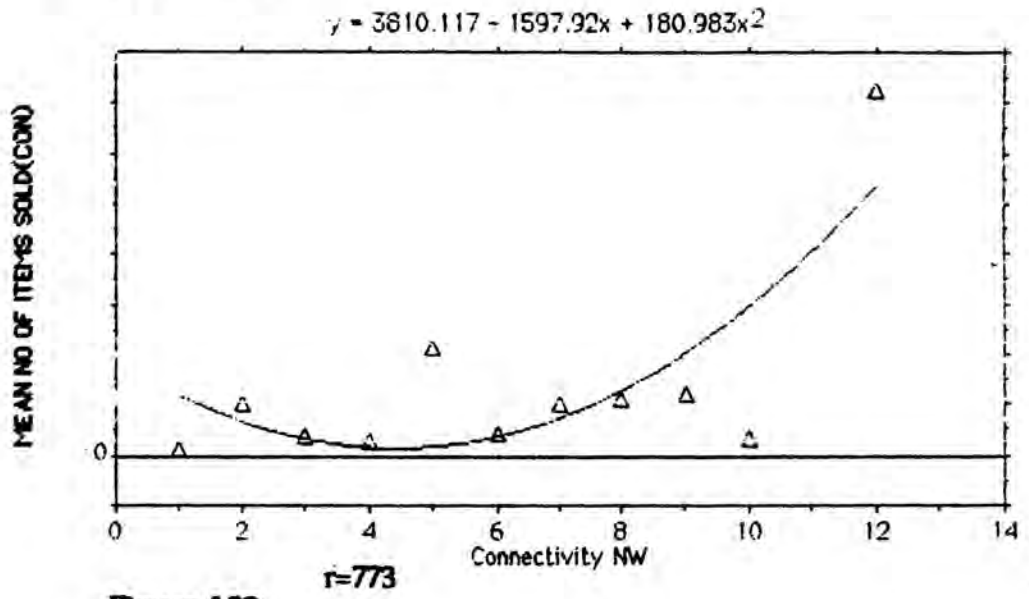


Figure 4.33

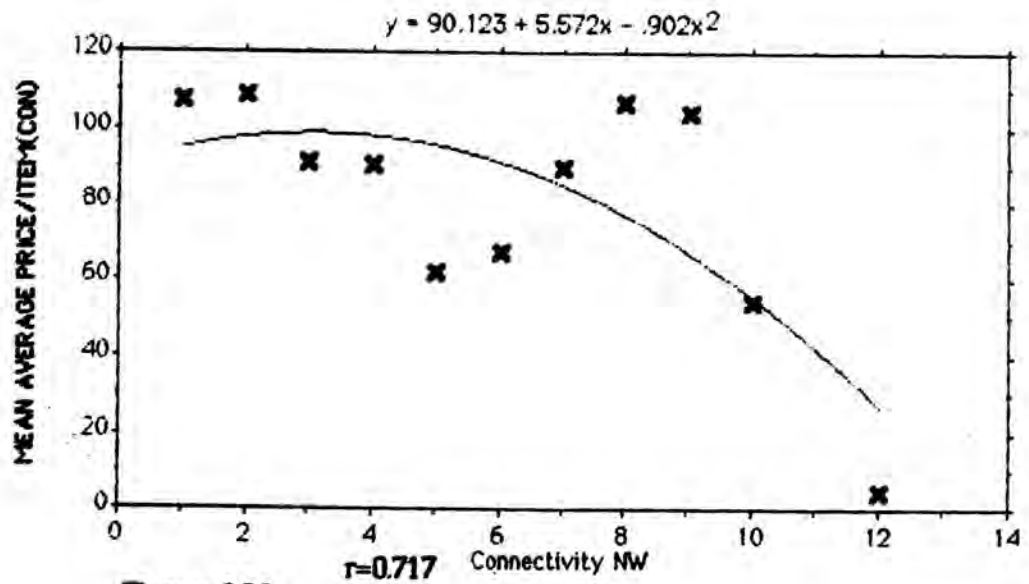
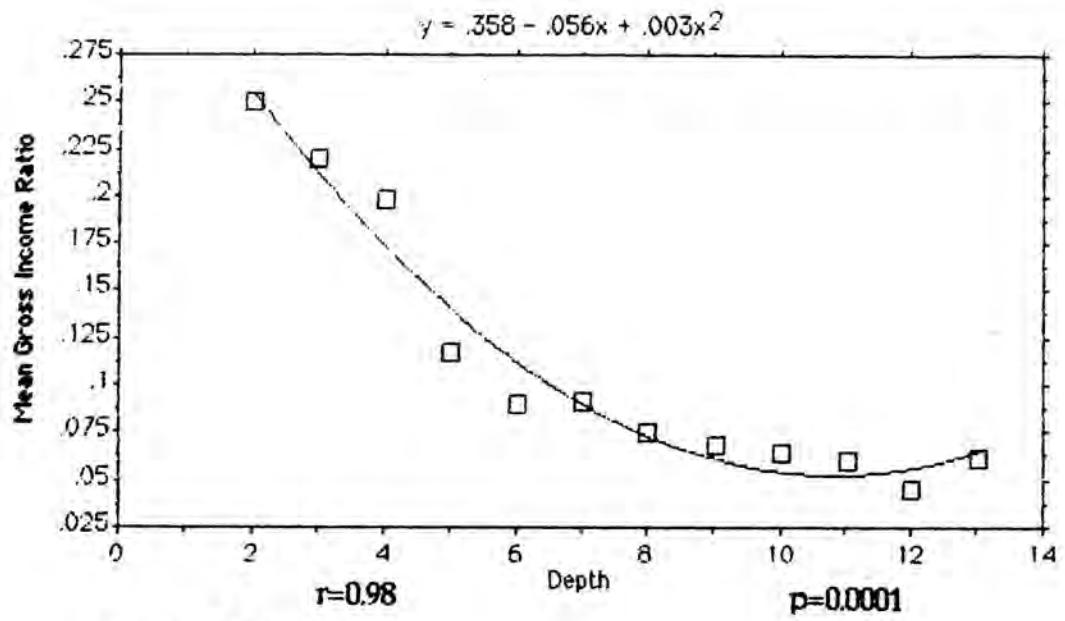
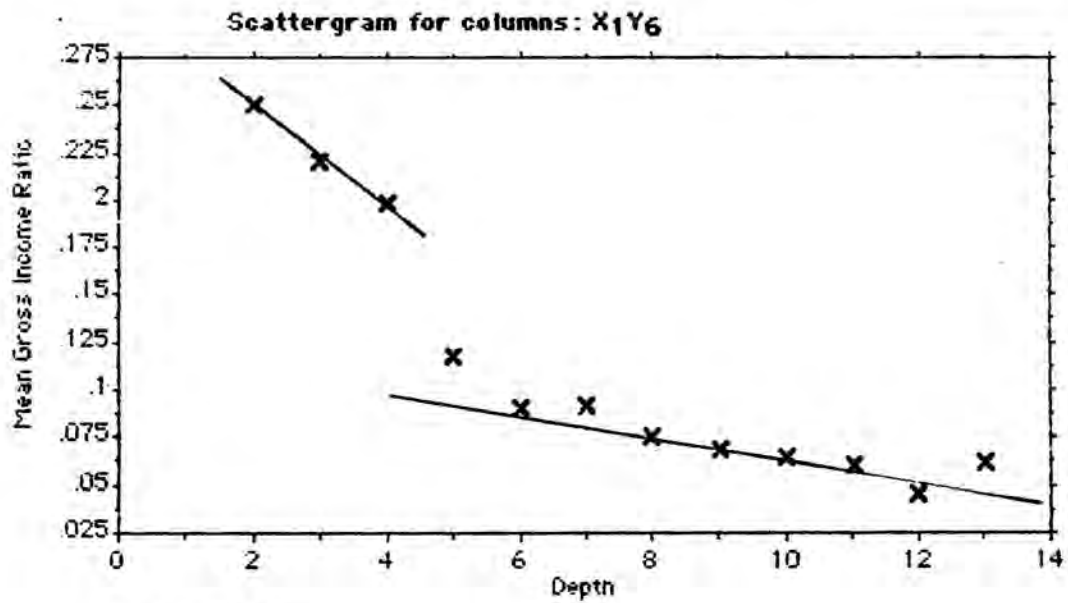


Figure 4.34



**Figure 4.41**



**Figure 4.41a**

departments occupying different depths decreases. The graph can also be represented by joining the points that lie on a perfect straight line to show the properties of the departments on a different depths. The points representing the mean gross income of departments lying on depths 2-4 can be joined by a straight line of a steep angle while those lying on depths 5-13 can be joined by another straight line of a shallow angle, almost a horizontal line (figure 4.41 a). It can be noticed that there is a remarkable fall in mean income between depths 4&5. Table 4.2 records the departments occupying each depth in the entire store.<sup>39</sup>

Figure 4.42 represents the correlation between the mean gross profit ratio and depth. The relationship is best expressed by a polynomial of the second order giving a very strong relationship ( $r=0.986$ ). The departments lying on depths from 2-6 can be joined in a straight line, while those lying on depths 7-9 can be joined in another straight line (figure 4.42 a). Figure 4.43 represents the correlation between the mean gross income ratio/week and the depth. It is a strong relationship expressed by a polynomial of the second order ( $r=0.969$ ). The departments lying on depths from 2-4 can be joined in a straight line, while those lying on depths 5-9 can be joined in another straight line, while those lying on depths 10-13 can be joined in another straight line (figure 4.43 a). It can be noticed that there is a remarkable fall in mean income between depths 4&5. Figure 4.44 represents the correlation between the mean gross profit ratio/week and the depth. It is a strong relationship expressed by a polynomial of the second order ( $r=0.973$ ). The departments lying on depths from 2-4 can be joined in a straight line, while those lying on depths 5-9 can be joined in another straight line, while those lying on depths 10-13 can be joined in another straight line (figure 4.44 a). It can be noticed that there is a remarkable fall in mean income between depths 4&5. Figure 4.45 represents the correlation between the number of items sold and the depth expressed by a polynomial of the second order ( $r=0.682$ ). Except for depth 2, high incomes are generated by high number of items sold and low average prices. Depth 2 has a relatively low

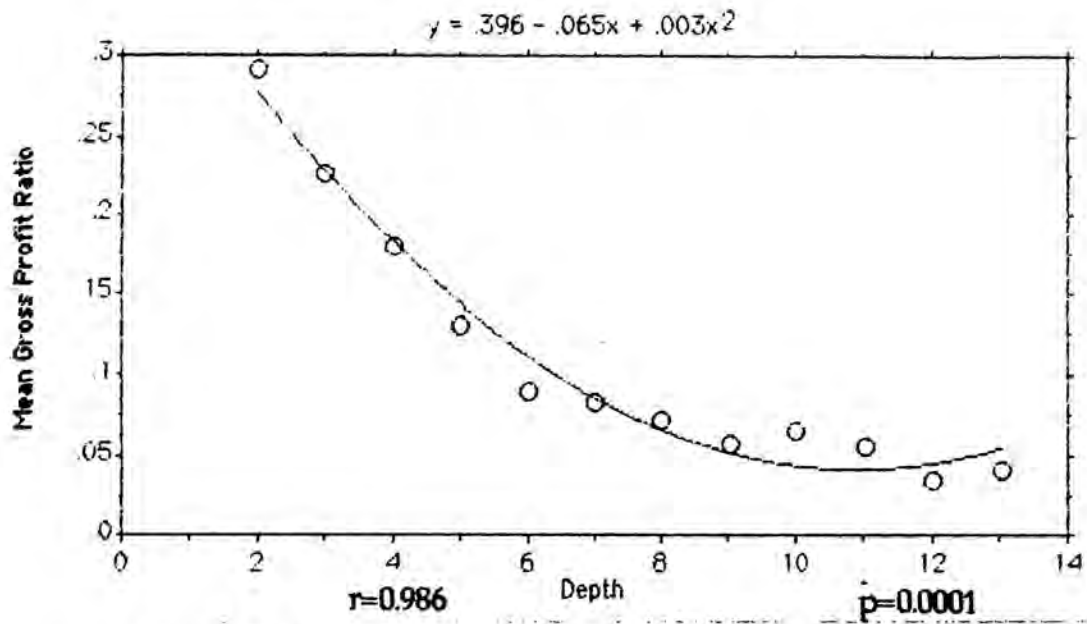
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<sup>39</sup> Some departments were located in more than one location and occasionally on different depths, yet the retail information concerning them were designated to the department by name only. For example, there were three locations for the Small Electric Appliances and the Kitchen Gadgets departments in the basement and the Olympus Equipment in the third floor. All of them and any similar cases were excluded from the depth correlation against retail variables.

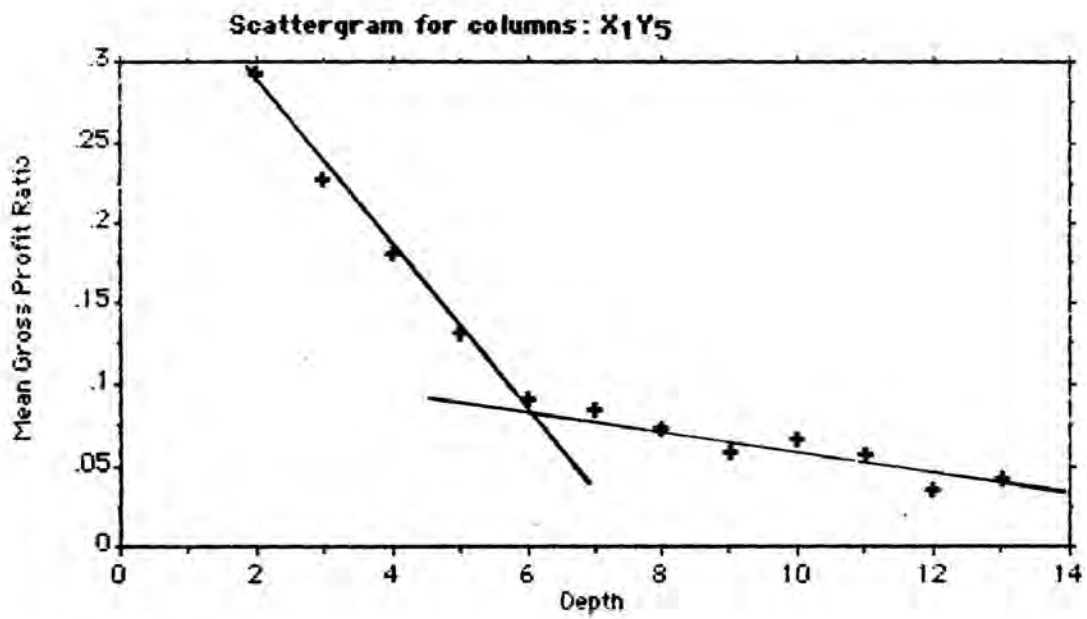
**Table 4.2 Depth Values of Different Departments in the Global System**

	Depth 2	Depth 3	Depth 4	Depth 5	Depth 6	Depth 7
1	124 Handbags	110 Men's Ties	598 Brass Rail	242 Clocks	114 Men's Hats	549 Worcester Royal China
2	516 Fandl	136 Belts	414 Wines & Spirits	371 Stationery	284 & 281 & 330 Carpets	277 Soft Furniture Workro...
3	123 Good	695 Cameras	380 Greeting Cards	250 Gifts Of Britain	436 Men's Leisure Clothing	275 Tracks & Blinds
4	111 Men's Accessories	105 Men's Suits	389 Newspapers & Periodicals	687 & 688 Holland & Barret	369 The Silica Shop	269 Quilts
5	472 Cosmetics 1 (Perfumery)	139 Umbrellas	698 & 699 Mappin & Webb	409 Confectionery	265 Bed Linen	285 Dorma Co-ordinates
6	121 Hosiery	130 Scarves & Hanks	101 Men's Socks	331 Beds	274 Net Curtains	294 Kitchen China & Glass
7	103 Men's Knitwear & Beach...	Food Hall	104 Y.S.L. Shirts	264 Towels	437 Lotus Feraud	336 Dining/ Repro' Furnitu...
8	476 Men's Fragrance	129 Y.S.L.	Costume Jewellery	713 Leonidas Chocolates	157 Designer Clothes	709 Derby
9		126 Fancy Leathers	721 Dunhill	381 Pens	335 Bedroom Furniture	288 Vinyl
10		112 Scarves	411 & 412 Tobaccos	Sun Glasses	341 Upholstered Furniture	149 Marella
11		480 Aramis	134 Gloves	718 Wigs	325 Light Fittings	301 Gardening
12		108 Hcm	469 Drugs & Toiletries	298 Glassware	310 Silverware	506 Jaeger
13		473-5 & 477 Cosmetics	218 Bras & Girdles & 212 Da...		716 Doulton Tableware & 7...	681 Crochetta
14		107 Pyjamas	649 Our Price		402 Cabinets	317 Bathroom Fittings
15		102 Men's Underwear			715 K. Frowse	305 Pets
16					392 Televisions	319 Paint & Wallpaper
17					547 Waterford/ Wedgwood ...	538 Gift Wrappers
18					303 Bridal Registry	408 Samsonte
19					322 D.I.Y.	413 Luxury Leather
20					321+328 Tools	600 The Selfridge Restaurant
21					289 Imported Glassware	306 Cleaning Shop
22					291 China & 296 Earthen & ...	266 Table Linen
23					295 Villeroy & Boch	658 Men's Shoes
24					335 Luggage	422 Suits & 430 Jackets & 4...
25					710 & 711 Optician	416 Paul Smith
26					599 Arcade Cafe	423 Gian Franco Ferre
27					662 Sketchley	320 Lamps & Accessories
28					616 Alliance & Leicester	416 Men's Designer Room
29					665 Shoe Repair	427 Burberry
30					663 Watch Repairs	393 Video
31						526 Focus Crystal
32						654 Aquascutum
33						324 Lamp Shades
34						394 Hi-Fi
35						401 Accessories
36						386 Books
37						377 Everything With Chips
38						725 Empecey Phones
39						417 Carriz 1881
40						437 Valentino

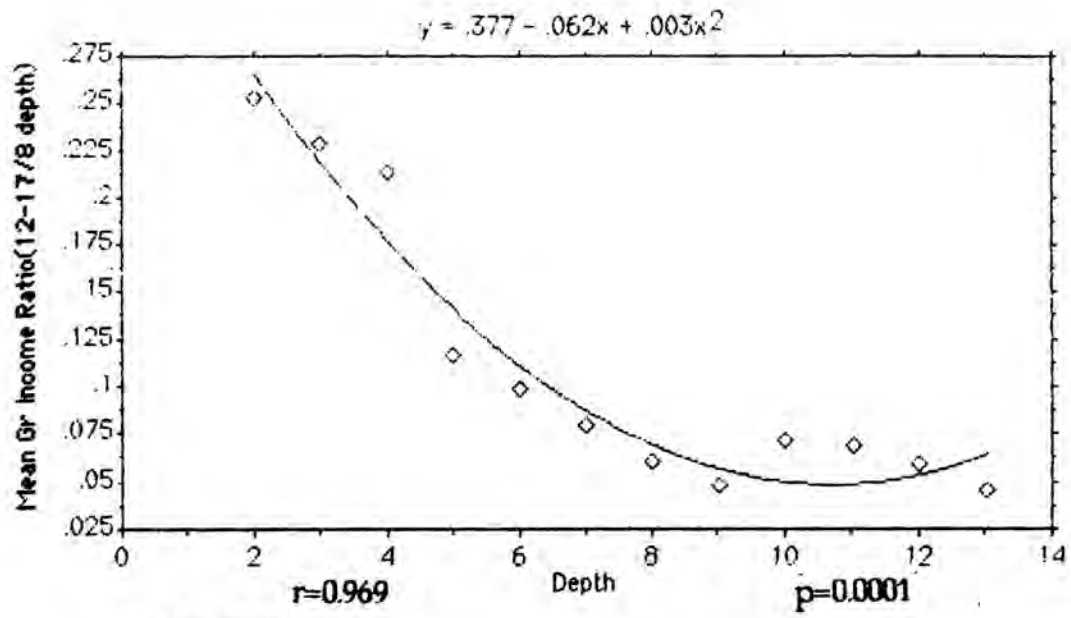
	Depth 8	Depth 9	Depth 10	Depth 11	Depth 12	Depth 13
1	182 Escada	167 Frank Usher	189 Your Size Separates	463 Baby Linen	657 Children Shoes	541 Sewing Machines
2	165 Career Collection	514 Nicole Fahri	211 Night Wear	469 Scholl	238 Wools & Needle Work	280 Sewing Centre
3	596 Carvery Restaurant	152 Four Seasons	594 Top Of The Shop Restaurant	533 Olympus Footwear	532 Olympus Zero Rated	534 Olympus Clothes
4	426 Men Raincoats	679 Children's Benetton	258 Gifts	461 Tiny Tots Clothing	465 Frams & Nursery	
5	147 Berry Barclay	458 Boys Large Sizes	356 Big Toys	183 Tartan Fashions		
6	682 Cash D'or	142 Ladies Jackets	354 Boys Toys	536 Olympus Ski-Wear		
7	505 Aquascutum	670 Child's Dash	461 & 441	315 Cycles		
8	178 Evening Separates	460 Patrizia Wigan	690 Eastex	188 Fashion Leisurewear		
9	646 Austin Reed	170 Ladies Hats	172 Timberland	500 Vyella		
10	313 Major Appliances	190 Out Set	257 Adult Games	440 Girls Large Sizes		
11	440 & 441 & 461	509 Danimac	160 Maternity	546 Ladies & Men Hairdresser		
12	175 Ladies Suits	651 Fun Furs	125 Liz Claybourne Acc.	441 Girls Wear		
13	177 Mondri	258 Candles	655 Roland Cartier	353 Soft Toys		
14	400 Portable Audio	343 Pictures & Mirrors	472 Dior Accessories	685 Benetton		
15	425 Men Overcoats	502 Alcon	478 Kanebo Accessories	656 Ladies Shoes		
16	675 Ice Cream Parlour	508 Windsmocr	592 Coffee On Two	693 Carol		
17	461 & 440 & 441	187 Jacques Vert	518 Designer Shoes	162 Your Size Dresses		
18	192 Rainwear	185 Ladies Skirts	704 Dolcis Shoes	521 Kurt Geiger		
19	686 Cristian Dior	259 Table Mats	524 Brands Shoes	208 Knit Mech. & Paper Patterns		
20	176 Burberry	511 Mansfield	529 Carvella	180 Fashion Knitwear		
21	302 Lawn Mowers	648 Gloves & Hawkes	684 Practis	181 Knitwear		
22	300 Hardware	522 Shavers	515 Country Casuals			
23	421 Sidi Suits	645 Chester Barrie	501 Raldan			
24	115 Y.S.L.	658 Men's Tailoring	503 Planet			
25	418 Dale	243 & 244 Fitted Kitchens	186 Ladies Swimwear			
26	178 Evening Separates	346 Kitchen Furniture	692 I. H. Collectables			
27	668 British Tailor	156 Dresses	184 Blouses			
28	395 Garden Furniture	512 Berkertex Bridal Wear	666 Dash			
29	270 Furnishing Fabrics	357 Indoor Games	193 Liz Claybourne			
30	151 Ladies Coats	694 Genesis	201 Plain Fabrics			
31	272 Ready Made Curtains		454 Boys Clothing			
32	159 Lotus Feraud					



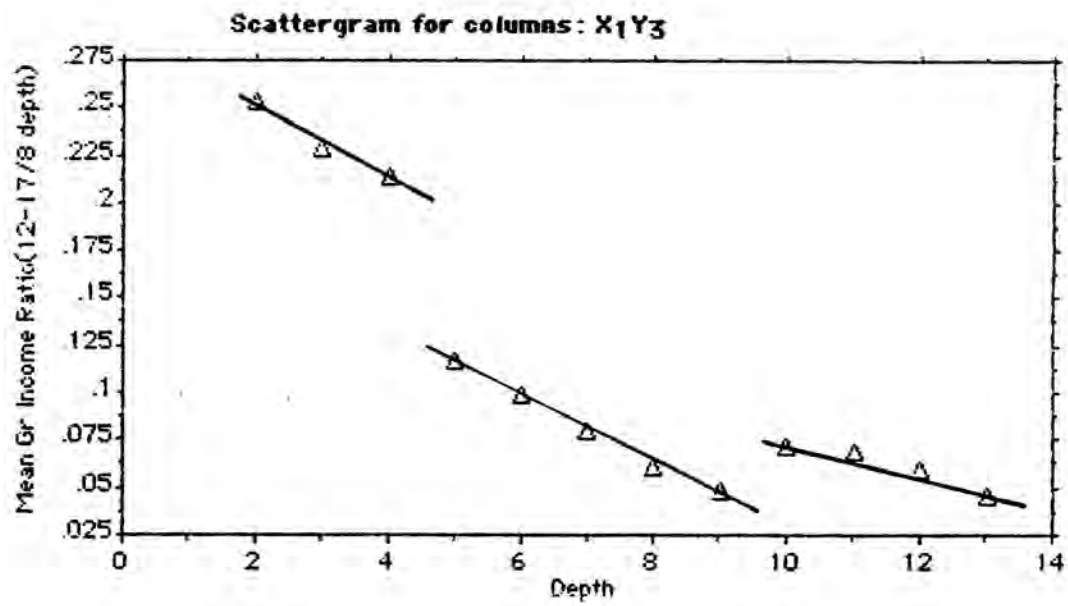
**Figure 4.42**



**Figure 4.42a**



**Figure 4.43**



**Figure 4.43a**

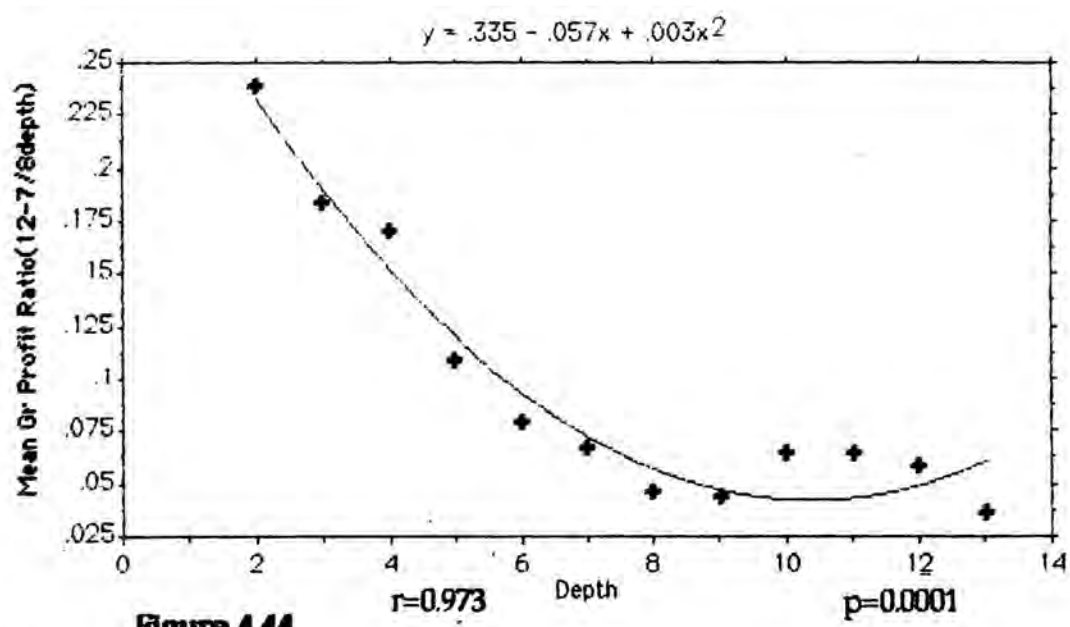


Figure 4.44

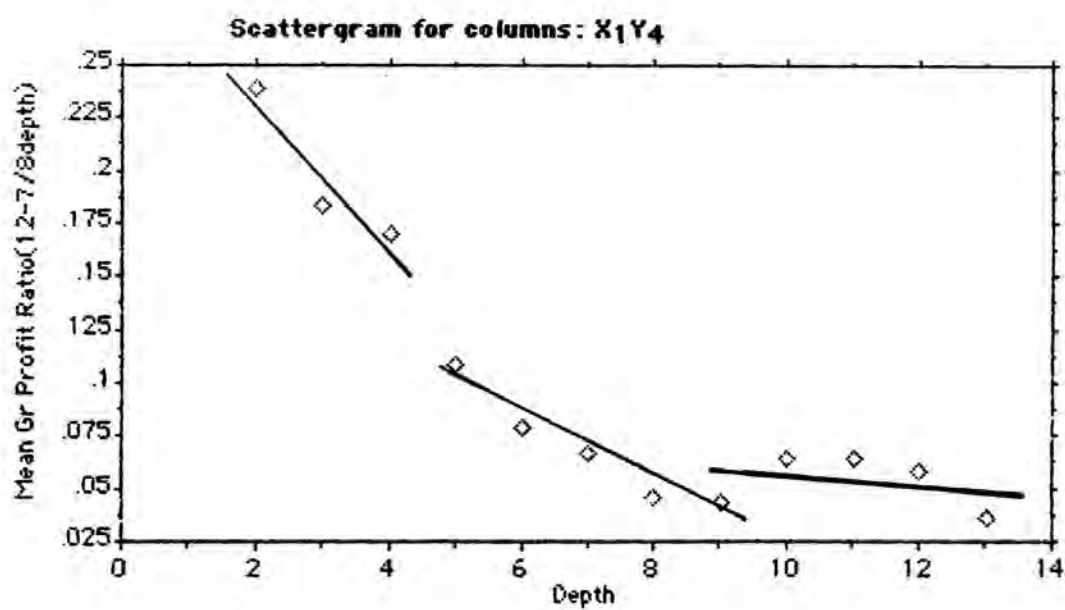
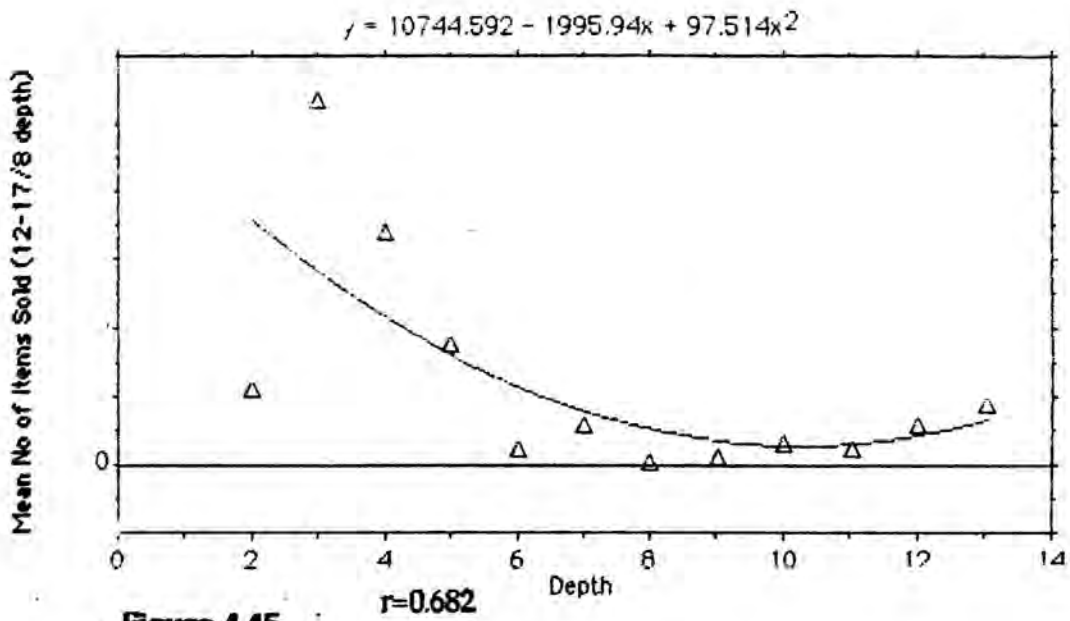
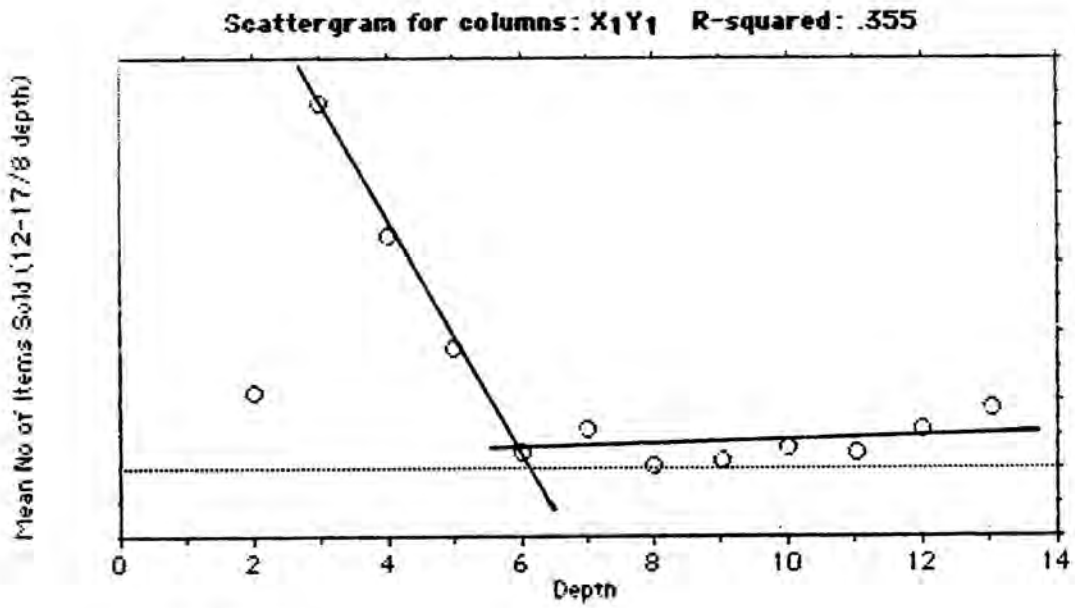


Figure 4.44a



**Figure 4.45**



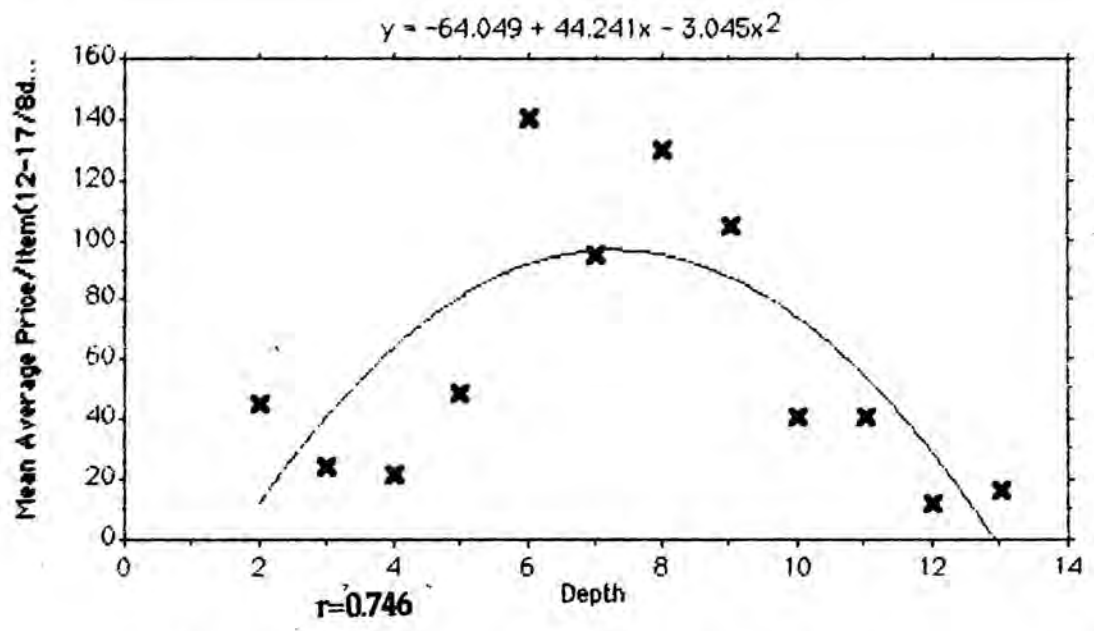
**Figure 4.45a**



number of items sold with mean average price/item of £ 45. Apart from depth 2, the departments lying on depths from 3-6 can be joined in a straight line of a steep angle, while those lying on depths 6-13 can be joined in another straight line, almost horizontal (**figure 4.45 a**). **Figure 4.46** represents the correlation between the average price/item and depth. It is expressed by a polynomial of the second order ( $r=0.863$ ). The regression polynomial points out the way the prices rise at the middle depths of the store -as furniture departments are located in the first floor- and decrease at shallow and deep depths. **Figures (4.47 a-f) to (4.52 a-f) in appendix II** represent the same correlations for individual floors. On the whole correlations are strong except for some few cases. The correlation between depth and mean gross profit ratio/week for the second floor (**figure 4.50**) produced a very strong inverse relationship ( $r=0.996$ ). The correlation between depth and mean average price/item for the third floor (**figure 4.52**) produced very strong inverse relationship ( $r=0.998$ ). **Table 4.3** records the departments in every depth for each floor individually.

The previous correlations represent a profound property of the merchandise constituting the departments in the different depths. The departments occupying the shallow depths 2-4 follow a steep straight line which if they experience a slight change in depth will lead to a tremendous loss in its income and profit. These can be classified as "**space sensitive**" departments as their incomes are very sensitive to the degree of shallowness or depth of the location they are occupying. They can also be called "**spatial**" departments -they may be impulse or demand departments with high frequent purchase- as their rate of income depends strongly on the location they occupy in the store, with respect to the street. They include the Cosmetics, Perfumery and Food Hall departments. The change from depth 4 to depth 5 resulted in a very large decrease in the gross income /year as well as in the gross income/week (**Figures 4.41 and 4.43**).

Departments occupying the deep depths of the store 5-13 follow almost a horizontal line i.e. with a very shallow angle. This indicates that any change in their depth from 5-13 will result in a minor change in their incomes and profits. These departments can be classified as "**space non-sensitive**"



**Figure 4.46**

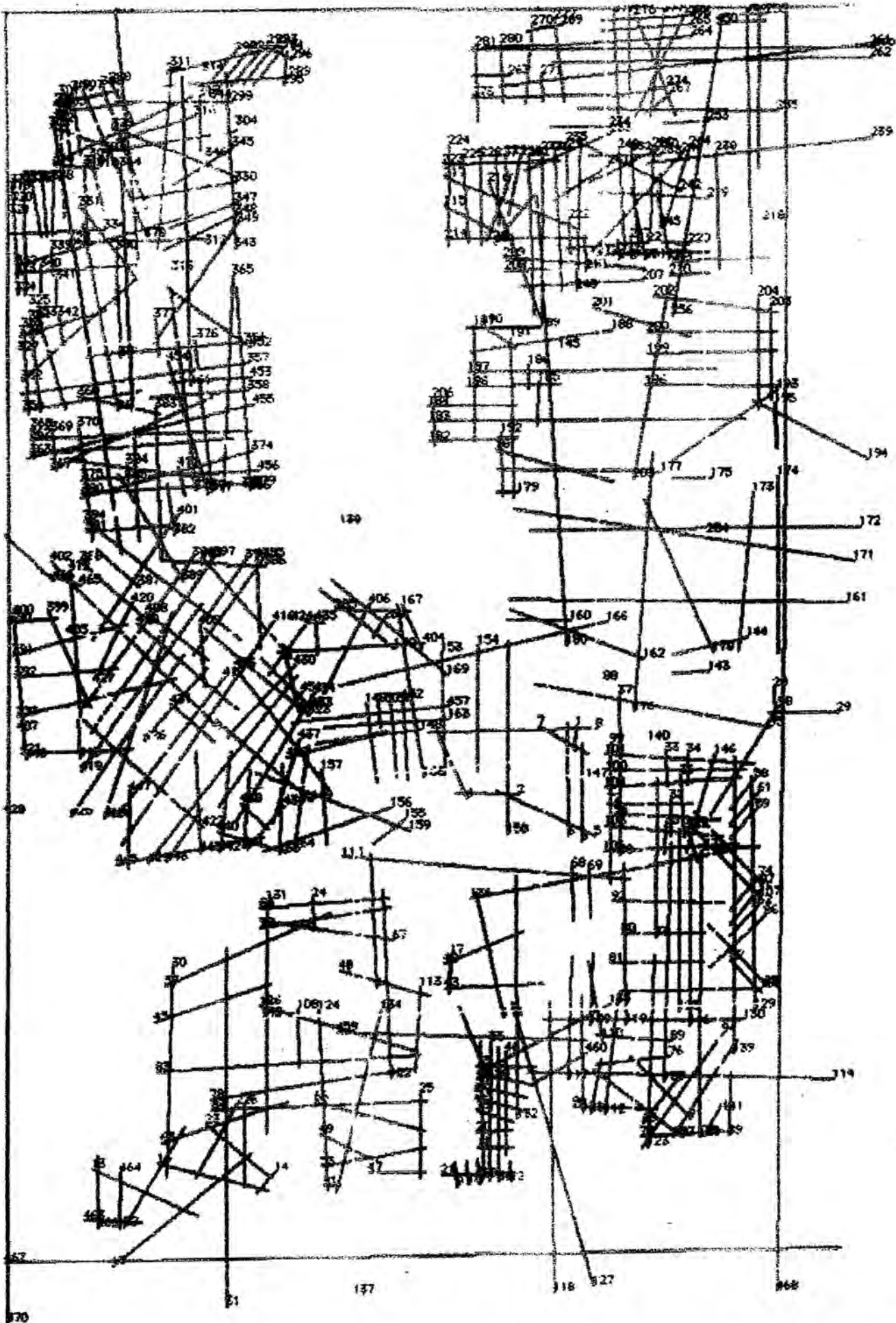


Figure 3.31 The radius three integration (1/x RRA 3) core of the Ground Floor

**Table 4.3 Depth Values of Departments in each Floor**  
1 out of 2

cont...

**Ground Floor**

	Depth 2	Depth 3	Depth 4	Depth 5	Depth 6
1	476 Men's Fragrance	389 Newspapers & Periodicals	649 Our Price	718 Wigs	699 Mappin & Webb
2	480 Aramis	721 Dunhill	101 Men's Socks	710 & 711 Optician	
3	121 Hosiery	411 & 412 Tobaccos	250 Gifts Of Britain	713 Leonidas Chocolates	
4	472 Cosmetics 1 (Perfumery)	473-5 & 477 Cosmetics	242 Clocks	Sun Glasses	
5	111 Men's Accessories	139 Umbrellas	371 Stationery	Confectionery	
6	123 Gucci	129 Y.S.L.	469 Drugs		
7	103 Men's Knitwear & Beachwear	380 Greeting Cards	132 & 133 Gloves		
8	124 Handbags	Food Hall	104 Y.S.L. Shirts		
9		130 Scarves & Hanks	Costume Jewellery		
10		136 Belts	218 Bras & Girdles ...		
11		126 Fancy Leathers			
12		110 Men's Ties			
13		102 Men's Underwear			
14		695 Cameras			
15		414 Wines & Spirits			
16		105 Men's Shirts			

**Basement Floor**

	Depth 2	Depth 3	Depth 4	Depth 5	Depth 6
1	335 Luggage	716 Doulton Tableware	320 Lamps & Accessories	243 & 244 Fitted Kitchens	522 Shavers
2	298 Glassware	715 K. Prowse	393 Video	346 Kitchen Furniture	
3	291 China & 242 Earthen & Oven Ware	547 Waterford/Wedgwood China	394 Hi-Fi	400 Portable Audio	
4	322 D.I.Y.	319 Paint & Wallpaper	301 Gardening	300 Hardware	
5	317 Bathroom Fittings	665 Shoe Repair	675 Ice Cream Parlour		
6	310 Silverware	402 Cabinets	596 Carvery Restaurant		
7		413 Luxury Leather			

**First Floor**

	Depth 2	Depth 3	Depth 4	Depth 5
1	427 Burberry	654 Aquascutum	266 Table Linen	653 Men's Tailoring
2	264 Towels	386 Books	646 Austin Reed	648 Gieves & Hawtins
3	331 Beds	436 Men Raincoats	270 Furnishing Fabrics	645 Chester Barrie
4	114 Men's Hats	288 Vinyl	725 Empoxy Phones	
5	284 & 281 & 330 Carpets	265 Bed Linen	423 Gian Franco Ferre	
6		437 Lotus Feraud	115 Y.S.L.	
7		369 The Silica Shop	269 Quilts	
8		416 Men's Designer Room	425 Men Overcoats	
9		277 Soft Furniture Workroom	418 Daks	
10		335 Bedroom Furniture	272 Ready Made Curtains	
11		275 Tracks & Blinds	421 Sidi Suits	
12		377 Everything With Chips	415 Valentino	
13		336 Dining/ Repro' Furniture	663 British Tailor	
14		658 Men's Shoes	686 Cristian Dior	
15		341 Upholstered Furniture	417 Cerruti 1881	
16		265 Dorma Co-ordinates		

**Table 4.3 Depth Values of Departments in each Floor  
2 out of 2**

**Second Floor**

	Depth 2	Depth 3	Depth 4	Depth 5
1	187 Jacques Vert	524 Brands Shoes	165 Career Collection	180 Fashion Knitwear
2	157 Designer Clothes	704 Dolcis Shoes	159 Lotus Parade	514 Nicole Parid
3	502 Alexcom	177 Mendi	182 Escada	181 Knitwear
4	190 Oui Set	156 Dresses	682 Cash D'or	500 Viyella
5		592 Coffee On Two	666 Dash	183 Tartan Fashions
6		655 Roland Cartier	511 Mansfield	167 Frank Usher
7		684 Precia	508 Windsmoor	
8		501 Reidan	503 Planet	
9		515 Country Casuals	521 Kurt Geiger	
10		186 Ladies Swimwear	656 Ladies Shoes	
11		149 Marella	685 Benetton	
12		147 Betty Barclay	529 Carvella	
13		694 Gemests	175 Ladies Suits	
14		681 Crochetta	188 Fashion Leisurewear	
15		506 Jaeger	184 Blouses	
16		505 Aquasutum	178 Evening Separates	
17		478 Kanebo Accessories	692 I. H. Collectibles	
18		472 Dior Accessories	518 Designer Shoes	
19		193 Liz Claybourne	693 Carol	
20		185 Ladies Skirts		

**Third Floor**

	Depth 2	Depth 3	Depth 4	Depth 5
1	600 The Selfridge Restaurant	751 Ladies Coats	460 Patrizia Wigan	208 Knit Mach. & Paper Patterns
2	162 Your Size Dresses	546 Ladies & Men Hairdresser	541 Sewing Machines	
3		657 Children Shoes	160 Maternity	
4		142 Ladies Jackets	152 Four Seasons	
5		211 Night Wear	690 Eastex	
6		189 Your Size Separates	509 Danimac	
7		441 Girls Wear	512 Berkertax Bridal Wear	
8		454 Boys Clothing	230 Sewing Centre	
9		465 Frams & Nursery	238 Woods & Needle Work	
10		461 Tiny Tots Clothing	463 Baby Linen	
11		192 Rainwear	651 Fun Furs	
12		172 Timberland	170 Ladies Hats	
13		189 Your Size Separates	670 Child's Dash	
14		176 Burberry	679 Children's Benetton	
15			440 Girls Large Sizes	
16			201 Plain Fabrics	
17			458 Boys Large Sizes	

**Fourth Floor**

	Depth 2	Depth 3	Depth 4	Depth 5
1	534 Olympus Clothes	258 Candles	257 Adult Games	536 Olympus Ski-Wear
2	395 Garden Furniture	353 Soft Toys	354 Boys Toys	315 Cycles
3	533 Olympus Footwear	532 Oly. Zero Rated	356 Big Toys	
4		357 Indoor Games	594 Top Of The Shop Restaurant	
5		259 Table Mats	258 Gifts	
6		469 Scholl		
7		343 Pictures & Mirrors		

departments as their incomes are non-sensitive to their location inside the store. They can also be called "transpatial" or "space independent" departments - they may be demand departments of non-frequent purchase- as their location in the store in terms of shallowness or depth has little to do with the income they produce. They include the Furniture, Curtains, Carpets and Garden furniture departments.

These relations may be the spatial correlate of the marketing concept of impulse and demand. It could be that over the best part of eighty years of selling, a store like Selfridges -which is a successful store- has actually intuited and fully understood -either explicitly or implicitly- the relationship between impulse and demand purchases to which the merchandise are space sensitive and space independent respectively. By analysing the store, its policy in organising impulse and demand product has been postdicted to a great extent. However, it must be realised that these relations are the products of depth plotted against the **mean** of groups of departments at every depth, which does not allow precision to be achieved at the level of the individual department.

Space sensitive/spatial goods are represented by the departments in depths from 2-4 in **Table 4.2**, while space non-sensitive/transpatial goods constitute depths from 5-13.

#### **4.2.5 Correlations with Intelligibility:**

Both boundary and axial intelligibilities were correlated with the retail variables. The results of the first were very weak while those of the second were strong. **Figure 4.53** represents the correlation between the mean gross income/area ratio of each floor and the axial intelligibility. The result is a strong inverse relation ( $r=0.626$ ). **Figure 4.54** represents the same correlation with the mean gross income(12-17/8)/area ratio. The result is a less strong inverse relation than the previous ( $r=0.531$ ). **Figure 4.55** represents the same correlation with the mean of the number of items sold (12-17/8)/area. The result is a strong inverse relation ( $r=0.782$ ). According to these results it can be argued that the axial intelligibility has an effect on the quantity of sales a floor achieves; the lower the intelligibility, the higher the sales. This confirms the

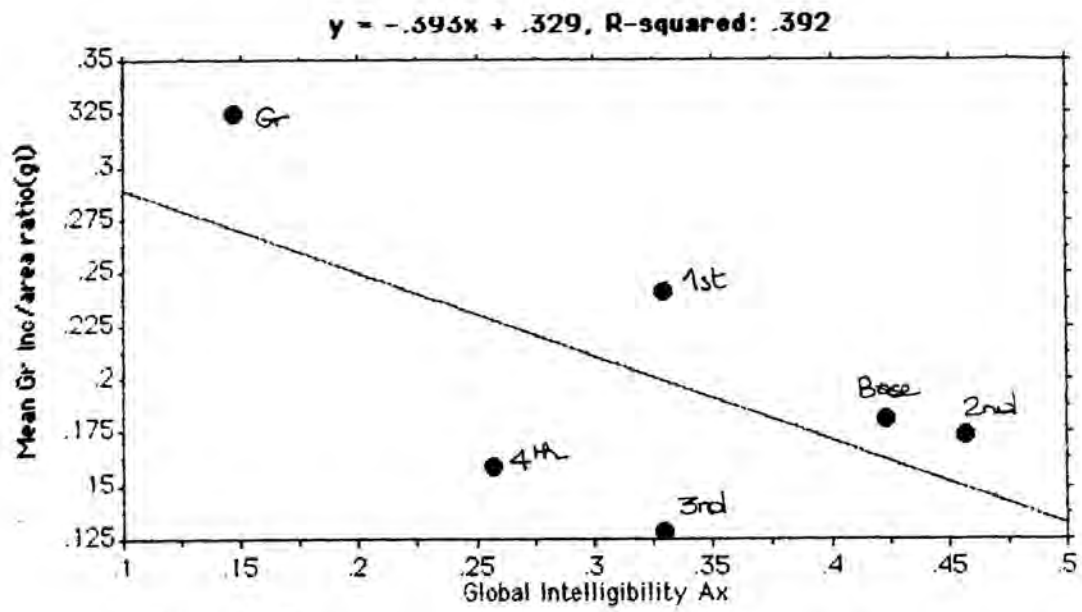


Figure 4.53

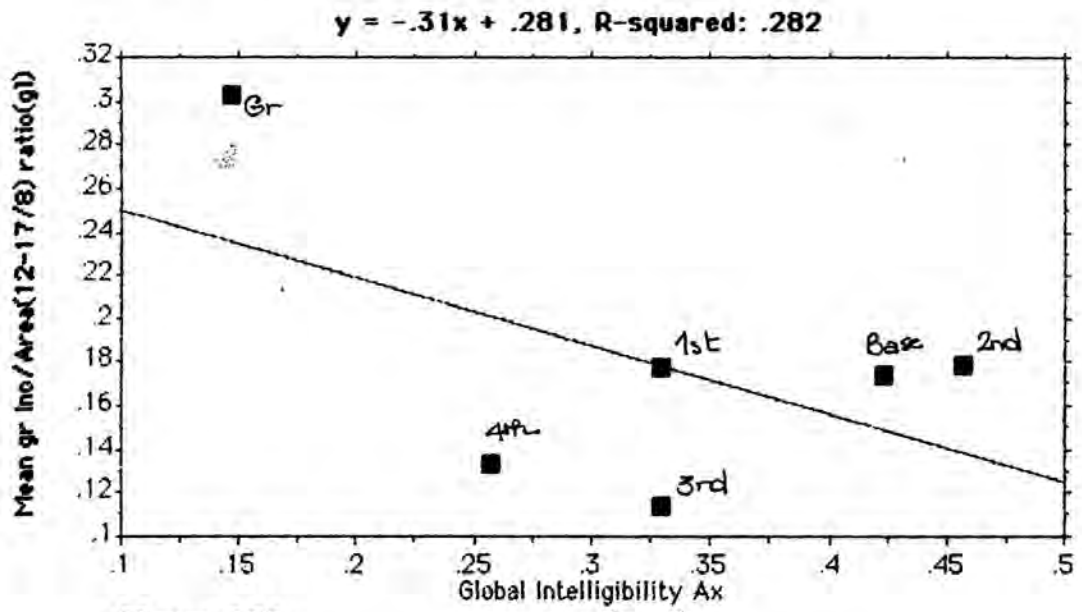


Figure 4.54

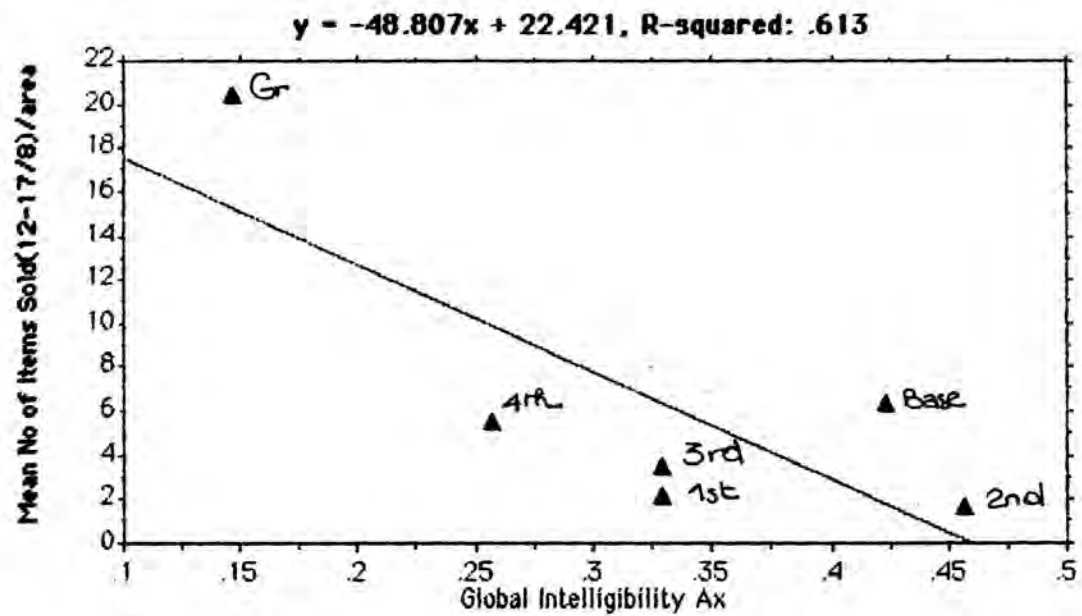


Figure 4.55

the paradox, mentioned earlier, between the attempt on the part of the store to channel as much customers as possible throughout all its floors, and at the same time disorientating them to make them pass through a number of intervening spaces before reaching their destination, thus exposing them to more products than they have initially intended.

**Figures 4.56 & 4.57** represent the correlations between intelligibility and the mean of gross profit / area ratio for a year and a week respectively. Although the gross profit is a function of gross income yet this relationship is a representation of the store selling strategy; the allocation of profit margins to merchandise in terms of intelligibility. Both are inverse relations with correlation coefficients of  $r=0.736$  and  $r=0.66$  respectively. **Figure 4.58** represents the correlation between intelligibility and the mean of average price/item for each floor. The result is a direct relationship of a correlation coefficient of  $r=0.471$ ; the more intelligible the floor, the higher its mean of average prices. The interpretation could be that impulse goods with low average prices are located in floors of lower intelligibility -as the ground and fourth floors- to help their sales in the policy mentioned earlier, while demand goods with high average prices are located in floors of higher intelligibility. There could be a psychological factor at work, where the more the customer is likely to be heading determinedly towards a high price goal, the less the store wants to frustrate him/her by placing deterrents in his/her way. Whereas if the sales lost through frustration in floors of low intelligibility are small ones, the risk of frustrating an individual customer is lower than the possibility of the amount of sales that can be produced out of the generality of customers. Hence, the risk the store is taking in the floors of low intelligibility and low average prices/item is that they may be losing some customers through frustration but simultaneously gaining more sales from other customers. As opposed to, if determined customers are frustrated, sales with high prices might be lost, which the store would like to secure rather than risk losing.

#### **4.3 Retail Information in Relation to Each Other:**

This part looks at the different types of retail data in relation to each other. However, sales data will never be independent of space; because just being



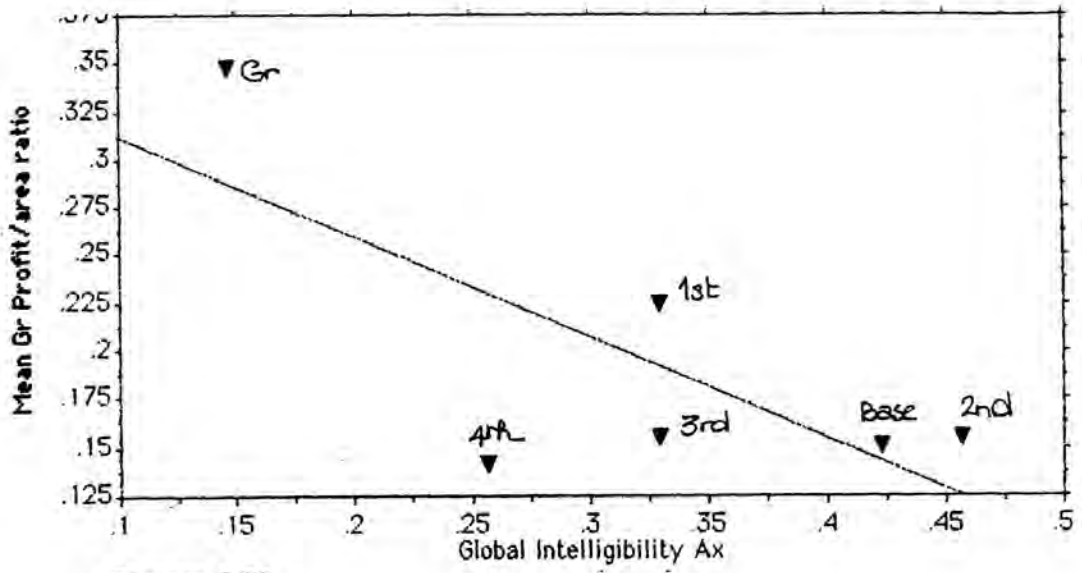


Figure 4.56

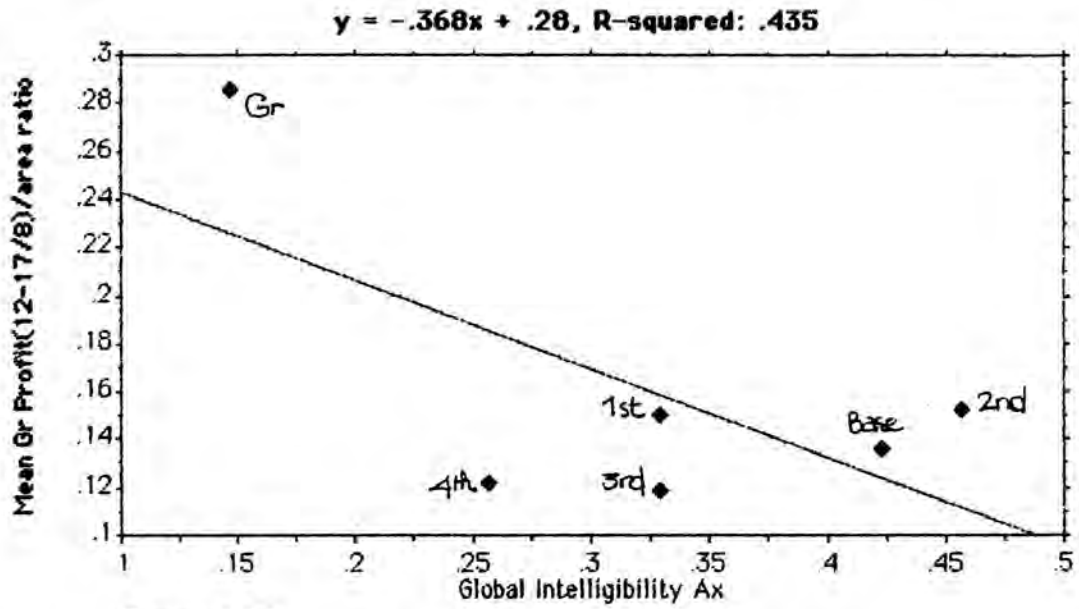


Figure 4.57

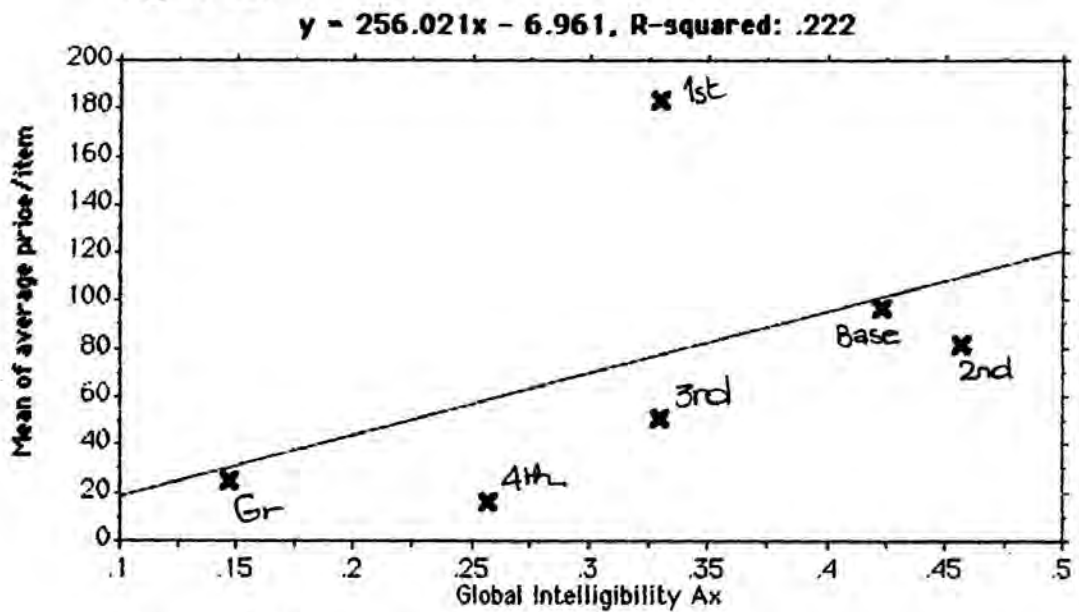
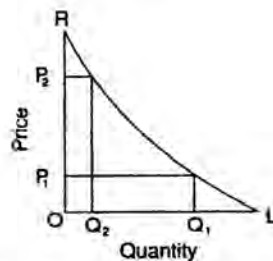


Figure 4.58

located in a specific space may affect the sales numbers in a different way than if located in another.

#### 4.3.1 Impulse and Demand Products with Frequent and Non-Frequent Purchase:

**Figure 4.59** represents the correlation between the number of items sold and the average price/item for the global system. The result is a weak inverse relationship of correlation coefficient of  $r=0.11$ . Hence for Selfridges the quantity of sales does not exactly coincide with the "idealised demand curve for a good", that is, when price goes up from  $P_1$  to  $P_2$ , the quantity demanded goes down from  $Q_1$  to  $Q_2$  (see **figure 4.60**).<sup>40</sup>



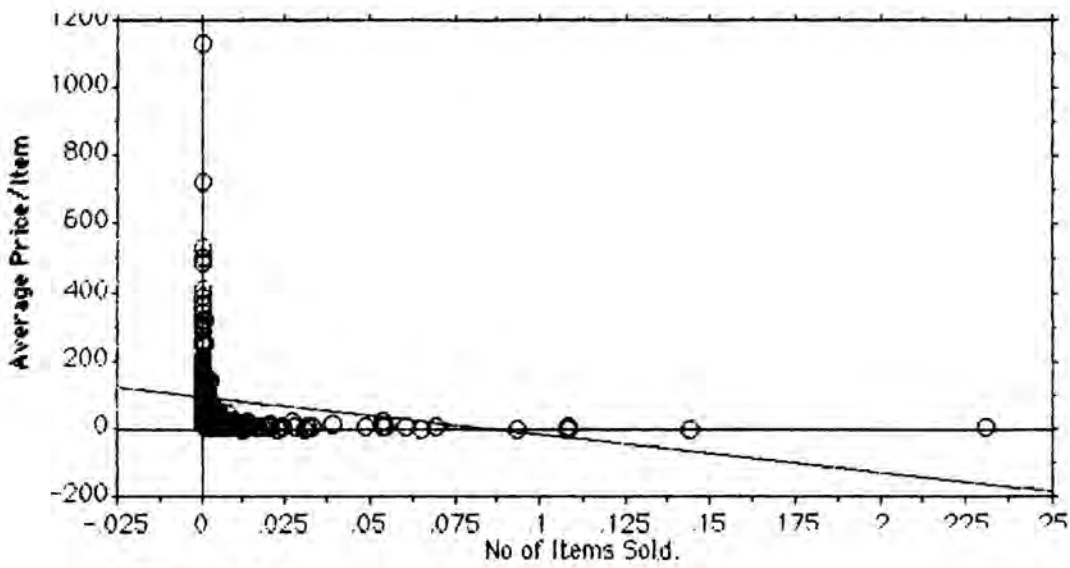
**Figure 4.60** Idealised Demand Curve for Goods

However, for each individual floor correlation proved to be a little better (**Figures 4.61 a-f**). The best correlation was obtained for the third floor ( $r=0.482$ ) followed by the fourth floor ( $r=0.21$ ). All correlations gave an inverse relationship. The points below the regression line represent problematic departments as their number of items sold of them are few in relation to their low average prices. The departments above the regression line represent overperforming or successful departments where the number of items sold are higher than what would be expected from their average prices.

#### 4.3.2 The Performance Factor:

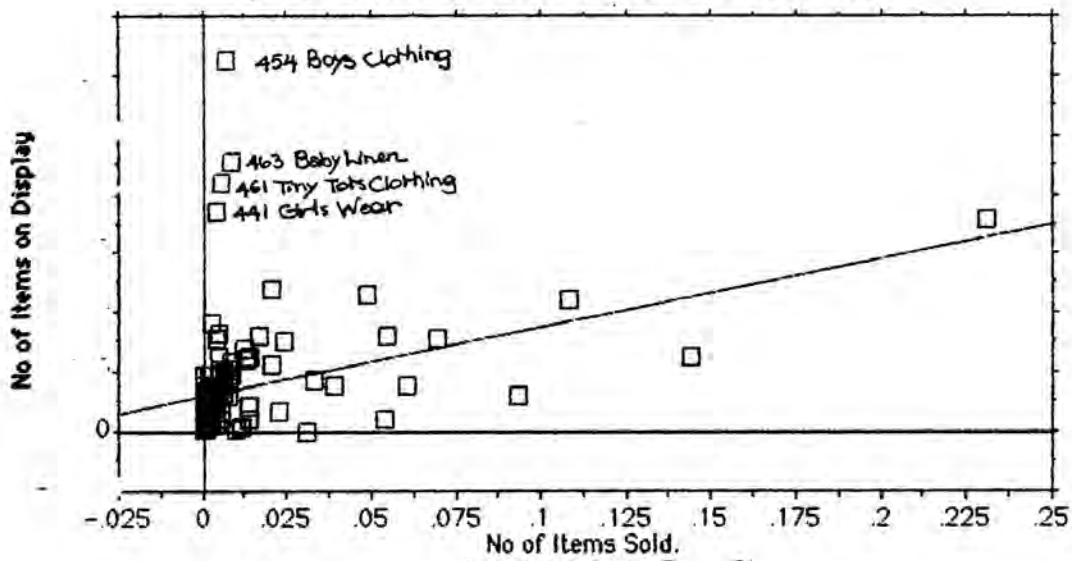
This is the relationship between the choice a department offers to the customer and its relation to the amount of sale in terms of numbers of items sold this department achieves. **Figure 4.62** represents the correlation between the number of items sold and the number of items on display for all the

<sup>40</sup> O' Brien, Larry; Harris, Frank, **Retailing: Shopping, Society, Space**. David Fulton Publishers, London, 1991. p.72.



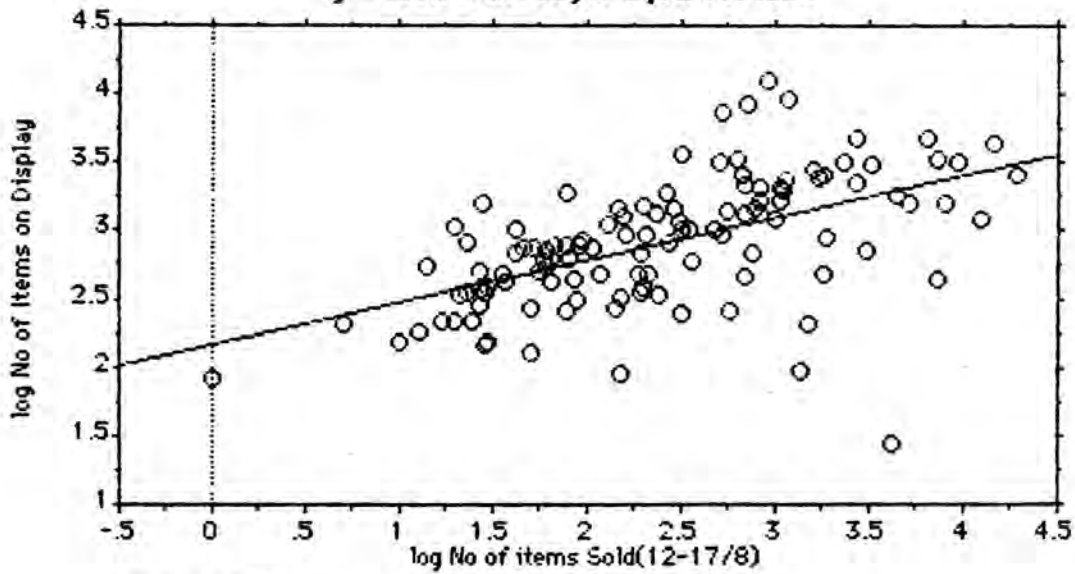
**Figure 4.59**

$$y = 23079.911x + 1208.084, R\text{-squared: } .128$$



**Figure 4.62**

$$y = .31x + 2.168, R\text{-squared: } .304$$



**Figure 4.63**

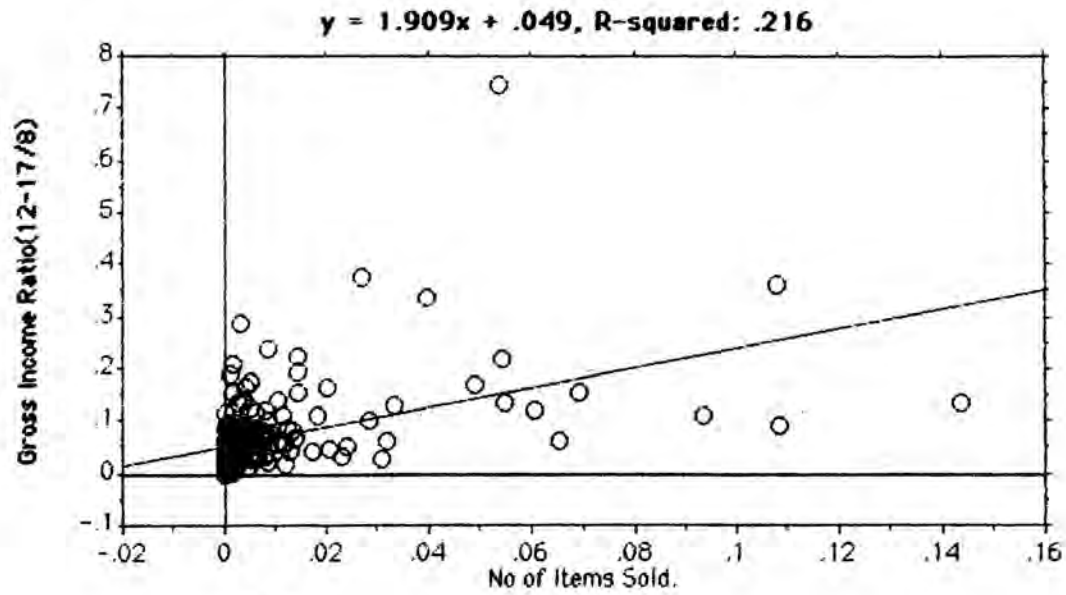
departments. The relationship is direct and quite strong ( $r=0.566$ ). The departments having high numbers of items on display but only small numbers sold are all children's wear: Boys Clothing (454), Baby Linen (463), Tiny Tots Clothing (461) and Girls Wear (441). **Figure 4.63** represents the same correlation after logging both variables ( $r=0.55$ ). This result shows that the more choice a department offers, the higher it sells (except for the children's wear as it could be because of a high average price/item). **Figures (4.64 a-f)** represent the same correlations for individual floors. The highest result was obtained from the fourth floor, where it produced a strong direct relationship ( $r=0.97$ ) between number of items on display and the number of items sold. The next high result was obtained from the ground floor ( $r=0.75$ ), followed by the basement floor ( $r=0.68$ ), followed by the second floor ( $r=0.58$ ). Hence, the higher the number of items on display the more items are sold. The first and third floors resulted in weak correlations.

#### **4.3.3 Relation of Amount of Sales to Income:**

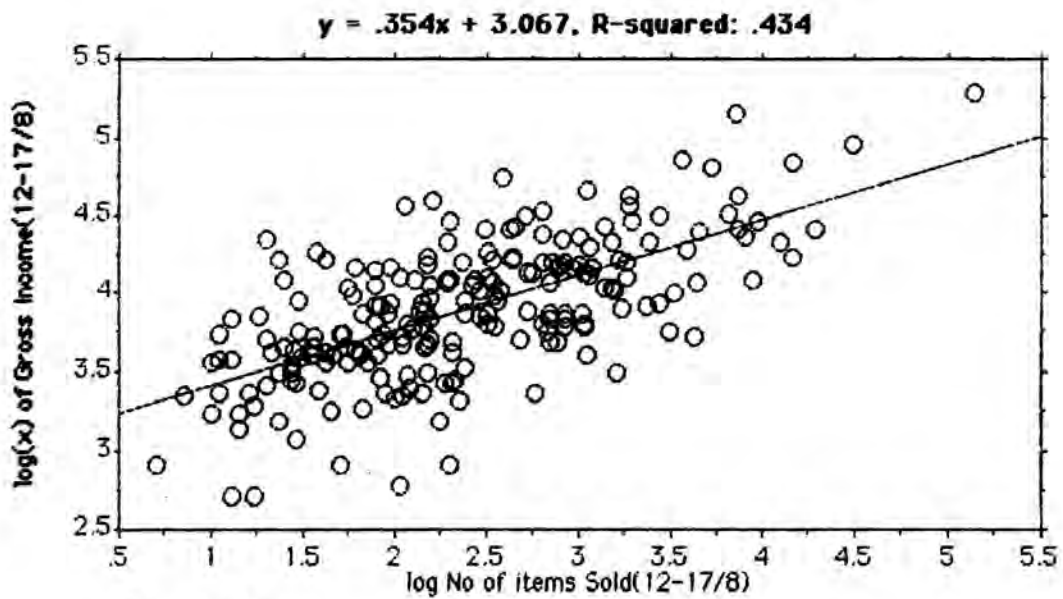
**Figure 4.65** represents a correlation between the number of items sold and the gross income ratio for the week (12-17/8) for the whole store resulting in a relationship ( $r=0.47$ ). In most cases the higher the number of items sold, the higher the income except for the high price items as furniture departments where a low number of items sold can lead to a high income. **Figure 4.66** represents the previous correlation improved by logging both variables, producing a strong relationship ( $r=0.658$ ). **Figures 4.67 a-f in appendix II** represent the same correlation as **figure 4.65** for individual floors. The highest result obtained was for the third floor ( $r=0.75$ ), followed by the fourth floor ( $r=0.583$ ), followed by the second floor ( $r=0.5$ ). The rest of the floors produced weak correlations. **Figures 4.68 a-f in appendix II** represent the previous correlations improved by logging both variables. The highest result obtained was for the fourth floor ( $r=0.71$ ), followed by the second floor ( $r=0.614$ ), followed by the third floor ( $r=0.56$ ), followed by the basement floor ( $r=0.427$ ).

#### **4.3.4 Relation of Income to Profit:**

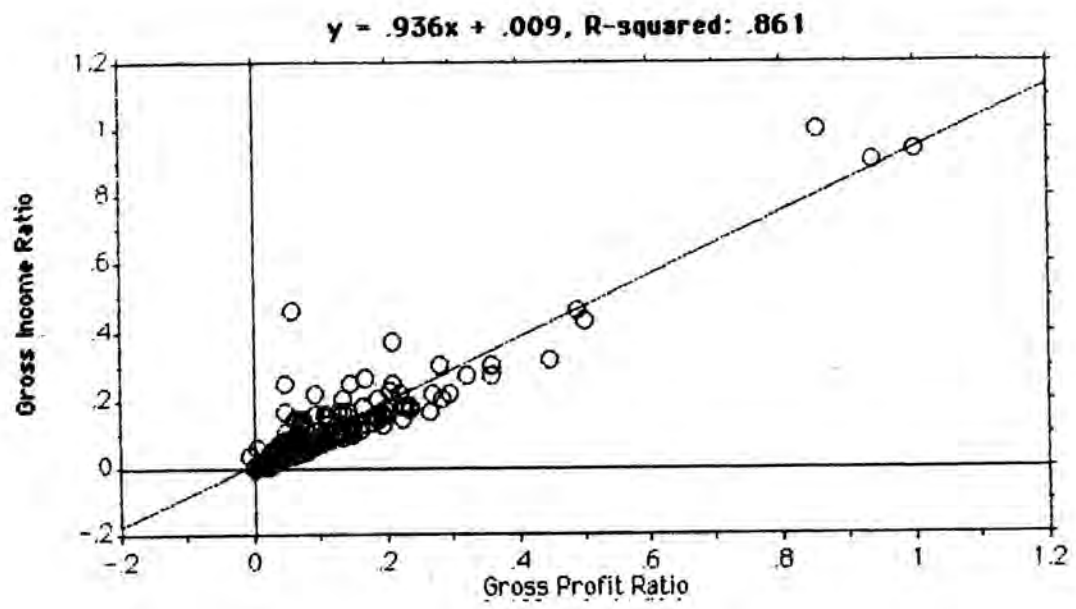
Finally two correlations were plotted between gross income ratio and profit ratio for a year and a week for the entire store (**Figures 4.69 & 4.70**). Two strong



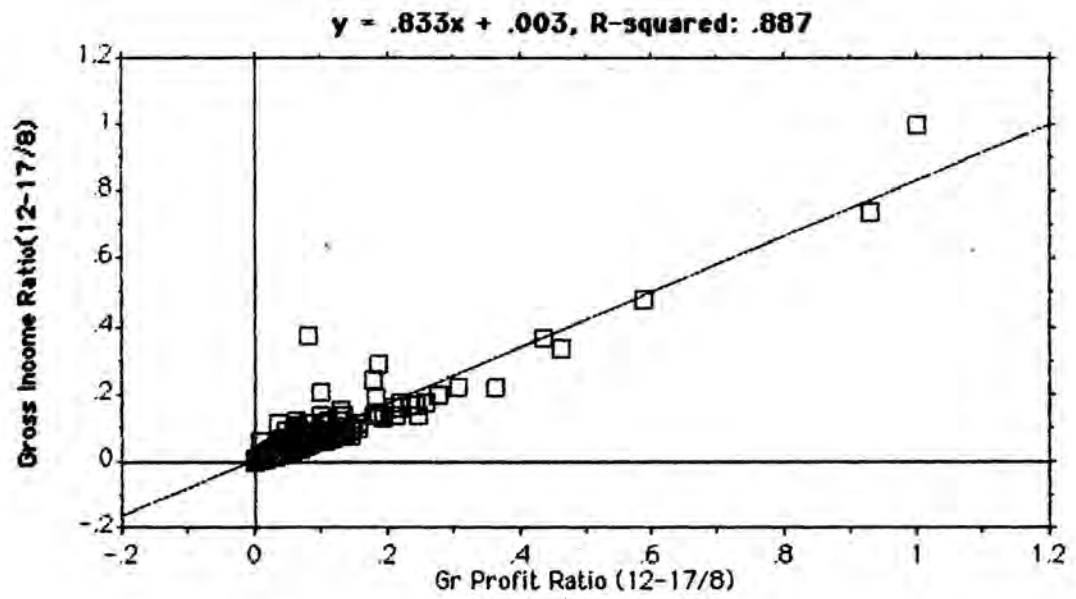
**Figure 465**



**Figure 466**



**Figure 4.69**



**Figure 4.70**

results were obtained ( $r=.928$  &  $r=.941$  respectively), in which the points above the regression line represents departments with lower profit margin than the average of the rest of the store. These departments include the food hall, lamps and accessories, Mappin & Webb and cameras departments. Points under the regression line represent departments with a profit margin higher than the average of the rest of the store e.g. the men's suits department.

Bearing in mind the strong results obtained from the correlations between the retail information and the connectivities and depths of departments in the previous part (4.1), a model for diagnosing the departments of the store is proposed. It is represented by **tables 4.4 & 4.5** which record each of the selling departments <sup>41</sup> in Selfridges along with its number of items sold, its items sold/items displayed <sup>42</sup>, its average price/item, its depth and connectivity both in the global system. **Table 4.4 is sorted according to the number of items sold in an ascending order**, which has been converted to a ratio where the highest selling department is represented by a value of 1, the rest of the departments are ratios of 1, expressed to five decimal points. In order to understand how departments perform one should look at the departments selling low numbers of items and their average prices. If the average price/item is high, then this could be the reason, along with other factors concerning the quality of the goods of the department like Fendi (516) in depth 2 (row 32 in **table 4.4**). If the average price is low, then this represents a problem; it could be "transpatial" i.e. if the quality of the goods is not pleasing to the customers in relation to its price or any reason of the kind. It could also be a 'low demand' good, a property which cannot be dealt with within the scope of this thesis, *or* there is a "spatial" reason; its location in the store in terms of depth and connectivity i.e. if high depth or/and low connectivity, then this could be the reason.

**Table 4.5** is sorted in an **ascending order of the average price/item**. It outlines the low average prices departments in regard to their performance in

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<sup>41</sup> Except the departments that are not confined to a single space like Kitchen Gadgets, Small Electrical Appliances, Thomas Cook and Olympus Equipment.

<sup>42</sup> A dot is given when the department is a concession one, where the number of items on display was not available. These departments constitute 45% of the departments in the store.

**Table 4.4 Ascending Order of Number of Items Sold (Ratio)**

**1 out of 3 cont...**

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
1	289 Imported Glassware	.00001	*	19.5	6	5
2	423 Gian Franco Perre	.00001	.001	90.0	7	3
3	437 Valentino	.00004	.001	165.0	7	3
4	658 Men's Tailoring	.00005	*	316.6	9	3
5	526 Focus Crystal	.00007	*	367.0	7	4
6	425 Men Overcoats	.00007	.004	174.2	8	2
7	243 & 244 Fitted Kitchens	.00008	*	346.1	9	2
8	277 Soft Furniture Workroom	.00008	*	506.2	7	5
9	288 Vinyl	.00008	*	213.5	7	1
10	648 Cieves & Hawkes	.00010	*	290.0	9	3
11	302 Lawn Mowers	.00010	.004	40.4	8	1
12	335 Bedroom Furniture	.00010	*	537.1	6	1
13	405 Luggage	.00010	*	537.1	6	8
14	346 Kitchen Furniture	.00010	*	125.1	9	2
15	437 Lotus Peraud	.00010	.002	100.2	6	3
16	654 Aquascutum	.00012	*	148.4	7	5
17	417 Cerruti 1881	.00013	.005	115.9	7	3
18	541 Sewing Machines	.00013	*	30.1	13	2
19	645 Chester Barrie	.00013	*	410.6	9	3
20	426 Men Raincoats	.00015	.005	132.6	8	3
21	336 Dining/Repro' Furniture	.00015	*	1128.1	7	2
22	182 Escada	.00015	.001	255.2	8	4
23	421 Sidi Suits	.00016	.004	201.9	8	4
24	418 Daks	.00017	.004	136.4	8	3
25	172 Timberland	.00017	.002	67.3	10	3
26	341 Upholstered Furniture	.00017	*	728.3	6	7
27	646 Austin Reed	.00019	*	186.4	8	3
28	394 Hi-Fi	.00019	.007	487.8	7	6
29	129 Y.S.L	.00020	.003	129.3	3	5
30	175 Ladies Suits	.00020	.004	128.1	8	4
31	192 Rainwear	.00020	.006	103.7	8	6
32	516 Pendi	.00020	*	115.8	2	4
33	176 Burberry	.00021	.001	157.5	8	5
34	427 Burberry	.00022	.005	93.0	7	6
35	183 Tartan Fashions	.00022	.012	40.7	11	2
36	151 Ladies Coats	.00022	.012	190.9	8	3
37	393 Video	.00022	.005	304.7	7	4
38	152 Four Seasons	.00023	*	128.1	9	5
39	681 Crochetta	.00026	*	117.8	7	6
40	402 Cabinets	.00027	.004	113.8	6	5
41	505 Aquascutum	.00027	*	127.8	8	6
42	686 Cristian Dior	.00027	*	150.5	8	3
43	392 Televisions	.00027	.005	501.2	6	4
44	692 J. H. Collectables	.00028	*	64.1	10	3
45	331 Beds	.00031	*	392.9	5	4
46	416 Men's Designer Room	.00031	.002	88.9	7	5
47	177 Mondri	.00031	.004	100.4	8	7
48	536 Olympus Ski-Wear	.00033	*	40.8	11	3
49	295 Villeroy & Boch	.00034	.004	90.3	6	4
50	149 Marella	.00037	.011	111.0	7	6
51	112 Scarves	.00038	.024	15.7	3	4
52	165 Career Collection	.00039	.004	108.8	8	8
53	512 Berkertex Bridal Wear	.00039	*	87.7	9	4
54	511 Mansfield	.00041	*	200.5	9	3
55	185 Ladies Skirts	.00042	.007	65.0	9	6
56	115 Y.S.L	.00044	.006	185.2	8	3
57	147 Betty Barclay	.00045	.005	73.3	8	5
58	159 Lotus Peraud	.00045	.007	248.1	8	3
59	160 Maternity	.00048	.006	66.2	10	2
60	190 Out Set	.00048	.009	64.1	9	7
61	704 Dolcis Shoes	.00049	*	27.9	10	8
62	167 Frank Usher	.00049	.005	112.9	9	4
63	690 Eastex	.00053	*	52.1	10	3
64	157 Designer Clothes	.00057	.002	184.2	6	9
65	142 Ladies Jackets	.00057	.017	109.3	9	9
66	509 Danimac	.00058	*	86.0	9	6
67	178 Evening Separates	.00059	.006	142.5	8	6
68	514 Nicole Fahri	.00059	*	65.3	9	4
69	188 Fashion Leisurewear	.00060	.008	50.6	11	4
70	460 Patrizia Wigan	.00061	*	35.2	9	5
71	682 Cash D'or	.00062	*	101.9	8	6
72	181 Knitwear	.00063	.012	65.8	11	3
73	125 Liz Claybourne Acc.	.00065	.017	26.8	10	2
74	180 Fasion Knitwear	.00067	.007	83.7	11	2
75	684 Precis	.00068	*	52.2	10	5
76	668 British Tailor	.00069	*	161.1	8	8
77	162 Your Size Dresses	.00069	.006	95.5	11	5
78	709 Derby	.00074	*	21.4	7	2
79	413 Luxury Leather	.00079	.008	119.7	7	4
80	538 Gift Wrappers	.00079	*	5.5	7	1
81	501 Reldan	.00081	*	48.4	10	4
82	272 Ready Made Curtains	.00082	*	43.6	8	3
83	693 Carol	.00082	*	20.2	11	4
84	284 & 281 & 330 Carpets	.00084	*	321.8	6	6
85	500 Viyella	.00087	*	56.2	11	4
86	315 Cycles	.00088	.015	25.5	11	2



	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
87	691 Genesis	.00889	.	21.0	9	4
88	502 Alexon	.00993	.	48.3	9	2
89	189 Your Size Separates	.00995	.007	96.7	10	5
90	193 Liz Claybourne	.00102	.	57.0	10	5
91	679 Children's Benetton	.00104	.	16.7	9	6
92	107 Pyjamas	.00105	.031	44.4	3	5
93	508 Windsmoor	.00106	.	60.8	9	6
94	549 Worcester Royal China	.00107	.	53.5	7	6
95	325 Light Fittings	.00107	.006	31.5	6	6
96	114 Men's Hats	.00111	.028	20.7	6	7
97	369 The Silica Shop	.00112	.	116.3	6	4
98	184 Y.S.L. Shirts	.00112	.099	32.2	4	5
99	518 Designer Shoes	.00113	.	99.8	10	5
100	211 Night Wear	.00115	.007	61.1	10	7
101	725 Empeccoy Phones	.00115	.	32.7	7	3
102	503 Planet	.00116	.	44.0	10	6
103	506 Isager	.00117	.	73.4	7	4
104	313 Major Appliances	.00119	.010	248.3	8	5
105	670 Child's Dash	.00130	.	8.8	9	5
106	134 Gloves	.00140	.024	14.1	4	3
107	103 Men's Knitwear & Beach...	.00141	.033	61.9	2	7
108	400 Portable Audio	.00142	.016	63.8	8	6
109	521 Kurt Geiger	.00143	.	113.8	11	3
110	187 Jaques Vert	.00146	.030	62.6	9	5
111	208 Knit Mach. & Paper Patte...	.00146	.	4.2	11	2
112	156 Dresses	.00148	.008	149.7	9	8
113	666 Dash	.00151	.	21.2	10	4
114	324 Lamp Shades	.00152	.013	13.3	7	1
115	274 Net Curtains	.00153	.	24.4	6	3
116	354 Boys Toys	.00159	.027	13.0	10	3
117	662 Sketchley	.00165	.	9.5	6	1
118	422 Suits & 430 jackets & 432 ...	.00175	.011	69.2	7	8
119	139 Umbrellas	.00175	.042	14.4	3	5
120	718 Wigs	.00179	.	37.9	5	4
121	721 Dunhill	.00179	.	31.8	4	3
122	186 Ladies Swimwear	.00195	.008	42.8	10	3
123	184 Blouses	.00200	.020	46.4	10	6
124	710 & 711 Optician	.00211	.	36.7	6	2
125	170 Ladies Hats	.00217	.012	24.6	9	5
126	123 Gucci	.00224	.015	85.5	2	5
127	458 Boys Large Sizes	.00232	.005	20.9	9	5
128	108 Horn	.00234	.076	23.6	3	4
129	408 Samsonite	.00237	.018	59.3	7	2
130	515 Country Casuals	.00238	.	40.2	10	4
131	529 Carvella	.00250	.	50.3	10	5
132	715 K. Prowse	.00251	.	35.3	6	1
133	656 Ladies Shoes	.00258	.	18.2	11	3
134	395 Garden Furniture	.00261	.021	27.7	8	8
135	136 Belts	.00270	.036	25.3	3	6
136	270 Furnishing Fabrics	.00274	.	29.2	8	5
137	698 & 699 Mappin & Webb	.00282	.	145.0	4	5
138	716 Douton Tableware & 723...	.00313	.	62.9	6	5
139	269 Quilts	.00319	.	39.1	7	3
140	533 Olympus Footwear	.00322	.	39.4	11	3
141	547 Waterford/ Wedgwood C...	.00332	.	59.9	6	7
142	242 Clocks	.00357	.028	10.7	5	4
143	436 Men's Leisure Clothing	.00374	.010	63.5	6	8
144	441 Girls Wear	.00382	.004	26.6	11	5
145	126 Fancy Leathers	.00382	.033	15.1	3	5
146	300 Hardware	.00410	.024	24.9	8	8
147	250 Gifts Of Britain	.00418	.132	4.1	5	2
148	298 Glassware	.00464	.	54.1	5	10
149	124 Handbags	.00466	.011	38.6	2	6
150	524 Brands Shoes	.00467	.	25.7	10	2
151	522 Shavers	.00468	.	10.4	9	4
152	440 Girls Large Sizes	.00493	.016	8.8	11	4
153	259 Table Mats	.00505	.031	10.2	9	5
154	111 Men's Accessories	.00507	.019	17.2	2	4
155	480 Aramis	.00513	.	10.9	3	4
156	401 Accessories	.00513	.089	7.3	7	5
157	461 Tiny Tots Clothing	.00527	.005	22.3	11	6
158	343 Pictures & Mirrors	.00557	.	6.6	9	4
159	110 Men's Ties	.00559	.066	20.1	3	6
160	465 Prams & Nursery	.00584	.032	19.5	12	6
161	855 Roland Cartier	.00597	.	27.8	10	6
162	291 China & 242 Earthen & O...	.00614	.	19.7	6	5
163	322 D.I.Y.	.00614	.031	7.6	6	6
164	357 Indoor Games	.00616	.038	8.9	9	3
165	201 Plain Fabrics	.00625	.025	8.3	10	6
166	454 Boys Clothing	.00672	.004	16.3	10	6
167	657 Children Shoes	.00746	.	15.2	12	7
168	377 Everything With Chips	.00751	.050	23.3	7	5
169	713 Leonidas Chocolates	.00764	.	7.3	5	3
170	665 Shoe Repair	.00787	.	5.8	6	1
171	130 Scarves & Hanks	.00790	.031	13.2	3	7
172	257 Adult Games	.00794	.039	6.0	10	4

**Table 4.4 Ascending Order of Number of Items Sold (Ratio)**  
3 out of 3

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
173	658 Men's Shoes	.00806	*	42.3	7	4
174	319 Paint & Wallpaper	.00810	.033	3.8	7	3
175	534 Olympus Clothes	.00836	*	17.6	13	6
176	317 Bathroom Fittings	.00836	.028	11.9	7	4
177	463 Baby Linen	.00876	.008	12.7	11	5
178	275 Tracks & Blinds	.01022	*	8.0	7	5
179	476 Men's Fragrance	.01029	.885	19.6	2	6
180	310 Silverware	.01105	*	14.4	6	6
181	101 Men's Socks	.01123	.430	7.3	4	5
182	258 Gifts	.01157	*	6.8	10	5
183	238 Woods & Needle Work	.01181	.034	2.0	12	5
184	264 Towels	.01227	*	10.1	5	7
185	294 Kitchen China & Glass	.01275	.041	4.8	7	6
186	353 Soft Toys	.01331	.042	8.9	11	4
187	102 Men's Underwear	.01352	.224	7.1	3	4
188	105 Men's Suits	.01389	.124	22.8	3	6
189	265 Bed Linen	.01400	*	19.8	6	7
190	546 Ladies & Men Hairdresser	.01408	*	15.6	11	3
191	301 Gardening	.01694	.043	3.7	7	3
192	649 Our Price	.01780	*	9.0	4	2
193	381 Pens	.02003	.034	11.7	5	6
194	305 Pets	.02023	.071	3.2	7	4
195	320 Lamps & Accessories	.02269	.252	1.9	7	3
196	321+328 Tools	.02401	.064	3.2	6	8
197	695 Cameras	.02676	*	19.9	3	4
198	266 Table Linen	.02802	*	5.1	7	6
199	230 Sewing Centre	.03080	*	1.3	13	3
200	687 & 688 Holland & Barret	.03176	*	2.8	5	3
201	414 Wines & Spirits	.03303	.150	5.7	4	2
202	218 Bras & Girdles & 212 Day...	.03916	.204	12.2	4	7
203	356 Big Toys	.04859	.084	5.0	10	5
204	472 Cosmetics 1 (Perfumery)	.05347	*	19.8	2	9
205	386 Books	.05381	1.000	5.8	7	5
206	121 Hosiery	.05449	.134	3.5	2	3
207	411 & 412 Tobaccos	.06047	.312	2.8	4	6
208	389 Newspapers & Periodicals	.06500	*	1.4	4	5
209	306 Clearing Shop	.06917	.176	3.2	7	5
210	409 Confectionery	.09340	.619	1.7	5	5
211	473-5 & 477 Cosmetics	.10787	*	4.8	3	12
212	371 Stationery	.10834	.197	1.2	5	7
213	380 Greeting Cards	.14353	.452	1.3	4	8
214	469 Drugs & Toiletries	.23093	.260	2.9	4	2
215	Food Hall	1.00000	.606	1.4	3	5

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
1	371 Stationery	.10834	.197	1.2	5	7
2	230 Sewing Centre	.03080	*	1.3	13	3
3	380 Greeting Cards	.14353	.452	1.3	4	8
4	389 Newspapers & Periodicals	.06500	*	1.4	4	5
5	Food Hall	1.00000	.606	1.4	3	5
6	409 Confectionery	.09340	.619	1.7	5	5
7	320 Lamps & Accessories	.02269	.252	1.9	7	3
8	238 Woods & Needle Work	.01181	.034	2.0	12	5
9	687 & 688 Holland & Barret	.03176	*	2.8	5	3
10	411 & 412 Tobaccos	.06047	.312	2.8	4	6
11	469 Drugs & Toiletries	.23093	.260	2.9	4	2
12	321+328 Tools	.02401	.064	3.2	6	8
13	385 Pets	.02023	.071	3.2	7	4
14	306 Cleaning Shop	.06917	.176	3.2	7	5
15	121 Hosiery	.05449	.134	3.5	2	3
16	301 Gardening	.01694	.043	3.7	7	3
17	319 Paint & Wallpaper	.00810	.033	3.8	7	3
18	250 Gifts Of Britain	.00418	.132	4.1	5	2
19	208 Knit Mach. & Paper Patte...	.00146	*	4.2	11	2
20	473-5 & 477 Cosmetics	.10787	*	4.8	3	12
21	294 Kitchen China & Glass	.01275	.041	4.8	7	6
22	356 Big Toys	.04859	.084	5.0	10	5
23	266 Table Linen	.02802	*	5.1	7	6
24	538 Gift Wrappers	.00079	*	5.5	7	1
25	414 Wines & Spirits	.03303	.150	5.7	4	2
26	386 Books	.05381	1.000	5.8	7	5
27	665 Shoe Repair	.00787	*	5.8	6	1
28	257 Adult Games	.00794	.039	6.0	10	4
29	343 Pictures & Mirrors	.00557	*	6.6	9	4
30	258 Gifts	.01157	*	6.8	10	5
31	102 Men's Underwear	.01352	.224	7.1	3	4
32	101 Men's Socks	.01123	.430	7.3	4	5
33	401 Accessories	.00513	.089	7.3	7	5
34	713 Leonidas Chocolates	.00764	*	7.3	5	3
35	322 D.I.Y.	.00614	.031	7.6	6	6
36	275 Tracks & Blinds	.01022	*	8.0	7	5
37	201 Plain Fabrics	.00625	.025	8.3	10	6
38	670 Child's Dash	.00130	*	8.8	9	5
39	440 Girls Large Sizes	.00493	.016	8.8	11	4
40	353 Soft Toys	.01331	.042	8.9	11	4
41	357 Indoor Games	.00616	.038	8.9	9	3
42	649 Our Price	.01780	*	9.0	4	2
43	662 Sketchley	.00165	*	9.5	6	1
44	264 Towels	.01227	*	10.1	5	7
45	259 Table Mats	.00505	.031	10.2	9	5
46	522 Shavers	.00468	*	10.4	9	4
47	242 Clocks	.00357	.028	10.7	5	4
48	480 Arams	.00513	*	10.9	3	4
49	381 Pens	.02003	.034	11.7	5	6
50	317 Bathroom Fittings	.00836	.028	11.9	7	4
51	218 Bras & Girdles & 212 Day...	.03916	.204	12.2	4	7
52	463 Baby Linen	.00376	.008	12.7	11	5
53	354 Boys Toys	.00159	.027	13.0	10	3
54	130 Scarves & Hanks	.00790	.031	13.2	3	7
55	324 Lamp Shades	.00152	.013	13.3	7	1
56	134 Gloves	.00140	.024	14.1	4	3
57	310 Silverware	.01105	*	14.4	6	6
58	139 Umbrellas	.00175	.042	14.4	3	5
59	126 Fancy Leathers	.00382	.033	15.1	3	5
60	657 Children Shoes	.00746	*	15.2	12	7
61	546 Ladies & Men Hairdresser	.01408	*	15.6	11	3
62	112 Scarves	.00038	.024	15.7	3	4
63	454 Boys Clothing	.00672	.004	16.3	10	6
64	679 Children's Benetton	.00104	*	16.7	9	6
65	111 Men's Accessories	.00507	.019	17.2	2	4
66	534 Olympus Clothes	.00836	*	17.6	13	6
67	656 Ladies Shoes	.00258	*	18.2	11	3
68	465 Prams & Nursery	.00584	.032	19.5	12	6
69	289 Imported Glassware	.00001	*	19.5	6	5
70	476 Men's Fragrance	.01029	.885	19.6	2	6
71	291 China & 242 Earthen & O...	.00614	*	19.7	6	5
72	472 Cosmetics I (Perfumery)	.05347	*	19.8	2	9
73	265 Bed Linen	.01400	*	19.8	6	7
74	695 Cameras	.02676	*	19.9	3	4
75	110 Men's Ties	.00559	.066	20.1	3	6
76	693 Carol	.00082	*	20.2	11	4
77	114 Men's Hats	.00111	.028	20.7	6	7
78	458 Boys Large Sizes	.00232	.005	20.9	9	5
79	694 Genesis	.00089	*	21.0	9	4
80	666 Dash	.00151	*	21.2	10	4
81	709 Denby	.00074	*	21.4	7	2
82	461 Tiny Tots Clothing	.00527	.005	22.3	11	6
83	105 Men's Suits	.01389	.124	22.8	3	6
84	377 Everything With Chips	.00751	.050	23.3	7	5
85	108 Horn	.00234	.076	23.6	3	4
86	274 Net Curtains	.00153	*	24.4	6	3

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
87	170 Ladies Hats	.00217	.012	24.6	9	5
88	300 Hardware	.00410	.024	24.9	8	8
89	136 Belts	.00270	.036	25.3	3	6
90	315 Cycles	.00088	.015	25.5	11	2
91	524 Brands Shoes	.00467	*	25.7	10	2
92	441 Girls Wear	.00382	.004	26.6	11	5
93	125 Liz Claybourne Acc.	.00065	.017	26.8	10	2
94	395 Garden Furniture	.00261	.021	27.7	8	8
95	655 Roland Cartier	.00597	*	27.8	10	6
96	704 Dolcis Shoes	.00049	*	27.9	10	8
97	270 Furnishing Fabrics	.00274	*	29.2	8	5
98	541 Sewing Machines	.00013	*	30.1	13	2
99	325 Light Fittings	.00107	.006	31.5	6	6
100	721 Dunhill	.00179	*	31.8	4	3
101	104 Y.S.L. Shirts	.00112	.099	32.2	4	5
102	725 Empecey Phones	.00115	*	32.7	7	3
103	460 Patrizia Wigan	.00061	*	35.2	9	5
104	715 K. Prowse	.00251	*	35.3	6	1
105	710 & 711 Optician	.00211	*	36.7	6	2
106	718 Wigs	.00179	*	37.9	5	4
107	124 Handbags	.00466	.011	38.6	2	6
108	269 Quilts	.00319	*	39.1	7	3
109	533 Olympus Footwear	.00322	*	39.4	11	3
110	515 Country Casuals	.00238	*	40.2	10	4
111	302 Lawn Mowers	.00010	.004	40.4	8	1
112	183 Tartan Fashions	.00022	.012	40.7	11	2
113	536 Olympus Ski-Wear	.00033	*	40.8	11	3
114	658 Men's Shoes	.00806	*	42.3	7	4
115	186 Ladies Swimwear	.00195	.008	42.8	10	3
116	272 Ready Made Curtains	.00082	*	43.6	8	3
117	583 Planet	.00116	*	44.0	10	6
118	107 Pyjamas	.00105	.031	44.4	3	5
119	184 Blouses	.00200	.020	46.4	10	6
120	502 Alexon	.00093	*	48.3	9	2
121	501 Reklan	.00081	*	48.4	10	4
122	529 Carvella	.00250	*	50.3	10	5
123	188 Fashion Leisurewear	.00060	.008	50.6	11	4
124	690 Eastex	.00053	*	52.1	10	3
125	684 Precis	.00068	*	52.2	10	5
126	549 Worcester Royal China	.00107	*	53.5	7	6
127	298 Glassware	.00464	*	54.1	5	10
128	500 Viyella	.00687	*	56.2	11	4
129	193 Liz Claybourne	.00102	*	57.0	10	5
130	408 Samsomite	.00237	.018	59.3	7	2
131	547 Waterford/Wedgwood C...	.00332	*	59.9	6	7
132	508 Windsmoor	.00106	*	60.8	9	6
133	211 Night Wear	.00115	.007	61.1	10	7
134	103 Men's Knitwear & Beach...	.00141	.033	61.9	2	7
135	187 Jaques Vert	.00146	.030	62.6	9	5
136	716 Doulton Tableware & 723...	.00313	*	62.9	6	5
137	436 Men's Leisure Clothing	.00374	.010	63.5	6	8
138	400 Portable Audio	.00142	.016	63.8	8	6
139	692 J.H. Collectables	.00028	*	64.1	10	3
140	190 Out Set	.00048	.009	64.1	9	7
141	185 Ladies Skirts	.00042	.007	65.0	9	6
142	514 Nicole Fabri	.00059	*	65.3	9	4
143	181 Knitwear	.00063	.012	65.8	11	3
144	180 Maternity	.00048	.008	66.2	10	2
145	172 Timberland	.00017	.002	67.3	10	3
146	422 Suits & 430 Jackets & 432...	.00175	.011	69.2	7	8
147	147 Betty Barclay	.00045	.005	73.3	8	5
148	506 Jaeger	.00117	*	73.4	7	4
149	180 Fashion Knitwear	.00067	.007	83.7	11	2
150	123 Gucci	.00224	.015	85.5	2	5
151	509 Danimac	.00058	*	86.0	9	6
152	512 Berkertex Bridal Wear	.00039	*	87.7	9	4
153	416 Men's Designer Room	.00031	.002	88.9	7	5
154	423 Gian Franco Ferre	.00001	.001	90.0	7	3
155	295 Villeroy & Boch	.00034	.004	90.3	6	4
156	427 Burberry	.00022	.005	93.0	7	6
157	162 Your Size Dresses	.00069	.006	95.5	11	5
158	189 Your Size Separates	.00095	.007	96.7	10	5
159	518 Designer Shoes	.00113	*	99.8	10	5
160	437 Lotus Feraud	.00010	.002	100.2	6	3
161	177 Mondri	.00031	.004	100.4	8	7
162	682 Cash D'or	.00062	*	101.9	8	6
163	192 Rainwear	.00020	.006	103.7	8	6
164	165 Career Collection	.00039	.004	108.8	8	8
165	142 Ladies Jackets	.00057	.017	109.3	9	9
166	149 Marella	.00037	.011	111.0	7	6
167	167 Frank Usher	.00049	.005	112.9	9	4
168	402 Cabinets	.00027	.004	113.8	6	5
169	521 Kurt Geiger	.00143	*	113.8	11	3
170	516 Fendi	.00020	*	115.8	2	4
171	417 Cerruti 1881	.00013	.005	115.9	7	3
172	369 The Silica Shop	.00112	*	116.3	6	4

**Table 4.5 Ascending Order of Average Price / Item**  
3 out of 3

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
173	681 Crochetta	.00026	.	117.8	7	6
174	413 Luxury Leather	.00079	.008	119.7	7	4
175	346 Kitchen Furniture	.00010	.	125.1	9	2
176	505 Aquascutum	.00027	.	127.8	8	6
177	152 Four Seasons	.00023	.	128.1	9	5
178	175 Ladies Suits	.00020	.004	128.1	8	4
179	129 Y.S.L.	.00020	.003	129.3	3	5
180	426 Men Raincoats	.00015	.005	132.6	8	3
181	418 Daks	.00017	.004	136.4	8	3
182	178 Evening Separates	.00059	.006	142.5	8	6
183	698 & 699 Mappin & Webb	.00282	.	145.0	4	5
184	654 Aquascutum	.00012	.	148.4	7	5
185	156 Dresses	.00148	.008	149.7	9	8
186	686 Cristian Dior	.00027	.	150.5	8	3
187	176 Burberry	.00021	.001	157.5	8	5
188	668 British Tailor	.00069	.	161.1	8	8
189	437 Valentino	.00004	.001	165.0	7	3
190	115 Y.S.L.	.00044	.006	165.2	8	3
191	425 Men Overcoats	.00007	.004	174.2	8	2
192	157 Designer Clothes	.00057	.002	184.2	6	9
193	646 Austin Reed	.00019	.	186.4	8	3
194	151 Ladies Coats	.00022	.012	190.9	8	3
195	511 Mansfield	.00041	.	200.5	9	3
196	421 Sidi Suits	.00016	.004	201.9	8	4
197	288 Vinyl	.00008	.	213.5	7	1
198	159 Lotus Feraud	.00045	.007	248.1	8	3
199	313 Major Appliances	.00119	.010	248.3	8	5
200	182 Escada	.00015	.001	255.2	8	4
201	648 Gieves & Hawkes	.00010	.	290.0	9	3
202	393 Video	.00022	.005	304.7	7	4
203	658 Men's Tailoring	.00005	.	316.6	9	3
204	284 & 281 & 330 Carpets	.00084	.	321.8	6	6
205	243 & 244 Fitted Kitchens	.00008	.	346.1	9	2
206	526 Focus Crystal	.00007	.	367.0	7	4
207	331 Beds	.00031	.	392.9	5	4
208	645 Chester Barrie	.00013	.	410.6	9	3
209	394 Hi-Fi	.00019	.007	487.8	7	6
210	392 Televisions	.00027	.005	501.2	6	4
211	277 Soft Furniture Workroom	.00008	.	506.2	7	5
212	405 Luggage	.00010	.	537.1	6	8
213	335 Bedroom Furniture	.00010	.	537.1	6	1
214	341 Upholstered Furniture	.00017	.	728.3	6	7
215	336 Dining/ Repro' Furniture	.00015	.	1128.1	7	2

terms of the number of items sold. The expectancy would be that high number of items would be sold for departments with low average prices. But if some departments have a low average price/item and the number of items sold is also low, then either these represent low demand goods or problematic departments. In the latter case the depth and the connectivity should be looked at. **Table 4.6** records the suggested problematic departments sorted in an ascending order of the number of items sold. These include the following departments: Imported Glassware, Gift Wrappers, Lamp Shades and Sketchley.

This chapter looked at the relations between retail information and the syntactic variables of the store. Connectivity and depth proved to have some strong impact on the performance of the different departments in terms of sales. A model of diagnosis for the individual departments was constructed.

**Table 4.6 Suggested Problematic Departments**

	Name	No of Items Sold	Items Sold/Items Displayed	Average Price/Item	Depth	Connectivity
1	289 Imported Glassware	.00001	•	19.5	6	5
2	302 Lawn Mowers	.00010	.004	40.4	8	1
3	541 Sewing Machines	.00013	•	30.1	13	2
4	172 Timberland	.00017	.002	67.3	10	3
5	183 Tartan Fashions	.00022	.012	40.7	11	2
6	692 J. H. Collectables	.00028	•	64.1	10	3
7	536 Olympus Ski-Wear	.00033	•	40.8	11	3
8	188 Fashion Leisurewear	.00060	.008	50.6	11	4
9	181 Knitwear	.00063	.012	65.8	11	3
10	125 Liz Claybourne Acc.	.00065	.017	26.8	10	2
12	709 Derby	.00074	•	21.4	7	2
13	538 Gift Wrappers	.00079	•	5.5	7	1
14	693 Carol	.00082	•	20.2	11	4
15	315 Cycles	.00088	.015	25.5	11	2
16	694 Genesis	.00089	•	21.0	9	4
17	208 Knit Mach. & Paper Patterns	.00146	•	4.2	11	2
18	324 Lamp Shades	.00152	.013	13.3	7	1
19	354 Boys Toys	.00159	.027	13.0	10	3
20	662 Sketchley	.00165	•	9.5	6	1

## Chapter Five

So far, the analysis has dealt with the relationship between the spatial organisation of the store and the retail information concerning the different departments. In this part the main concern is about the actual experience of the visitor (customer or browser) in the spatial structure. This is examined through the observations of the different departments of the store. The results of the observations is correlated with the syntactic spatial properties of the store as well as with the retail information (number of items sold/ average price/item, gross income/year and week).

In this respect observations seek to find the extent to which the spatial configuration affects the experience of people (laws of type 3) or if the "transpatial" retail decisions have a contribution in the space occupancy (laws of type 2).

### 5.1 Observations:

The observations were carried out for the whole store in the same week (12-17 August) for which the retail information was supplied. They were mainly concerned with the number of people (men, women and staff) and differentiated between two of their activities being either static or moving. The reason for this differentiation comes from the nature of the shopping activity.

**Static customers** are the essential component in the selling activity. They include standing customers, customers examining merchandise and customers talking to staff. They represent decided customers heading for specific merchandise or those who have stopped for impulsive interest. **Moving customers** on their way to a specific department may pass through an intervening number of other spaces. This may expose them to other products and departments which they did not intend to visit. This is known as the "by-product" of movement,<sup>49</sup> which may help increase the sales numbers for the department/departments passed by. The number of moving customers

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<sup>49</sup> Hillier, B.; Fern, A., *Is Dense Civilization Possible? Or, the Shape of Cities in the 21st Century*. In *Proceedings of the Watt Committee Conference on the Rational Use of Energy*, Elsevier 1991.



characterises the extent to which a department is visited or passed by. Thus certain departments displaying specific merchandise or occupying strategic spaces are more exposed to customers than other departments and may become more popular as a result of their location in the store and the by-product of movement. **Static staff** seem to be an essential component in the selling activity as it is thought by retailers that the increase in their number increases the sales. In a study by Grajewski and Kruger<sup>44</sup> on purchasing patterns in the Allied Maples stores, it was observed that talking customers concentrated at salesmen desks where static staff were present. Static staff include standing staff, staff promoting products, staff organising merchandise in counters, talking staff to customers and staff standing at the cash tills. **Moving staff** include staff moving from one department to another, staff bringing goods to be displayed, staff moving within a department organising merchandise.

Static and moving people were observed for two rounds for each floor on the time period (11-12 am) on weekdays. This was done by moving with a constant speed through every department on the observed floor and noting the total number the people present in the department. Each round lasted for about 30 minutes per each floor depending on the size of the floor and the visibility conditions of every department.

In the following part (5.1) each of the categories observed will be first correlated with the spatial variables of the store: integration, integration radius three, connectivity and depth. This will account for "laws of type 3". Then it will be correlated with the retail variables which have been defined earlier, and include: gross income/year, gross income/week, number of items sold. This will account for "laws of type 2".

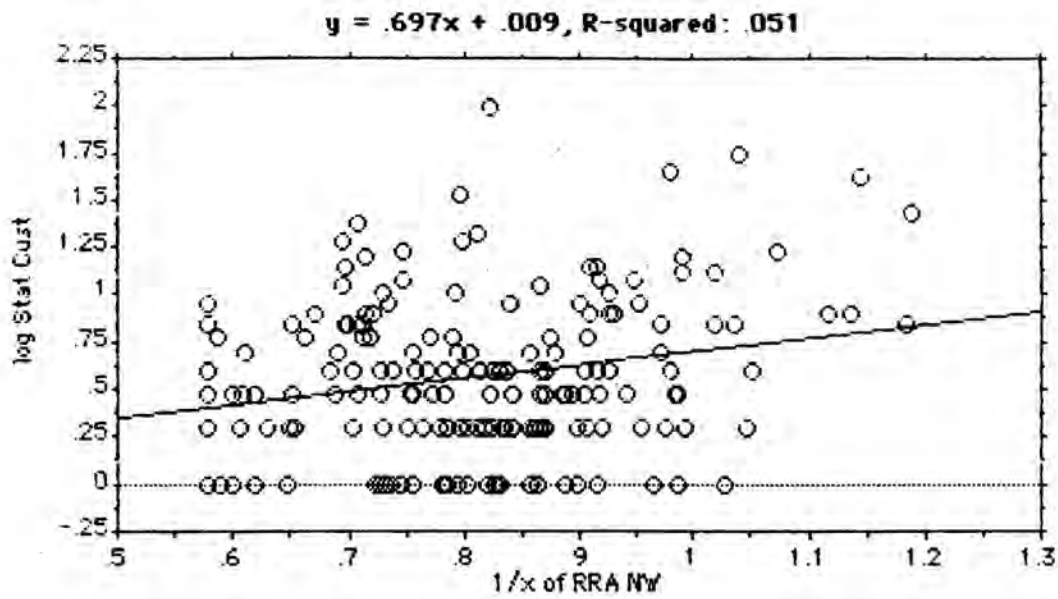
## **5.2 Static Customers:**

### **5.2.1 Syntactic Variables:**

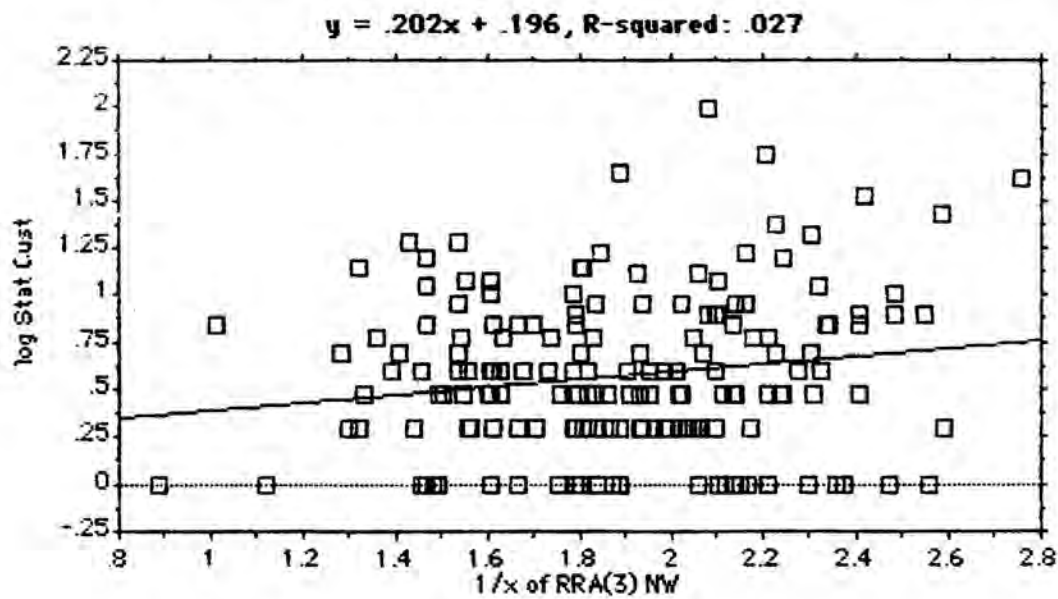
The correlation of log of static customers and integration for the store as a global system displayed a weak relationship ( $r=.226$ , figure 5.1). Figures 5.2 a-f in appendix III represent the same correlation for each floor individually. The

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<sup>44</sup> Grajewski, Tadeusz; Kruger, Mario, **Retail Layout, Customers Use and Purchasing Patterns in Allied Maples stores**. Unpublished study, Unit for Advanced Architectural Studies, February 1991. p.15.



**Figure 5.1**

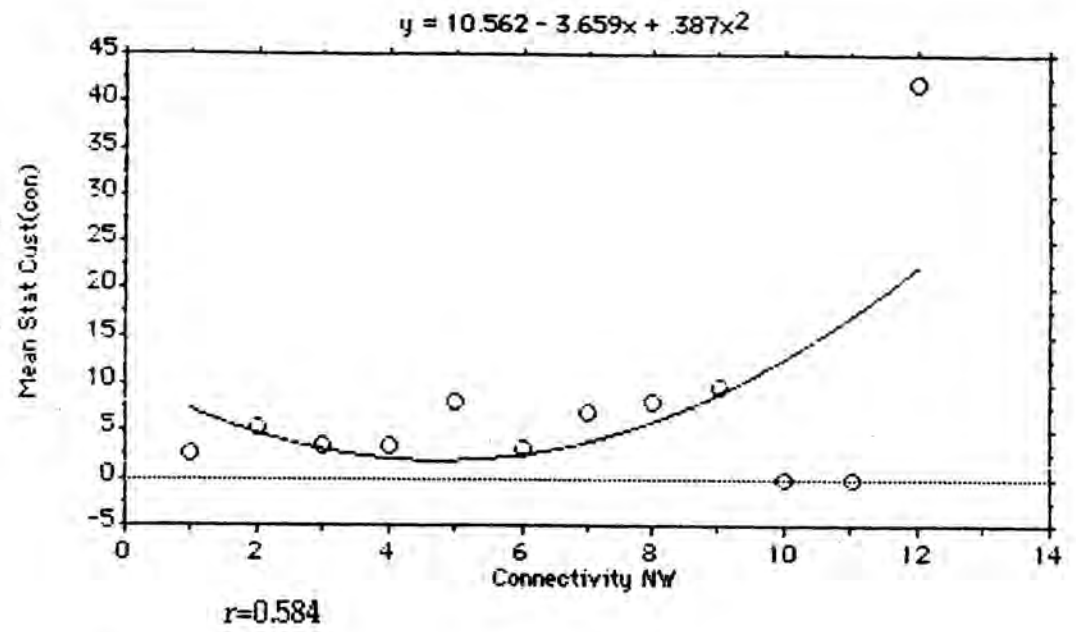


**Figure 5.3**

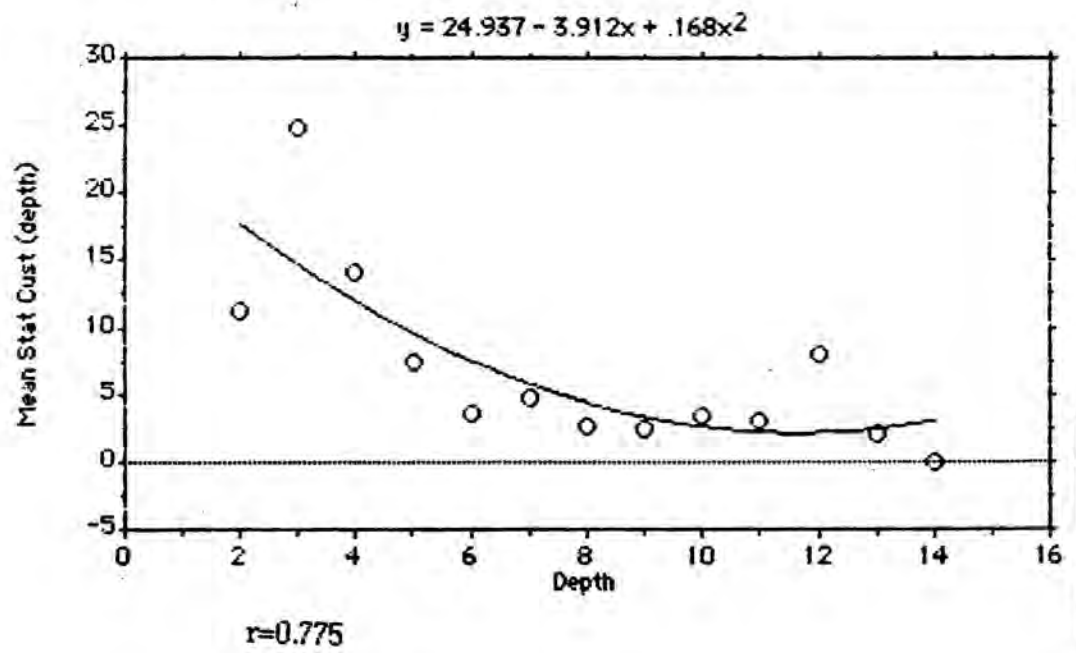
highest result was obtained for the first floor ( $r=0.45$ ), while the rest of the floors produced weak correlations. Even weaker relations resulted from the correlation with integration radius three ( $r=0.16$ , **figure 5.3 a-f**) for the global system as well as for each floor individually (**figures 5.4 a-f in appendix III**). Since the integration value of a space measures the extent to which that space is a destination for all other spaces in the system, and the distribution of all other spaces as destinations from it, hence the weak correlations produced from correlating integration and integration radius three against log of static customers shows that the way in which the store features as an integration structure does not seem to bear any relation to the number of static customers. **Figure 5.5** represents the correlation of connectivity and mean static customers<sup>45</sup> which displayed an inverse relationship of  $r=-0.584$ . Thus the higher connected the departments, the more static customers present in it. **Figures 5.6 a-f** represent the same correlation for each individual floor. The highest result was obtained for the ground floor ( $r=0.802$ ), best expressed by a polynomial of the 2nd order, followed by the first floor ( $r=0.65$ ), while the rest of the floors produced weak correlations. The correlation of depth and mean static customers for the global system displayed an inverse relationship of  $r=-0.607$  (**figure 5.7**), which means that as depth of departments in the store increases, the number of static customers decreases. The reason for this could be because deep departments display demand and more specialised products so they need more effort and commitment to be reached. **Figures 5.8 a-f in appendix III** represent the same correlation for each individual floor. Most of the floors produced an inverse relationship with depth. The highest inverse result was obtained for the basement floor ( $r=0.78$ ), followed by the ground floor ( $r=0.624$ ), followed by the first floor ( $r=0.616$ ). The third and fourth floors produced weak inverse relationships ( $r=0.318$  &  $r=0.16$  respectively). The second floor produced a correlation of  $r=0$ , which could mean that this floor offered attractions to the customers at the deeper departments and in this way succeeded in evenly distributing static customers along the floor, thus working against the depth handicap. See **Table 4.3** for the departments occupying the different depths in each floor.

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<sup>45</sup> The mean of the static customers observed in all departments having the same connectivity value was calculated. The same method will be applied for variables against depth values.



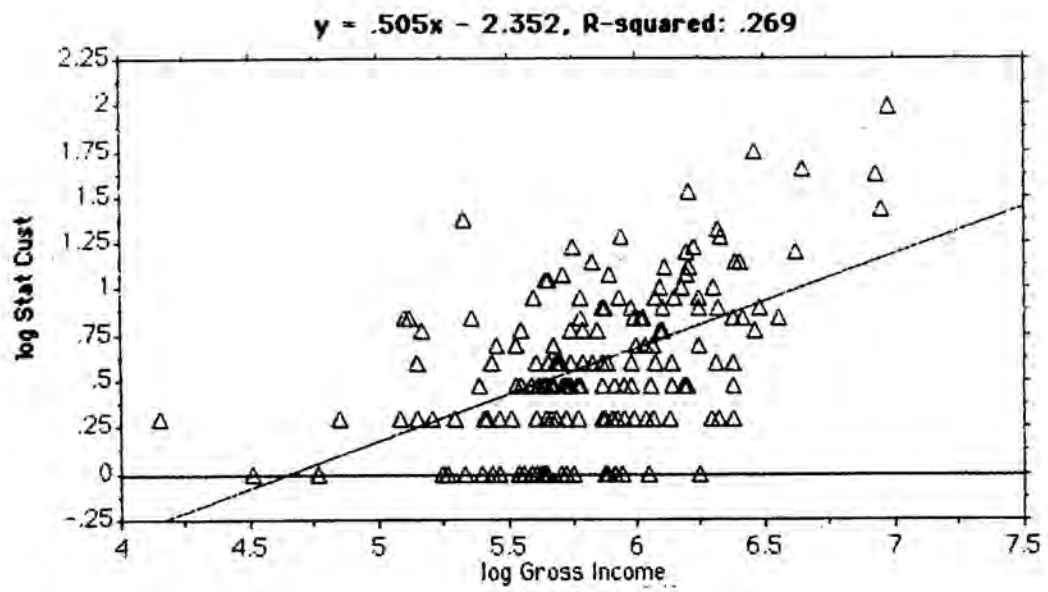
**Figure 5.5**



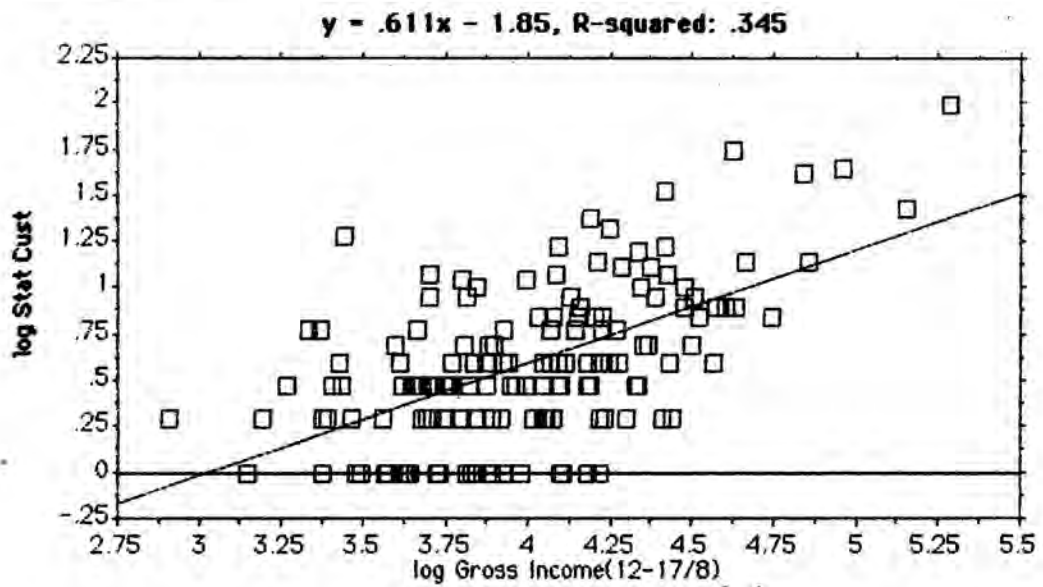
**Figure 5.7**

### 5.2.2 Retail Variables:

The correlation of log gross income and log static customers for the global system resulted in a relationship of  $r=0.518$  (**figure 5.9**) i.e. the more the static customers present in a department, the higher the income it produces. The points above the regression line represent popular departments which experience high encounter rate but with less proportional income than the average of most of the store departments. They include the Food Hall, Books and Drugs & Toiletries departments. The points below the regression line represent the departments that generate higher incomes from a less number of customers than the average of the rest of the store departments. Those include Perfumery and Lamps & Accessories departments. **Figures 5.10 a-f in appendix III** represent the same correlations for each individual floor. Most floors produced direct relationships. The highest result was produced by the ground floor ( $r=0.75$ ), followed by the first floor ( $r=0.56$ ), followed by the second floor ( $r=0.53$ ), followed by the basement floor ( $r=0.43$ ). These results suggest that the higher the number of static customers induced in a floor, the higher the income it produces, provided the good qualities of merchandise on display. The third floor floor produced a weak relationship inverse relationship which could be explained by the presence of a parents accompanying their children in the children's clothes and shoes departments. **Figure 5.11** represents the correlation of log gross income/week and log static customers for the global system which resulted in a relationship of  $r=0.587$ . The departments above the regression line are still the same departments in the previous correlation, added to them the Cosmetics, Greeting Cards, Children's Shoes and Stationery departments. Those below the regression line include the Perfumery, Cameras and the ground floor Lingerie department. **Figures 5.12 a-f in appendix III** represent the same correlations for each individual floor. All floors produced direct relationships. The highest result was produced by the first floor ( $r=0.63$ ), followed by the ground floor ( $r=0.61$ ), followed by the basement floor ( $r=0.48$ ). The other two floors produced weak relationships. **Figure 5.13** represents the correlation between log number of items sold and log static customers in the global system which resulted in a strong relationship ( $r=0.606$ ). The points above the regression line represent departments which sell fewer numbers of items than the average of the store compared to their popularity in terms of the



**Figure 5.9**



**Figure 5.11**

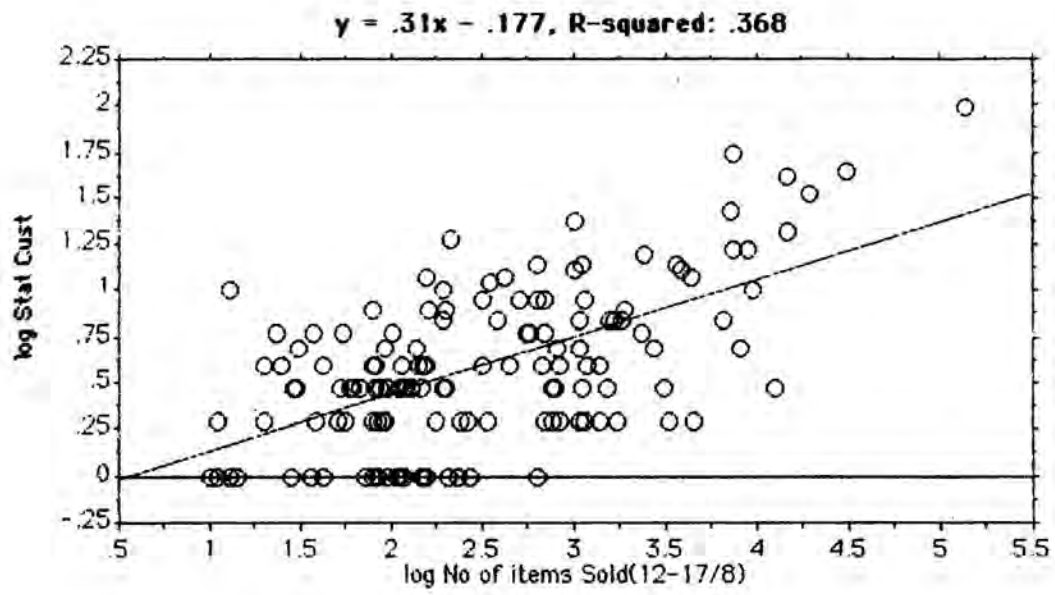


Figure 5.13

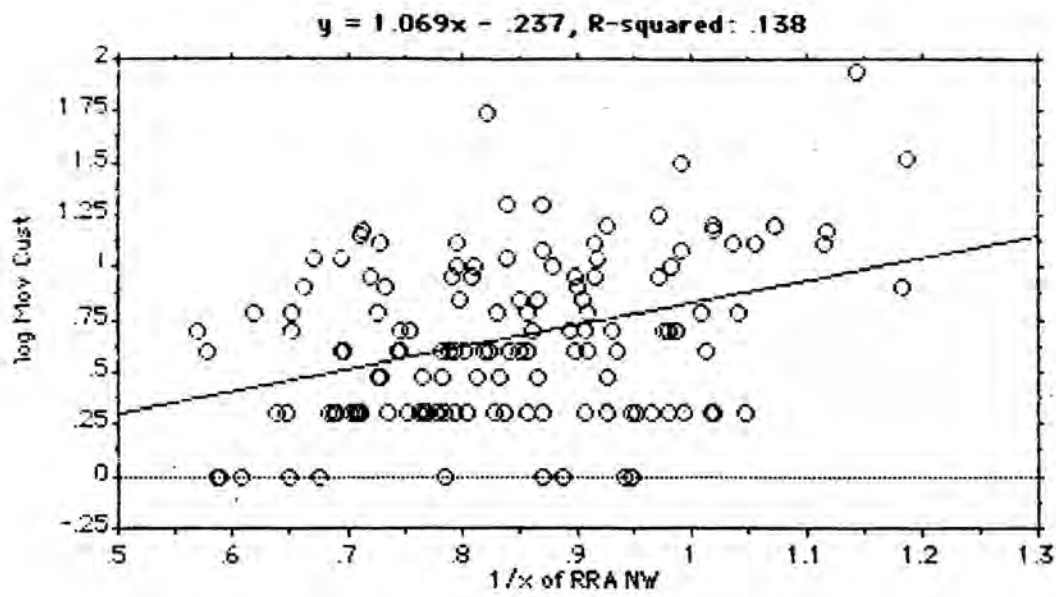
presence of static people. The Books department is the most outstanding one, followed by the Cosmetics and the Perfumery departments. The points below the regression line represent overperforming departments in terms of number of items sold without necessarily the presence of high numbers of customers. The explanation could be that in these departments each customer buys plenty of items on average. Those include the Confectionery, the Drugs and Toiletries and the Food hall. **Figures 5.12 a-f in appendix III** represent the same correlations for each individual floor. The departments which sold much higher numbers of items than the average of the rest of the store departments on each floor were excluded from the scattergrams. The highest result was produced by the ground floor ( $r=0.74$ ), followed by the first floor ( $r=0.613$ ), followed by the second floor ( $r=0.529$ ). The other floors produced weak relationships. The points above and below the regression line represent the properties of departments mentioned earlier. The Food Hall and Drugs & Toiletries departments which were below the regression line. The names of the departments are indicated on the scattergrams.

### **5.3 Moving Customers:**

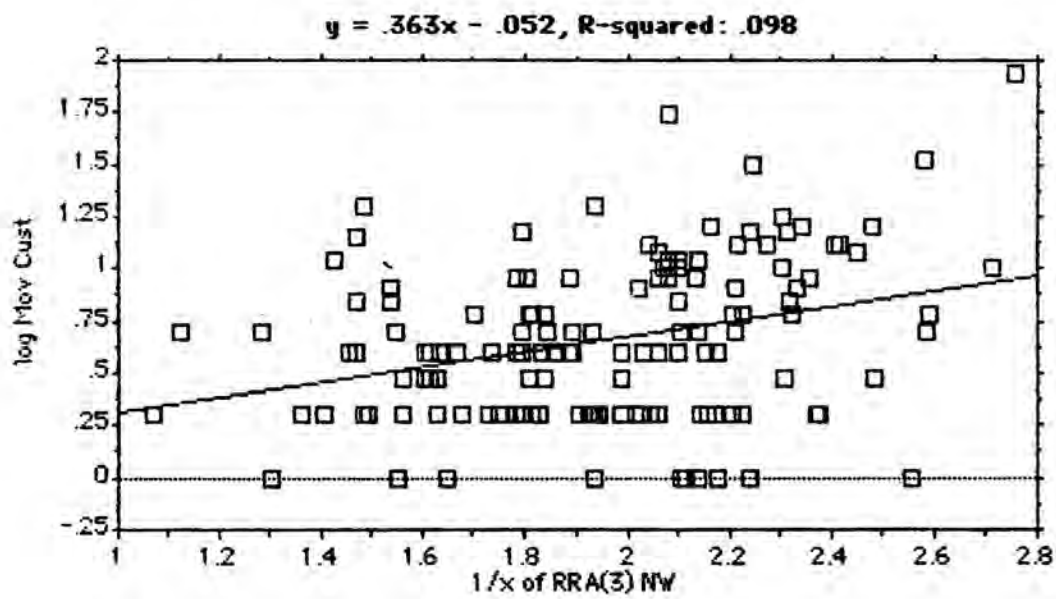
#### **5.3.1 Syntactic Variables:**

**Figures 5.15 & 5.16** represent the correlations of integration and integration radius three respectively with log of moving customers for the global system which produced weak results ( $r=0.371$  &  $r=0.31$  respectively). **Figures 5.17 a-f** represent correlations of integration and moving customers for each individual floor. The highest result was produced by the third floor ( $r=0.65$ ), followed by the ground floor ( $r=0.59$ ), followed by the basement floor ( $r=0.56$ ). The other floors produced weak relationships. **Figures 5.18 a-f** represent correlations of integration radius three and moving customers for each individual floor. The highest result was produced by the ground floor ( $r=0.58$ ), followed by the third floor ( $r=0.47$ ). The other floors produced weak relationships. These results confirm the notion that this store was designed as separate layers of floors where the connections across them does not represent a continuation of the search of related goods. The spatial configuration of each individual floor has a different impact on the way in which people use the





**Figure 5.15**



**Figure 5.16**

floors. This confirms Clausen's<sup>46</sup> report that department stores were founded on the idea of competition among its different departments and floors. **Figure 5.19** represents the correlation of connectivity and mean moving customers for the global system which resulted in a relationship of  $r=0.752$  best represented by a polynomial of the 2nd order. High numbers of customers tend to move through highly connected departments. **Figures 5.20 a-f in appendix III** represent the same correlation for each individual floor. The highest result was produced by the ground floor ( $r=0.955$ ), followed by the third floor ( $r=0.855$ ), followed by the second floor ( $r=0.757$ ). All three relationships are expressed by polynomials of the 2nd order. The basement floor produced a strong linear relationship ( $r=0.594$ ), followed by the first floor ( $r=0.47$ ). **Figure 5.21** represents the correlation of depth and mean moving customers for the global system which resulted in a strong inverse relationship ( $r=0.842$ ) best expressed by a polynomial of the 2nd order. **Figures 5.22 a-f in appendix III** represent the same correlation for each individual floor. All floors produced inverse relationships except the fourth. The highest result was produced by the first floor ( $r=0.96$ ), followed by the basement floor ( $r=0.91$ ), followed by the third floor ( $r=0.83$ ), thus confirming the result produced by the global system that more customers tend to move in shallower departments and as departments increase in depth, the number of moving customers decreases. Only the fourth floor produced a direct relationship ( $r=0.73$ ) which could be explained by the fact that having a relatively small area compared to the other floors, the fourth floor encourages customers to penetrate deeper.

### 5.3.2 Retail Variables:

**Figure 5.23** represents the correlations of gross income ratio and log of moving customers which resulted in a strong relationship ( $r=0.45$ ). The points above the regression line represent departments which are popular in terms of movement of people but do not produce the same proportion of income as the rest of the store departments on average. The points below the regression line represent departments with lower than average movement than the rest of the store but with higher proportional income. **Figures 5.24 a-f in appendix III** represent the same correlation for each individual floor. The highest result was

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<sup>46</sup> Clausen, Meredith, Op. cit.

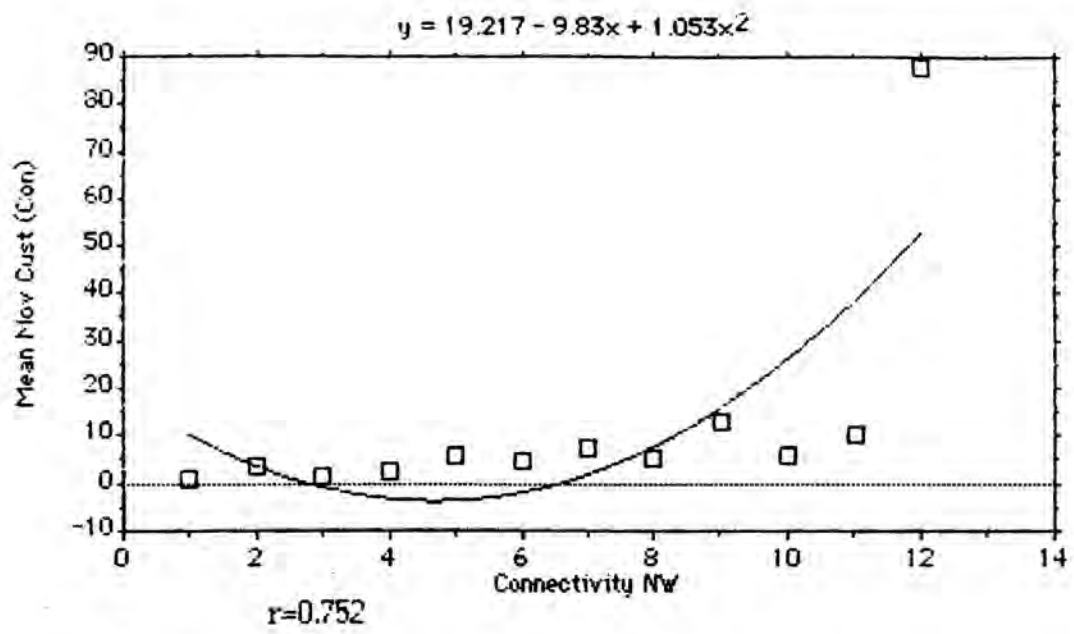


Figure 5.19

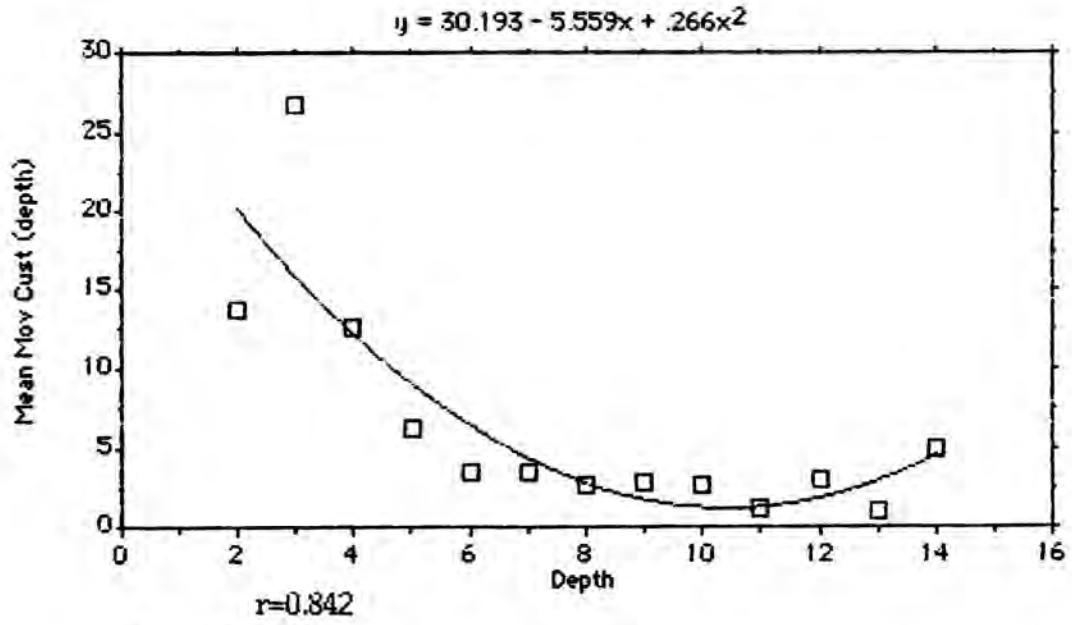
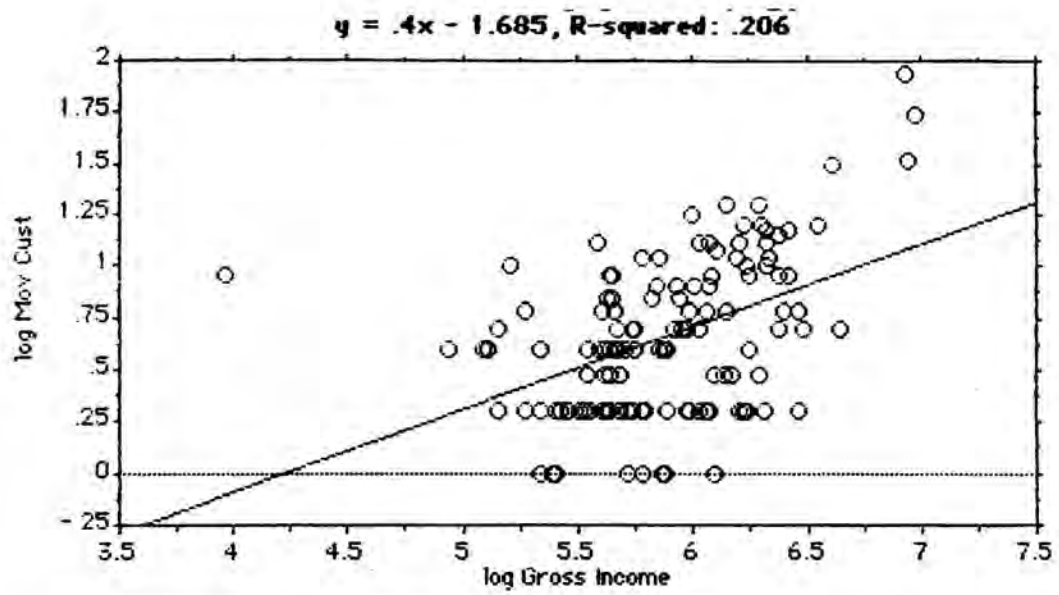
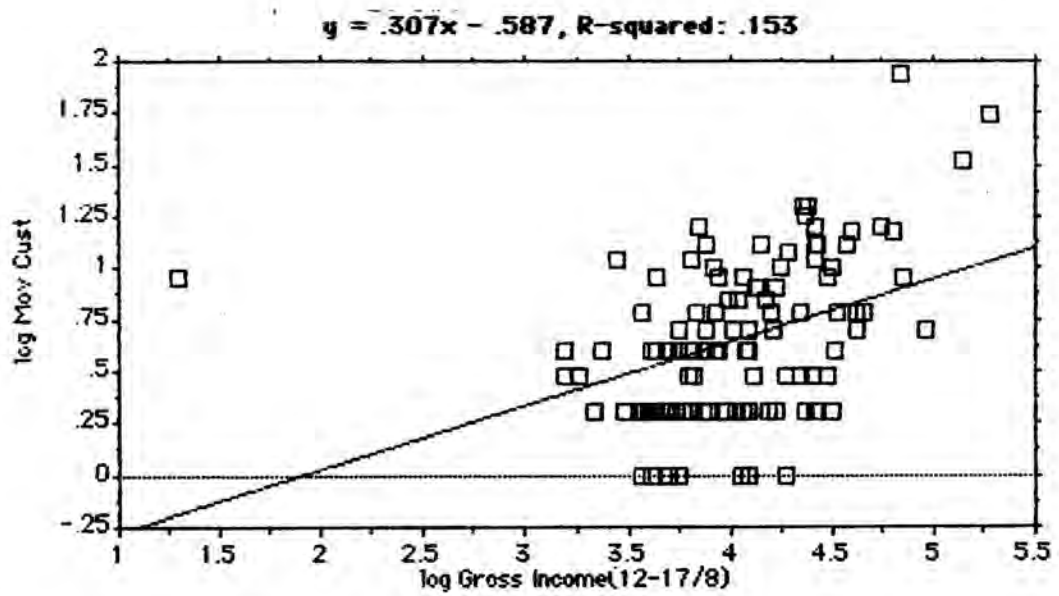


Figure 5.21



**Figure 5.23**



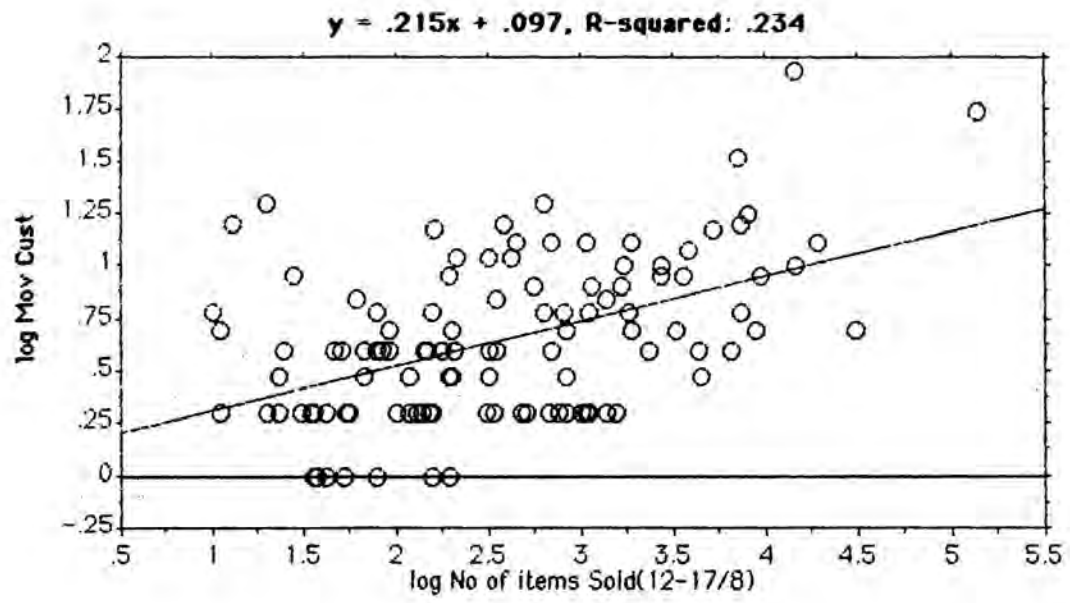
**Figure 5.25**

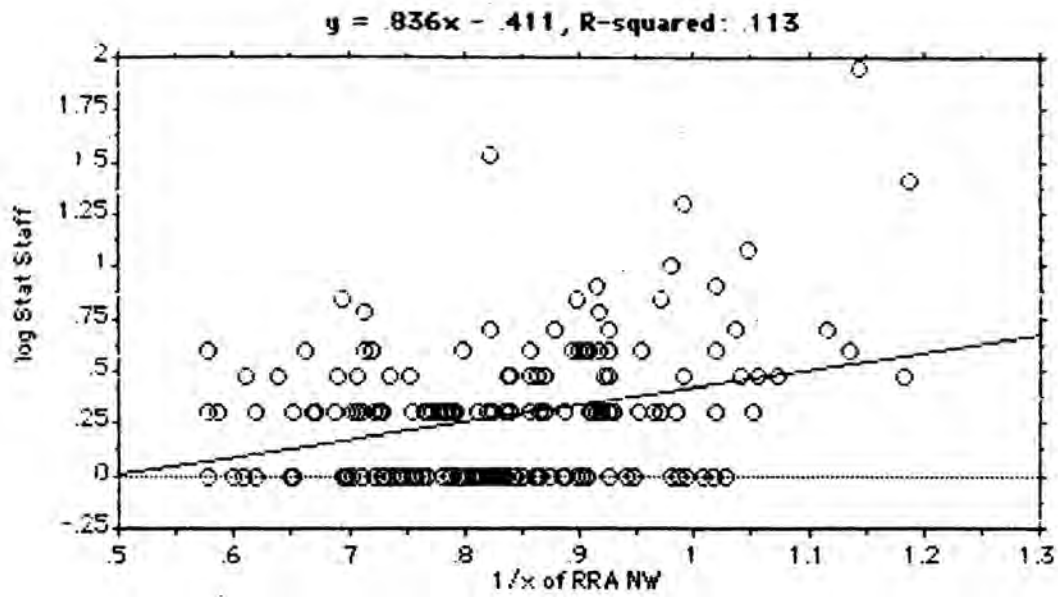
produced by the ground floor ( $r=0.8$ ), followed by the basement floor ( $r=0.53$ ). The rest of the floors produced weak correlations. Popular departments in terms of moving people are indicated above the regression line, while successful departments in terms of income without the presence of high numbers of moving people are indicated below the regression line in the scattergrams. **Figure 5.25** represents the correlation of gross income/week and log of moving customers for the global system which produced a relationship of  $r=0.39$ . The Cosmetics department was far above the regression line; having so many moving people (passers by) without producing the proportional income as the average of the rest of the store departments. This could be expected as it is a very highly connected department. **Figures 5.26 a-f in appendix III** represent the same correlation for each individual floor. The highest result was produced by the first floor ( $r=0.52$ ), followed by the basement floor ( $r=0.49$ ). The rest of the floors produced weak correlations. Popular departments in terms of moving people are indicated above the regression line, while successful departments in terms of income without the presence of high numbers of moving people are indicated below the regression line in the scattergrams. **Figure 5.27** represents the correlation of log numbers of items sold and log moving customers which resulted in a relationship of  $r=0.483$ . The Cosmetics department is far above the regression line. **Figures 5.28 a-f in appendix III** represent the same correlations for each individual floor. The highest result was produced by the ground floor ( $r=0.452$ ). The rest of the floors produced weak correlations.

#### **5.4 Static Staff:**

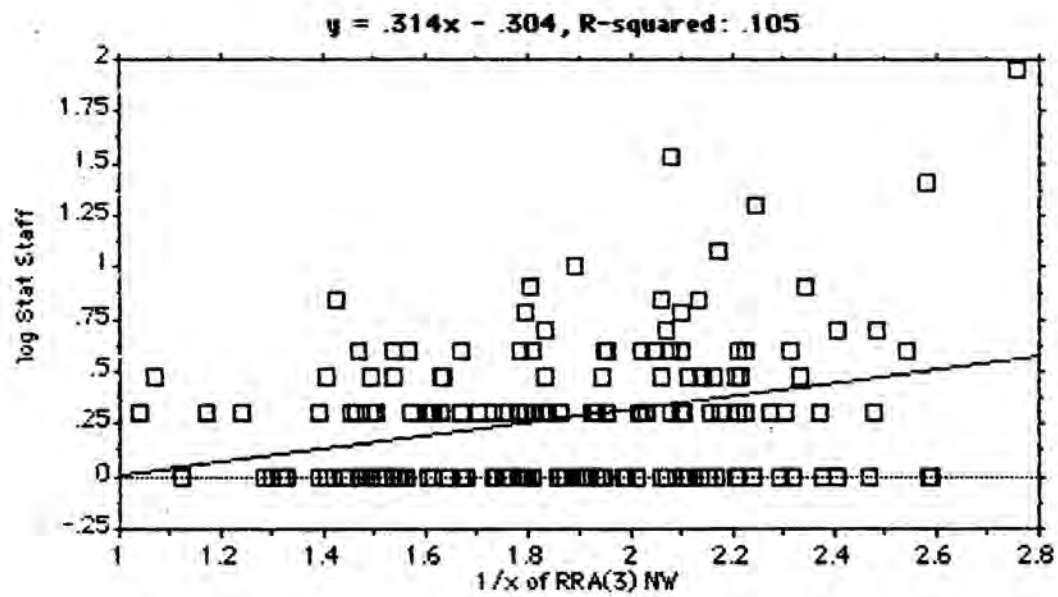
##### **5.4.1 Syntactic Variables:**

The correlation of integration and integration radius three with log of static staff proved to be weak ( $r=.336$  &  $r=.324$  respectively, **figures 5.29 & 5.30**). **Figures 5.31 a-f in appendix III** represent the correlations of integration and static staff for each individual floor. The highest result was produced by the ground floor ( $r=0.6$ ). The rest of the floors produced weak correlations. **Figures 5.32 a-f in appendix III** represent the correlations of integration radius three and static staff for each individual floor. The highest result was produced by the ground floor ( $r=0.562$ ). The rest of the floors produced weak correlations. **Figure 5.33**





**Figure 5.29**



**Figure 5.30**

represents the correlation of connectivity and mean static staff for the global system which resulted in a relationship ( $r=0.697$ ) expressed by a polynomial of the second order. Static staff remains almost constant along departments having different connectivity values, except for connectivity value 12 (Cosmetics department) where the number of static staff rises significantly. **Figures 5.34 a-f in appendix III** represent the same correlations for each individual floor. The highest result was produced by the ground floor ( $r=0.961$ ), followed by the first floor ( $r=0.565$ ). In those floors more static staff are located in highly connected departments. The rest of the floors produced weak correlations. In those floors the number of static staff seems to remain constant in the different departments. **Figure 5.35** represents the correlation of depth and mean static staff for the global system which resulted in a strong inverse relationship ( $r=-0.844$ ). As depth increases, the number of static staff decreases. According to this strong relationship it can be argued that either staff-needing products are located in the shallow parts of the store where staff can interact with high numbers of customers, or that the presence of high numbers of staff in some departments attract high numbers of customers to those departments. But if the latter is true, they must be located in positions which achieve maximum visibility from most of the store entrances. However, it is more likely that the former argument is true: retailers find out where the customers tend to move in high frequencies normally or in front of entrances and in these spaces they locate the products which need to be both promoted and policed by staff. The spaces where this interaction of staff with customers takes place tend to be the liveliest spaces in the store in terms of the presence of the people for which policing of merchandise also becomes a necessity, as in the Perfumery and Cosmetics departments. This relationship will be tested by correlating the static staff with the static and moving customers. However, a decided customer who is familiar with the store may deliberately avoid such busy spaces to save time. But whether the presence of high numbers of staff also increases the shopping activity in these departments or otherwise will be tested by correlating the static staff with the number of items sold, the gross income and the gross income/week. **Figures 5.36 a-f in appendix III** represent the same correlations for each individual floor. The highest inverse result was produced by the first floor ( $r=-0.947$ ), followed by the second floor ( $r=-0.91$ ). In



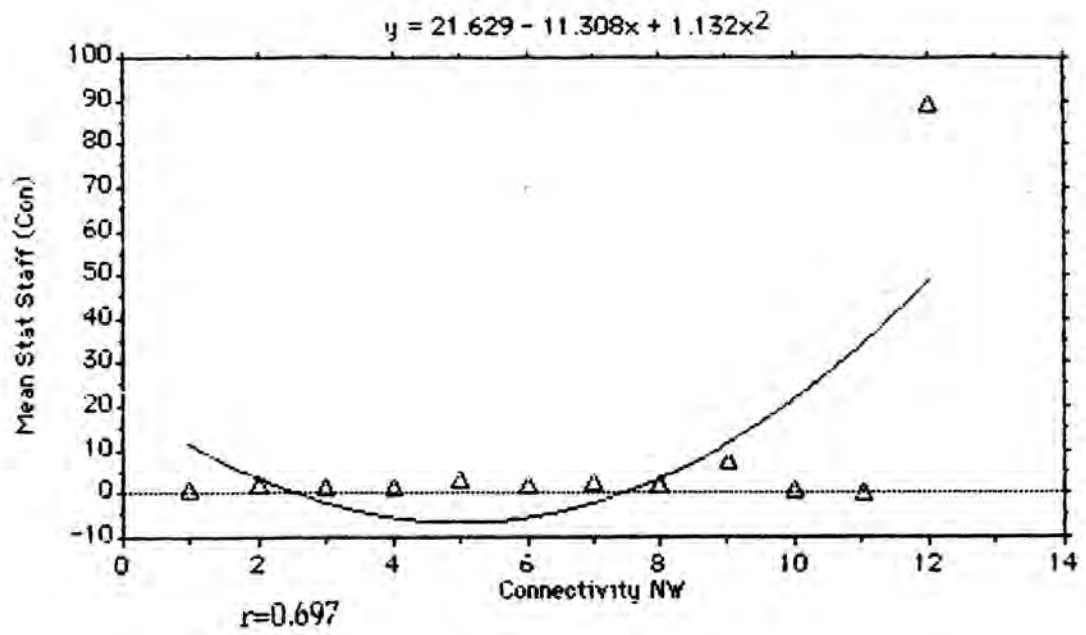


Figure 5.33

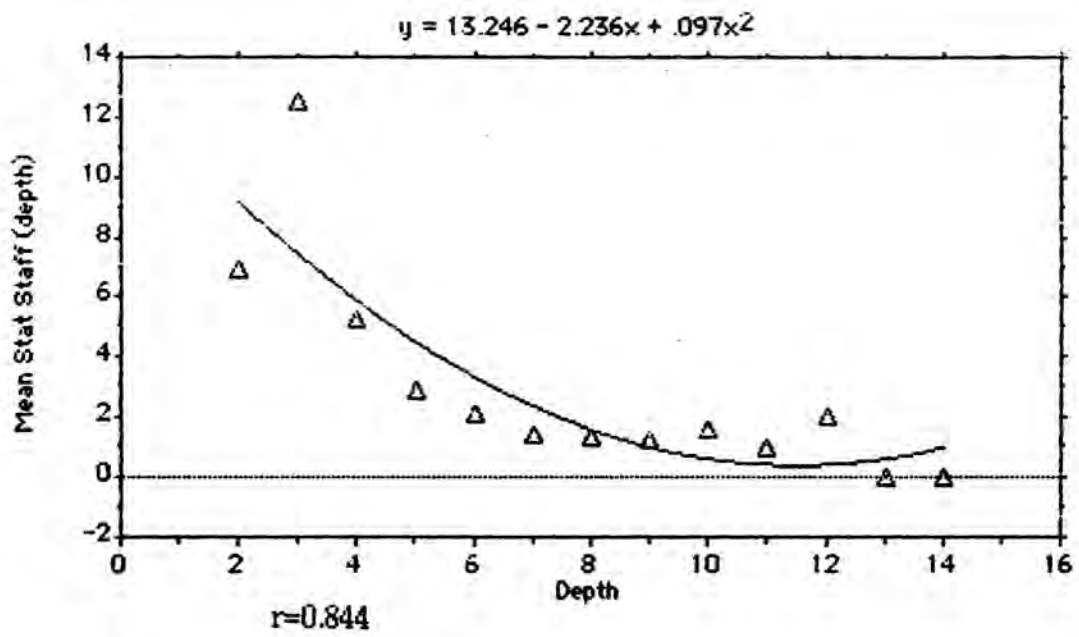
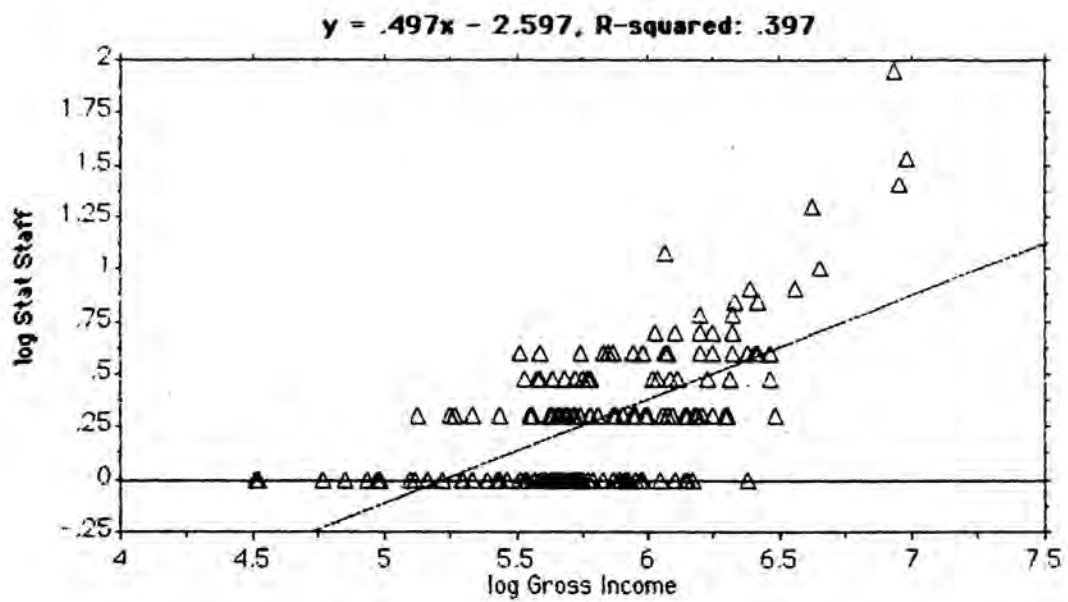


Figure 5.35

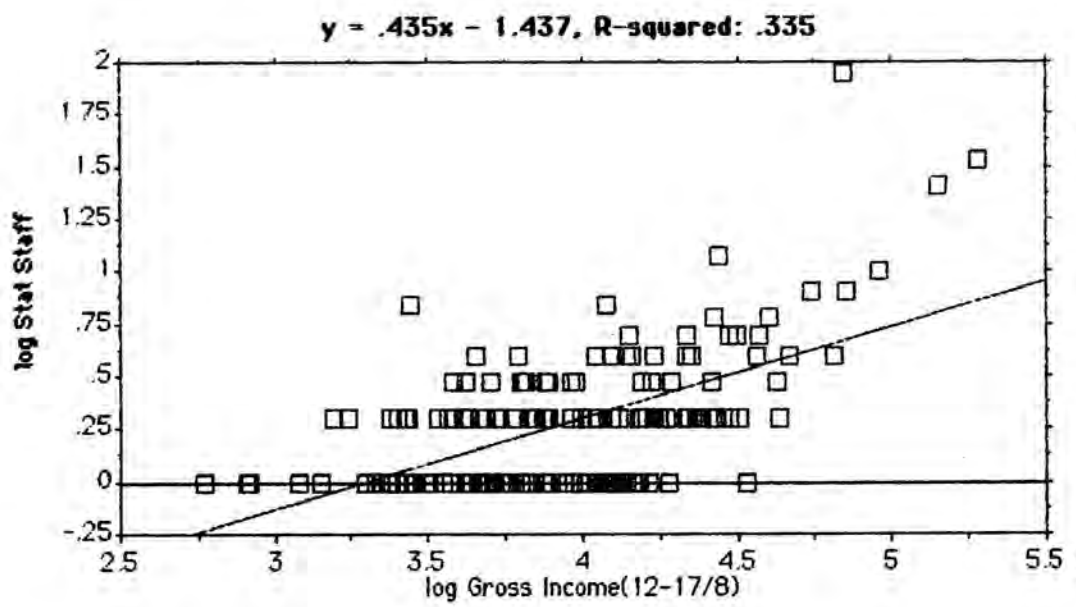
those floors more static staff are located in highly connected departments. The rest of the floors produced weak correlations.

#### 5.4.2 Retail Variables:

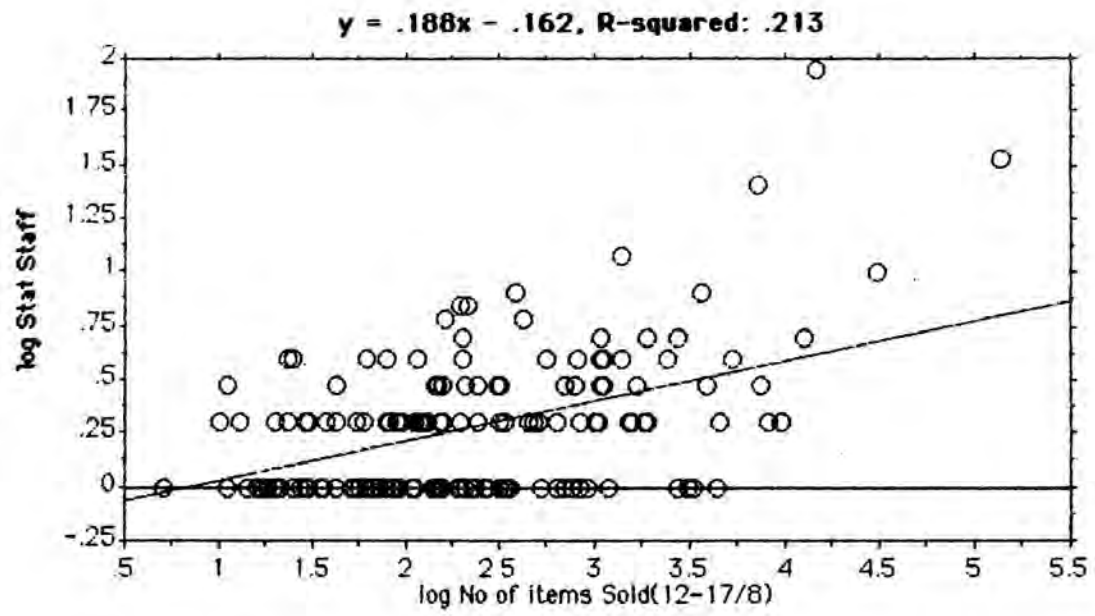
**Figure 5.37** represents the correlation of log gross income and log static staff for the global system which resulted in a relationship of  $r=0.63$ . The Cosmetics department is far above the regression line which means that in this department there are far more static staff than the income it generates compared to the average of the other departments of the store. **Figures 5.38a-f in appendix III** represent the same correlations for each individual floor. The highest inverse result was produced by the ground floor ( $r=0.784$ ), followed by the first floor ( $r=0.65$ ), followed by the second floor ( $r=0.543$ ), followed by the fourth floor ( $r=0.513$ ). In those floors more static staff are located in highly connected departments. The rest of the floors produced weak correlations. **Figure 5.39** represents the correlation of log gross income/week and log static staff for the global system which resulted in a relationship of ( $r=0.578$ ). Again the Cosmetics department is far above the regression line. Now it is important to look at the performance of this department in terms of number of items sold. **Figure 5.40** represents the correlation of log number of items sold and log static staff which resulted in a relationship of  $r=0.461$ . Again the Cosmetics department is far above the line. Hence it could be argued against contemporary retail beliefs that high numbers of staff promoting products makes people buy them. However, there is a weak correlation so it must have an impact, but to a certain number of staff, after which -as observation showed- they tend to interact with each other rather than with the customers. In this case the role of the staff may be is to police the merchandise as well as promote it, having a symbolic rather than an instrumental role. The Drugs & Toiletries department is a good example for departments selling in high quantities without the presence of a high numbers of static staff. It is worth noting that when the store was managed by Selfridge, he ordered a fine for any unnecessary talking occurring among the staff. **Figures 5.41 a-f & 5.42 a-f in appendix III** represent the same correlations for each individual floor.



**Figure 5.37**



**Figure 5.39**



**Figures 5.40**

## 5.5 Moving Staff:

### 5.5.1 Syntactic Variables:

Correlation of integration and integration radius three with log of moving staff for the global system proved to be weak ( $r = .0006$  &  $r = .279$  respectively, **figures 5.43 & 5.44**). **Figures 5.45 a-f & 5.46 a-f in appendix III** represent the same correlations for each individual floor which produced weak results for all floors. **Figure 5.47** represents the correlation of connectivity and mean moving staff for the global system which resulted in a relationship best expressed by a polynomial of the second order ( $r = 0.665$ ) where the highest number of mean static staff are found in departments of middle connectivity. **Figures 5.48 a-f in appendix III** represent the same correlations for each individual floor. **Figure 5.49** represents the correlation of depth and mean moving staff for the global system which resulted in an inverse relationship ( $r = 0.492$ ) best expressed by a polynomial of the second order. According to these results, the movement of the staff is irrelevant of the space (transpatial) as they use different spaces than those used by customers and in most cases their movement is inside their departments. **Figures 5.50 a-f in appendix III** represent the same correlations for each individual floor.

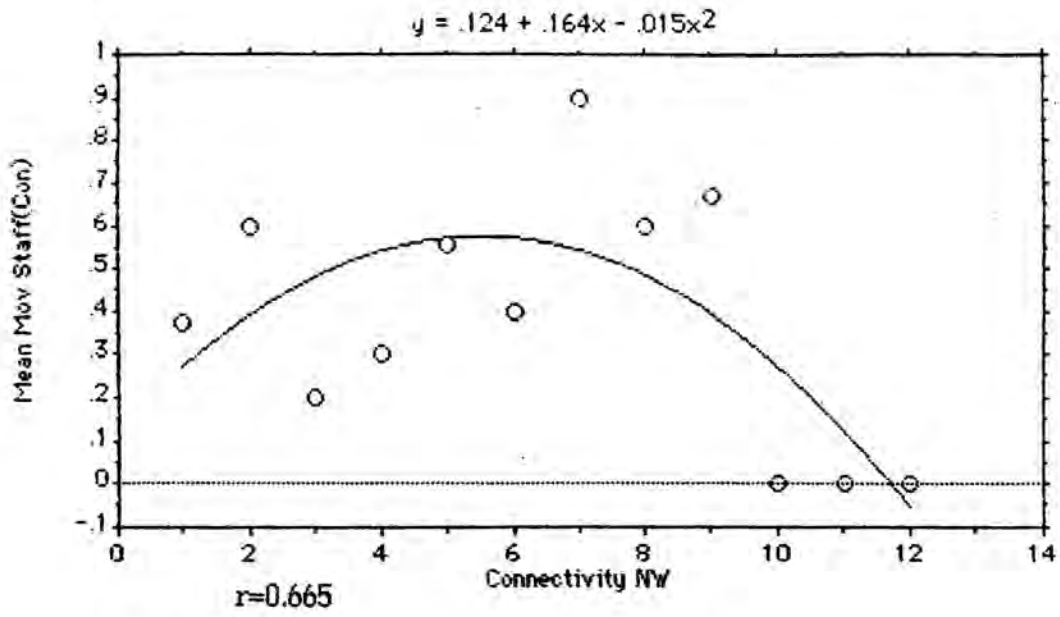
### 5.5.2 Retail Variables:

**Figure 5.51** represents the correlation of log gross income ratio and log moving staff for the global system which produced a weak relationship of  $r = 0.16$ . The highest number of moving staff observed in a department is 4, which is relatively low, meaning that most of Selfridges' staff are static, and only very few are dynamic.<sup>47</sup> This has a relation to the way the store operates. If objects on display get sold frequently so that replacement from stock is required, the number of moving staff would be greater than the observed. So it seems that the job of the staff in the store is to interact and may be even approach customers, rather than organize merchandise. It might be that this service is carried out by night shift staff. **Figures 5.52 a-f in appendix III** represent the same correlations for each individual floor. **Figure 5.53** represents the

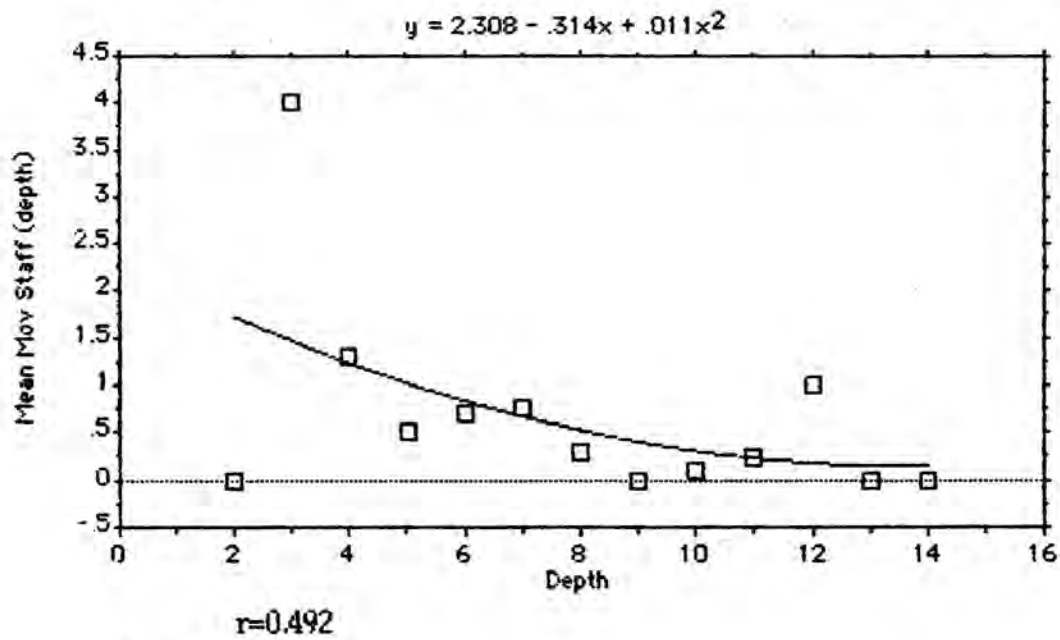
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<sup>47</sup> Morsy, Samia, *The Raw and the Cultured*. A case study of the food halls of Marks & Spencer and Selfridges. March 1991. The paper argues that in Marks & Spencer's food hall there were much more moving staff than in Selfridges', as in the former they were processing goods while in the latter they were interacting with customers.





**Figure 5.47**



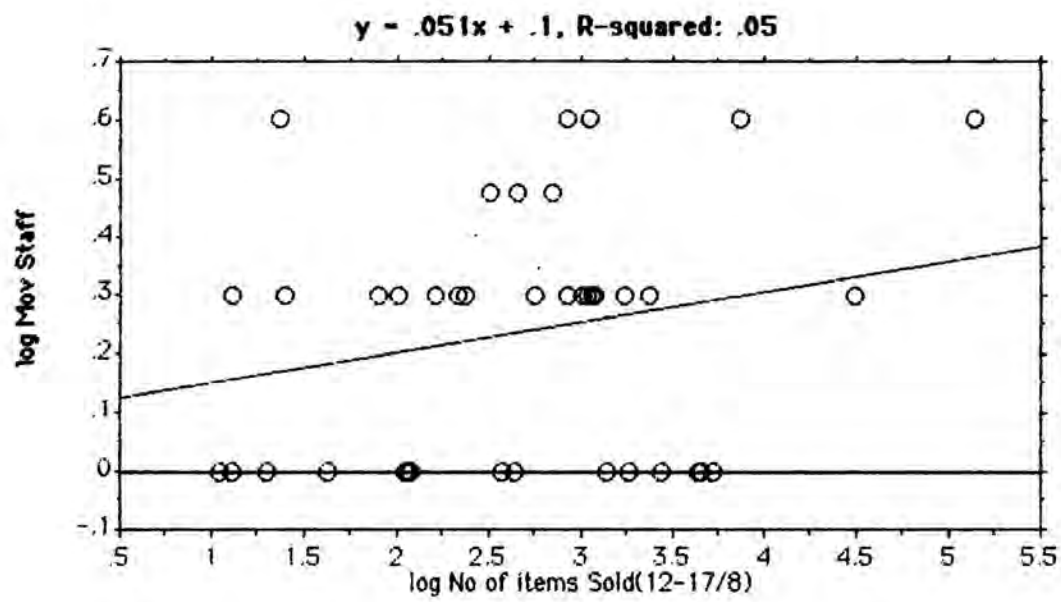
**Figure 5.49**





correlation of log gross income/week and log moving staff for the global system which produced a weak relationship ( $r=0.22$ ). **Figures 5.54 a-f in appendix III** represent the same correlations for each individual floor. Finally **figure 5.55** represents the correlation between log number of items sold and log moving staff for the global system which resulted in a weak relationship ( $r=0.22$ ). This means that moving staff have nothing or very little to do with the activation of the shopping activity. They should be static to be approached by the customers or to approach customers themselves. **Figures 5.56 a-f in appendix III** represent the same correlations for each individual floor.

This chapter has analysed the observations of the store and correlated each category of them with each of the different syntactic and retail variables once for the entire floor and once for each individual floor. Depth from the street was shown to have a strong inverse relationship with the penetration of people through the store. Gross income and the numbers of items sold for departments were strongly affected by the numbers of people, the static in particular, present in a department.



**Figure 5.55**

## Discussion

Unlike other building types, department stores entail a paradox in their design logic ~~is entailed~~ which attempts to create a balance between two opposing variables: that of efficient circulation allowing people to penetrate the building to obtain an idea of what is available, and yet simultaneously disorienting them. This balance is achieved by subtle rather than explicit organising principles. In this way department stores are building types having a logic which is quite unlike the programmed or unprogrammed aspect of space in any other building type.

The fundamental fact that a department store is a bounded object, as opposed to its being an open market in an urban grid, is a very significant factor in the way it works. Unlike an urban grid, which generates and controls trips from everywhere to everywhere about the urban surface, the bounded pattern of a department store means that all trips about the store find their ultimate origin and destination at the boundary. The problem of a department store, whatever the number of entrances that might lead to it, remains that it is a multistory building which can only be approached through one one level (or sometimes two). Thus the notion of the different sales floors having different values in terms of shallowness and depth in relation to the street bears a strong weight in any approach to the tackling of department stores.

This thesis attempted to pin down the structure by which department stores, in general, work as building types through the analysis of the department store of Selfridges. It examined the spatial variables of the store in relation to its retail information. The depth variable of departments from the street was shown to have a strong impact on the income produced by the different departments occupying the different depths within the store. Departments occupying shallow depths in the store were shown to bear high sensitivity to the spaces they occupy. It was predicted that a slight increase in their depth would lead to a tremendous fall in their income and profitability and vice versa. These **space sensitive** or **spatial** departments, it is argued, comprise impulse and high frequency demand products which include cosmetics, perfumery, food hall and men's and ladies' impulse products. It is therefore argued that depth and

shallowness in the store, which are the consequent concepts of space sensitive products may well be the architectural correlates of what have previously been viewed as managerial and consumer based decisions about the relative desirability of different commodities.

Departments occupying deep spaces in the store were shown to be non-sensitive to space depth in terms of their income and profitability, displaying '**transpatial** or '**space independent**' products. A change in the depth of these departments inside the store whether by becoming shallower or deeper than they are in the store as a whole, seems to have a very slight effect on the income and profit produced by these departments. These departments, it is argued, display comparison goods of semi and low demand. They include furniture, ladies' and men's designer clothes and shoes.

According to these two notions food stores in general should be located shallow in relation to highly used streets, while furniture stores can afford to be located in the higher levels stories of department stores and on not very well integrated streets provided that they can be easily seen and reached. Each of these two kinds of stores require a different kind of commitment and search from the customer. While the decision of buying the first can easily and quickly be taken, that of the second requires comparison of price, design and quality among different goods and stores.

High connectivity of departments with adjacent was shown to be a facilitating factor in their productivity in terms of income and profit. Hence, a model was constructed for the diagnosis of problematic departments which display average low price items but sell products in small quantities. The reasons suggested for this are because of the locations these departments occupy in the store are relatively deep and poorly connected.

As disorientation of customers is one of the main aims of department stores, intelligibility was shown to be a determining factor in the designing of different floors of the store. It was discovered that floors displaying impulse products of low average prices were constructed to reduce intelligibility, by placing

deterrents in the consumer's way to disorientate him/her and thus expose him/her to more products than he/she has come for. Moreover, deep floors of high average prices products were discovered to be highly intelligible, and in this way, once reached by a decided customer, who may be heading for a high price goal, the spatial configuration is constructed so as not to greatly divert him/her from reaching his/her final destination, and thus secure the sale rather than risk it by placing deterrents in the way. This discovery was confirmed by the fact that less intelligible floors, independent of their sizes, produced high incomes, and consequently profits, and sold higher numbers of merchandise than more intelligible ones.

Observations of customers showed a consistency of their presence with the sales performance of departments. Presence of customers also showed an inverse relationship with the depth of the departments from the street. Movement of customers occurred at higher rates in highly connected departments. The presence of high numbers of staff in shallow departments of the store was shown to ensure the attraction of customers, but did not necessarily lead to an increase in the quantity of sales by the same proportion.

Further research on several department stores is needed for the attempt of the precise quantification of the 'successful' balance between the two opposing variables, that constitute the brief of department stores, which are critical circulation and disorientation. Such research can have a significant impact on the architectural design of department stores.

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## **Appendix I**

Table 3.3 Descending Order of Integration (1/x RRA) for the Ground Floor

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	20	473-5 & 477 Cosmetics	2.035	2.709
2	21	699 Mappin & Webb	1.897	2.338
3	18	472 Cosmetics I (Perfumery)	1.831	2.431
4	4	Circulation Space	1.778	2.543
5	91	Oxford Street	1.736	2.310
6	23	Costume Jewellery	1.719	2.240
7	5	411 & 412 Tobaccos	1.703	2.338
8	87	First Floor	1.703	2.211
9	86	Basement	1.680	2.273
10	41	130 Scarves & Hanks	1.620	2.286
11	22	104 Y.S.L. Shirts	1.613	2.082
12	17	480 Aramis	1.599	2.213
13	53	Escalator From First Floor	1.585	2.060
14	15	476 Men's Fragrance	1.585	2.174
15	56	Escalator To First Floor	1.585	2.060
16	89	Duke Street	1.579	2.100
17	54	Escalator From Basement	1.572	2.100
18	55	Escalator To Basement	1.572	2.100
19	90	Orchard Street	1.565	2.098
20	19	121 Hosiery	1.565	2.138
21	72	Entrance to 18	1.558	1.938
22	85	Lift 4	1.552	2.227
23	84	Lift 3	1.552	2.227
24	83	Lift 2	1.552	2.227
25	82	Lift 1	1.552	2.227
26	24	Sun Glasses	1.526	2.019
27	51	Circulation Space	1.520	1.998
28	88	Edward Mirvis	1.501	1.931
29	40	218 Bras & Girdles & 212 Daywe...	1.495	2.138
30	11	103 Men's Knitwear & Beachwear	1.495	2.136
31	57	Escalator To First Floor	1.489	2.099
32	75	Entrance to 4	1.489	1.945
33	10	105 Men's Shirts	1.489	2.102
34	1	Food Hall	1.477	2.124
35	58	Escalator From Basement	1.465	2.138
36	66	Entrance	1.459	1.844
37	9	110 Men's Ties	1.447	2.283
38	61	Escalator From Basement	1.425	1.891
39	62	Escalator To Basement	1.425	1.891
40	64	Escalator To Basement	1.414	1.784
41	65	Escalator To First Floor	1.414	1.733
42	30	Circulation Space	1.414	1.899
43	42	123 Good	1.414	1.937
44	73	Entrance to 15	1.409	1.794
45	3	414 Wines & Spirits	1.403	1.852
46	25	381 Pens	1.403	2.072
47	39	469 Drugs	1.403	1.786
48	74	Entrance to 8	1.398	1.895
49	70	Entrance to Good	1.392	1.743
50	7	112 Scarves	1.366	1.931
51	60	Escalator From First Floor	1.356	1.787
52	16	108 Hcm	1.341	1.734
53	59	Escalator To Basement	1.341	1.836
54	49	136 Belts	1.332	2.033
55	63	Escalator To First Floor	1.313	1.787
56	8	111 Men's Accessories	1.308	1.743
57	69	Entrance to 48 & 43	1.303	1.669
58	76	Entrance to 1	1.303	1.590
59	77	Entrance to 1	1.303	1.590
60	78	Entrance to 1	1.303	1.590
61	6	721 Dunhill	1.299	1.839
62	31	409 Confectionery	1.299	1.834
63	33	371 Stationery	1.294	2.302
64	14	107 Pyjamas	1.294	1.834
65	26	718 Wigs	1.289	1.632
66	12	101 Men's Socks	1.285	1.782
67	67	Entrance to Miss Selfridge	1.263	1.500
68	29	Store Information	1.241	1.633
69	79	Entrance to 34	1.241	1.559
70	92	Perfumery	1.241	1.633
71	2	598 Brass Rail	1.237	1.589
72	46	126 Fancy Leathers	1.237	1.839
73	81	713 Leonidas Chocolates	1.233	1.569
74	35	380 Greeting Cards	1.233	2.418
75	68	Entrance to 48 & 43	1.225	1.650
76	44	516 Fendi	1.225	1.729
77	13	102 Men's Underwear	1.217	1.667
78	71	Entrance to 19	1.217	1.382
79	50	132 & 133 Gloves	1.213	1.641
80	45	129 Y.S.L.	1.205	1.934
81	34	389 Newspapers & Periodicals	1.159	1.842
82	43	124 Handbags	1.155	1.896
83	38	Miss Selfridge	1.130	1.352
84	28	242 Clocks	1.117	1.750
85	47	139 Umbrellas	1.113	1.613
86	32	687 Holland & Barret	1.106	1.604

	Space No	Department Name	1/x RRA	1/x RRA (3)
87	80	Entrance to 35	1.096	1.098
88	48	695 Cameras	1.061	1.403
89	36	250 Gifts Of Britain	1.029	1.540
90	27	710 & 711 Optician	1.020	1.121
91	52	371 Posters	1.003	1.403
92	37	64V Our Price	.979	1.467

**Table 3.4 Descending Order of Integration Radius Three (1/x RRA(3)) for the Ground Floor**

Space No	Department Name	1/x RRA	1/x RRA (3)
1	20 473-5 & 477 Cosmetics	2.035	2.709
2	4 Circulation Space	1.778	2.543
3	18 472 Cosmetics 1 (Perfumery)	1.831	2.431
4	35 380 Greeting Cards	1.233	2.418
5	21 699 Mappin & Webb	1.897	2.338
6	5 411 & 412 Tobacco	1.703	2.338
7	91 Oxford Street	1.736	2.310
8	33 371 Stationery	1.294	2.302
9	41 130 Scarves & Hanks	1.620	2.286
10	9 110 Men's Ties	1.447	2.283
11	86 Basement	1.680	2.273
12	23 Costume Jewellery	1.719	2.240
13	84 Lift 3	1.552	2.227
14	85 Lift 4	1.552	2.227
15	82 Lift 1	1.552	2.227
16	83 Lift 2	1.552	2.227
17	17 480 Aramis	1.599	2.213
18	87 First Floor	1.703	2.211
19	15 476 Men's Fragrance	1.585	2.174
20	58 Escalator From Basement	1.465	2.138
21	40 218 Bras & Girdles & 212 Daywe...	1.495	2.138
22	19 121 Hosiery	1.565	2.138
23	11 103 Men's Knitwear & Beachwear	1.495	2.136
24	1 Food Hall	1.477	2.124
25	10 105 Men's Shirts	1.489	2.102
26	54 Escalator From Basement	1.572	2.100
27	89 Duke Street	1.579	2.100
28	55 Escalator To Basement	1.572	2.100
29	57 Escalator To First Floor	1.489	2.099
30	90 Orchard Street	1.565	2.098
31	22 104 Y.S.L. Shirts	1.613	2.082
32	25 381 Pens	1.403	2.072
33	53 Escalator From First Floor	1.585	2.060
34	56 Escalator To First Floor	1.585	2.060
35	49 136 Belts	1.332	2.033
36	24 Sun Glasses	1.526	2.019
37	51 Circulation Space	1.520	1.998
38	75 Entrance to 4	1.489	1.945
39	72 Entrance to 18	1.558	1.938
40	42 123 Gucci	1.414	1.937
41	45 129 Y.S.L.	1.205	1.934
42	88 Edward Mews	1.501	1.931
43	7 112 Scarves	1.366	1.931
44	30 Circulation Space	1.414	1.899
45	43 124 Handbags	1.155	1.896
46	74 Entrance to 8	1.398	1.895
47	61 Escalator From Basement	1.425	1.891
48	62 Escalator To Basement	1.425	1.891
49	3 414 Wines & Spirits	1.403	1.852
50	66 Entrance	1.459	1.844
51	34 389 Newspapers & Periodicals	1.159	1.842
52	6 721 Donhill	1.299	1.839
53	46 126 Fancy Leathers	1.237	1.839
54	59 Escalator To Basement	1.341	1.836
55	14 107 Pyjamas	1.294	1.834
56	31 409 Confectionery	1.299	1.834
57	73 Entrance to 15	1.409	1.794
58	63 Escalator To First Floor	1.313	1.787
59	60 Escalator From First Floor	1.356	1.787
60	39 469 Drugs	1.403	1.786
61	64 Escalator To Basement	1.414	1.784
62	12 101 Men's Socks	1.285	1.782
63	28 242 Clocks	1.117	1.750
64	8 111 Men's Accessories	1.308	1.743
65	70 Entrance to Gucci	1.392	1.743
66	16 108 Hom	1.341	1.734
67	65 Escalator To First Floor	1.414	1.733
68	44 516 Fendi	1.225	1.729
69	69 Entrance to 48 & 43	1.303	1.669
70	13 102 Men's Underwear	1.217	1.667
71	66 Entrance to 48 & 43	1.225	1.650
72	50 132 & 133 Gloves	1.213	1.641
73	92 Perfumery	1.241	1.633
74	29 Store Information	1.241	1.633
75	26 718 Wigs	1.289	1.632
76	67 139 Umbrellas	1.113	1.613
77	32 687 Holland & Barrett	1.106	1.604
78	76 Entrance to 1	1.303	1.590
79	78 Entrance to 1	1.303	1.590
80	77 Entrance to 1	1.303	1.590
81	2 598 Brass Rail	1.237	1.589
82	81 713 Leonidas Chocolates	1.233	1.569
83	79 Entrance to 34	1.241	1.559
84	38 Miss Selfridges	1.130	1.552
85	36 250 Gifts Of Britain	1.029	1.540
86	67 Entrance to Miss Selfridges	1.283	1.500

Space No	Department Name	1/x RRA	1/x RRA (3)
87	37 649 Our Price	.979	1.467
88	52 371 Posters	1.003	1.403
89	48 695 Cameras	1.061	1.403
90	71 Entrance to 19	1.217	1.382
91	27 710 & 711 Optician	1.020	1.121
92	80 Entrance to 35	1.096	1.098

**Table 3.5 Descending Order of Integration (1/x RRA) for the Basement Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	64	308 Kitchen Gadgets	1.342	2.079
2	65	312 Small Electric Appliances	1.235	1.782
3	52	Lift 1	1.217	1.796
4	55	Lift 4	1.217	1.796
5	53	Lift 2	1.217	1.796
6	54	Lift 3	1.217	1.796
7	13	298 Glassware	1.217	2.463
8	27	313 Major Appliances	1.211	1.942
9	25	294 Kitchen China & Glass	1.165	2.249
10	30	300 Hardware	1.154	1.973
11	66	312 Small Electric Appliances	1.123	1.625
12	20	549 Worcester Royal China & 548 Dir....	1.103	2.079
13	23	310 Silverware	1.079	1.931
14	26	312 Small Electric Appliances	1.047	1.552
15	16	335 Luggage	1.038	2.444
16	9	321+328 Tools	1.033	2.703
17	19	547 Waterford/ Wedgwood China	1.033	2.279
18	21	716 Doulton Tableware & 723 Dir. Exp.	1.012	2.072
19	34	526 Focus Crystal	1.004	1.787
20	32	320 Lampe & Accessories	.996	1.700
21	35	400 Portable Audio	.969	2.151
22	31	522 Shavers	.969	1.698
23	12	289 Imported Glassware	.961	1.787
24	10	303 Bridal Registry	.961	1.787
25	67	312 Small Electric Appliances	.957	1.951
26	24	308 Kitchen Gadgets	.954	1.452
27	18	291 China & 242 Earthen & Oven Ware	.946	1.784
28	28	346 Kitchen Furniture	.918	1.171
29	33	325 Light Fittings	.888	2.495
30	60	Escalator To Ground Floor	.888	1.414
31	17	295 Villeroy & Boch	.870	1.784
32	37	401 Accessories	.861	1.834
33	22	709 Denby	.861	1.403
34	38	394 Hi-Fi	.855	1.733
35	3	322 D.I.Y.	.852	2.000
36	14	413 Luxury Leather	.843	1.733
37	4	305 Pets	.843	1.890
38	36	393 Video	.840	1.547
39	61	Escalator from Ground Floor	.834	1.121
40	58	Escalator To Ground Floor	.834	1.559
41	5	306 Cleaning Shop	.832	1.781
42	15	408 Sassaite	.826	1.507
43	8	301 Gardening	.821	1.625
44	63	Ground Floor	.818	1.346
45	59	Escalator from Ground Floor	.797	1.255
46	42	Circulation Space	.782	4.314
47	40	402 Cabinets	.767	2.631
48	41	392 Televisions	.758	2.210
49	69	538 Gift Wrappers	.753	1.045
50	56	Escalator To Ground Floor	.737	1.414
51	29	243 & 244 Fitted Kitchens	.735	.499
52	2	319 Paint & Wallpaper	.720	1.473
53	39	324 Lamp Shades	.716	1.286
54	1	317 Bathroom Fittings	.706	1.467
55	6	596 Carvery Restaurant	.679	1.010
56	7	675 Ice Cream Parlour	.679	1.010
57	11	302 Lawn Mowers	.671	.871
58	44	715 K. Prowse	.645	1.668
59	51	599 Arcade Cafe	.645	1.668
60	50	498 Radio & TV Repair	.645	1.668
61	43	Public Telephones	.645	1.668
62	49	662 Sketchley	.645	1.668
63	62	Escalator from Ground Floor	.645	1.668
64	45	665 Shoe Repair	.645	1.668
65	68	614 Thomas Cook	.645	1.668
66	48	663 Watch Repairs	.645	1.668
67	46	616 Alliance & Leicester	.645	1.668
68	47	614 Thomas Cook	.645	1.668
69	57	Escalator from Ground Floor	.592	.806

**Table 3.6 Descending Order of Integration Radius Three (1/x RRA(3)) for the Basement Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	42	Circulation Space	.782	4.314
2	9	321+328 Tools	1.033	2.703
3	40	402 Cabinets	.767	2.631
4	33	325 Light Fittings	.888	2.495
5	13	298 Glassware	1.217	2.463
6	16	335 Luggage	1.038	2.444
7	19	547 Waterford/ Wedgwood China	1.033	2.279
8	25	294 Kitchen China & Glass	1.165	2.249
9	41	392 Televisions	.758	2.210
10	35	400 Portable Audio	.969	2.151
11	64	308 Kitchen Gadgets	1.342	2.079
12	20	549 Worcester Royal China & 548 Dir....	1.103	2.079
13	21	716 Doulton Tableware & 723 Dir. Exp.	1.012	2.072
14	3	322 D.I.Y.	.852	2.000
15	30	300 Hardware	1.154	1.973
16	67	312 Small Electric Appliances	.957	1.951
17	27	313 Major Appliances	1.211	1.942
18	23	310 Silverware	1.079	1.931
19	4	305 Pets	.843	1.890
20	37	401 Accessories	.861	1.834
21	54	Lift 3	1.217	1.796
22	52	Lift 1	1.217	1.796
23	55	Lift 4	1.217	1.796
24	53	Lift 2	1.217	1.796
25	34	526 Focus Crystal	1.004	1.787
26	10	303 Bridal Registry	.961	1.787
27	12	289 Imported Glassware	.961	1.787
28	17	295 Villeroy & Boch	.870	1.784
29	18	291 China & 242 Earthen & Oven Ware	.946	1.784
30	65	312 Small Electric Appliances	1.235	1.782
31	5	306 Cleaning Shop	.832	1.781
32	14	413 Luxury Leather	.843	1.733
33	38	394 Hi-Fi	.855	1.733
34	32	320 Lampe & Accessories	.996	1.700
35	31	522 Shavers	.969	1.698
36	46	616 Alliance & Leicester	.645	1.668
37	48	663 Watch Repairs	.645	1.668
38	62	Escalator from Ground Floor	.645	1.668
39	45	665 Shoe Repair	.645	1.668
40	49	662 Sketchley	.645	1.668
41	43	Public Telephones	.645	1.668
42	68	614 Thomas Cook	.645	1.668
43	51	599 Arcade Cafe	.645	1.668
44	47	614 Thomas Cook	.645	1.668
45	44	715 K. Prowse	.645	1.668
46	50	498 Radio & TV Repair	.645	1.668
47	8	301 Gardening	.821	1.625
48	66	312 Small Electric Appliances	1.123	1.625
49	58	Escalator To Ground Floor	.834	1.559
50	26	312 Small Electric Appliances	1.047	1.552
51	36	393 Video	.840	1.547
52	15	408 Sassaite	.826	1.507
53	2	319 Paint & Wallpaper	.720	1.473
54	1	317 Bathroom Fittings	.706	1.467
55	24	308 Kitchen Gadgets	.954	1.452
56	60	Escalator To Ground Floor	.888	1.414
57	56	Escalator To Ground Floor	.737	1.414
58	22	709 Denby	.861	1.403
59	63	Ground Floor	.818	1.346
60	39	324 Lamp Shades	.716	1.286
61	59	Escalator from Ground Floor	.797	1.255
62	28	346 Kitchen Furniture	.918	1.171
63	61	Escalator from Ground Floor	.834	1.121
64	69	538 Gift Wrappers	.753	1.045
65	6	596 Carvery Restaurant	.679	1.010
66	7	675 Ice Cream Parlour	.679	1.010
67	11	302 Lawn Mowers	.671	.871
68	57	Escalator from Ground Floor	.592	.806
69	29	243 & 244 Fitted Kitchens	.735	.499

**Table 3.7 Descending Order of Integration (1/x RRA) for the First Floor**

Space No	Department Name	1/x RRA	1/x RRA(3)
1	64 Ground Floor	1.857	2.247
2	32 Circulation Space	1.733	2.136
3	27 386 Books	1.682	2.213
4	21 114 Men's Hats	1.682	2.327
5	65 Second Floor	1.624	2.102
6	34 265 Bed Linen	1.624	2.334
7	28 264 Towels	1.569	2.098
8	60 Lift 1	1.538	2.067
9	62 Lift 3	1.538	2.067
10	63 Lift 4	1.538	2.067
11	49 Escalator from Ground Floor	1.538	1.904
12	61 Lift 2	1.538	2.067
13	3 427 Burberry	1.538	2.019
14	29 377 Everything With Chips	1.517	1.909
15	50 Escalator to Ground Floor	1.508	2.027
16	31 369 The Silica Shop	1.433	1.884
17	55 Escalator from Ground Floor	1.416	1.836
18	57 Escalator from Ground Floor	1.416	1.834
19	54 Escalator to Ground Floor	1.416	1.836
20	20 436 Men's Leisure Clothing	1.399	2.191
21	4 654 Aquascutum	1.399	1.895
22	52 Escalator to Second Floor	1.390	1.852
23	59 Escalator to Ground Floor	1.374	1.733
24	25 437 Lotus Peraud	1.342	1.836
25	58 Escalator to Second Floor	1.334	1.781
26	33 266 Table Linen	1.334	2.061
27	13 422 Suits & 430 Jackets & 432 Trousers	1.319	2.040
28	56 Escalator to Second Floor	1.312	1.782
29	53 Escalator from Second Floor	1.312	1.782
30	51 Escalator from Second Floor	1.304	1.782
31	26 436 Barbour	1.297	1.836
32	19 416 Men's Designer Room	1.297	2.130
33	42 284 & 281 & 330 Carpets	1.276	1.891
34	15 658 Men's Shoes	1.269	1.679
35	30 725 Empceoy Phones	1.262	1.535
36	35 269 Quilts	1.242	1.717
37	36 265 Dorma Co-ordinates	1.197	1.563
38	41 275 Tracks & Blinds	1.167	2.099
39	46 331 Beds	1.161	1.625
40	14 418 Dials	1.161	1.633
41	44 341 Upholstered Furniture	1.144	2.046
42	2 426 Men Raincoats	1.127	1.537
43	24 415 Valentino	1.116	1.523
44	18 416 Paul Smith	1.085	1.667
45	37 274 Net Curtains	1.075	1.537
46	39 270 Furnishing Fabrics	1.055	1.667
47	6 668 British Tailor	1.055	1.626
48	5 646 Austin Reed	1.051	1.648
49	38 277 Soft Furniture Workroom	1.027	1.722
50	22 423 Gian Franco Ferre	1.027	1.473
51	17 421 Sidi Suits	1.023	1.604
52	23 417 Cerruti 1881	1.018	1.403
53	45 336 Dining/ Repro' Furniture	1.018	1.480
54	10 644 Jaeger Man	1.001	1.473
55	12 686 Cristian Dior	.988	1.394
56	16 115 Y.S.L.	.984	1.394
57	66 336 Dining/ Repro' Furniture	.980	1.387
58	43 288 Vinyl	.944	1.095
59	40 272 Ready Made Curtains	.903	1.414
60	1 425 Men Overcoats	.900	1.137
61	47 335 Bedroom Furniture	.879	.885
62	8 653 Men's Tailoring	.876	1.224
63	48 Midland Bank	.870	1.177
64	11 Credit & Export Bureau	.870	1.177
65	7 645 Chester Barrie	.838	1.306
66	9 648 Clives & Hawkes	.829	1.156

**Table 3.8 Descending Order of Integration Radius Three (1/x RRA(3)) for the First Floor**

Space No	Department Name	1/x RRA	1/x RRA(3)
1	34 265 Bed Linen	1.624	2.334
2	21 114 Men's Hats	1.682	2.327
3	64 Ground Floor	1.857	2.247
4	27 386 Books	1.682	2.213
5	20 436 Men's Leisure Clothing	1.399	2.191
6	32 Circulation Space	1.733	2.136
7	19 416 Men's Designer Room	1.297	2.130
8	65 Second Floor	1.624	2.102
9	41 275 Tracks & Blinds	1.167	2.099
10	28 264 Towels	1.569	2.098
11	61 Lift 2	1.538	2.067
12	63 Lift 4	1.538	2.067
13	62 Lift 3	1.538	2.067
14	60 Lift 1	1.538	2.067
15	33 266 Table Linen	1.334	2.061
16	44 341 Upholstered Furniture	1.144	2.046
17	13 422 Suits & 430 Jackets & 432 Trousers	1.319	2.040
18	50 Escalator to Ground Floor	1.508	2.027
19	3 427 Burberry	1.538	2.019
20	29 377 Everything With Chips	1.517	1.909
21	49 Escalator from Ground Floor	1.538	1.904
22	4 654 Aquascutum	1.399	1.895
23	42 284 & 281 & 330 Carpets	1.276	1.891
24	31 369 The Silica Shop	1.433	1.884
25	52 Escalator to Second Floor	1.390	1.852
26	25 437 Lotus Peraud	1.342	1.836
27	26 436 Barbour	1.297	1.836
28	54 Escalator to Ground Floor	1.416	1.836
29	55 Escalator from Ground Floor	1.416	1.836
30	57 Escalator from Ground Floor	1.416	1.834
31	51 Escalator from Second Floor	1.304	1.782
32	56 Escalator to Second Floor	1.312	1.782
33	53 Escalator from Second Floor	1.312	1.782
34	58 Escalator to Second Floor	1.334	1.781
35	59 Escalator to Ground Floor	1.374	1.733
36	38 277 Soft Furniture Workroom	1.027	1.722
37	35 269 Quilts	1.242	1.717
38	15 658 Men's Shoes	1.269	1.679
39	39 270 Furnishing Fabrics	1.055	1.667
40	18 416 Paul Smith	1.085	1.667
41	5 646 Austin Reed	1.051	1.648
42	14 418 Dials	1.161	1.633
43	6 668 British Tailor	1.055	1.626
44	46 331 Beds	1.161	1.625
45	17 421 Sidi Suits	1.023	1.604
46	36 265 Dorma Co-ordinates	1.197	1.563
47	37 274 Net Curtains	1.075	1.537
48	2 426 Men Raincoats	1.127	1.537
49	30 725 Empceoy Phones	1.262	1.535
50	24 415 Valentino	1.116	1.523
51	45 336 Dining/ Repro' Furniture	1.018	1.480
52	10 644 Jaeger Man	1.001	1.473
53	22 423 Gian Franco Ferre	1.027	1.473
54	40 272 Ready Made Curtains	.903	1.414
55	23 417 Cerruti 1881	1.018	1.403
56	16 115 Y.S.L.	.984	1.394
57	12 686 Cristian Dior	.988	1.394
58	66 336 Dining/ Repro' Furniture	.980	1.387
59	7 645 Chester Barrie	.838	1.306
60	8 653 Men's Tailoring	.876	1.224
61	11 Credit & Export Bureau	.870	1.177
62	48 Midland Bank	.870	1.177
63	9 648 Clives & Hawkes	.829	1.156
64	1 425 Men Overcoats	.900	1.137
65	43 288 Vinyl	.944	1.095
66	47 335 Bedroom Furniture	.879	.885

**Table 3.9 Descending Order of Integration (1/x RRA) for the Second Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	35	177 Mondl	1.889	2.380
2	20	165 Career Collection	1.802	2.240
3	39	157 Designer Clothes	1.778	2.351
4	32	Corridor	1.767	2.549
5	36	156 Dresses	1.744	2.516
6	22	149 Marella	1.700	2.172
7	19	681 Crochetta	1.700	2.213
8	15	505 Aquasutum	1.690	2.333
9	70	Third Floor	1.619	2.098
10	69	First Floor	1.619	2.098
11	23	147 Betty Barclay	1.564	1.953
12	66	Lift 2	1.537	2.102
13	38	175 Ladies Suits	1.537	2.000
14	68	Lift 4	1.537	2.102
15	65	Lift 1	1.537	2.102
16	67	Lift 3	1.537	2.102
17	21	182 Escada	1.520	1.975
18	41	655 Roland Cartier	1.511	2.207
19	54	157 Y. S. L.	1.495	2.160
20	71	190 Oul Set	1.471	1.963
21	24	187 Jacques Vert	1.447	2.252
22	18	506 Jaeger	1.432	1.884
23	28	184 Blouses	1.432	2.207
24	40	178 Evening Separates	1.424	2.098
25	60	Escalator From Third Floor	1.417	1.977
26	62	Escalator From First Floor	1.417	1.977
27	61	Escalator To Third Floor	1.417	1.977
28	59	Escalator To First Floor	1.417	1.977
29	57	Escalator To First Floor	1.395	1.737
30	58	Escalator From Third Floor	1.395	1.737
31	49	518 Designer Shoes	1.381	2.060
32	25	185 Ladies Skirts	1.381	1.981
33	63	Escalator To Third Floor	1.367	1.931
34	64	Escalator From First Floor	1.367	1.931
35	37	125 Liz Claybourne Acc.	1.334	1.852
36	16	682 Cash D'or	1.327	1.886
37	51	167 Frank Usher	1.321	1.857
38	72	Circulation Space	1.283	1.979
39	52	178 Evening Separates	1.283	1.933
40	53	157 Carruti 1881	1.283	1.933
41	7	684 Francis	1.277	2.040
42	6	508 Windmoor	1.265	1.992
43	27	694 Genesis	1.265	1.618
44	50	704 Dolcis Shoes	1.209	2.310
45	33	472 Dior Accessories	1.204	1.547
46	34	478 Kanebo Accessories	1.204	1.547
47	48	693 Carol	1.158	1.896
48	17	511 Mansfield	1.134	1.438
49	74	Escalator From Third Floor	1.134	1.318
50	73	Escalator To First Floor	1.134	1.318
51	14	193 Liz Claybourne	1.120	1.683
52	55	159 Lotus Peraud	1.115	1.422
53	13	666 Dash	1.110	1.537
54	47	685 Benetton	1.080	2.102
55	46	529 Carvella	1.071	1.934
56	30	181 Knitwear	1.046	1.327
57	31	180 Fashion Knitwear	1.042	1.283
58	29	183 Tartan Fashions	1.042	1.283
59	12	190 Oul Set	1.042	1.604
60	8	515 Country Casuals	1.031	1.613
61	26	692 J. H. Collectibles	1.015	1.198
62	56	514 Nicole Farhi	1.011	1.606
63	5	503 Planet	1.004	1.814
64	2	501 Reidan	.986	1.606
65	9	500 Vyella	.979	1.626
66	43	524 Brands Shoes	.968	1.318
67	45	521 Kurt Geiger	.965	1.604
68	42	592 Coffee On Two	.958	1.146
69	44	656 Ladies Shoes	.925	1.467
70	11	186 Fashion Leisurewear	.898	1.387
71	10	186 Ladies Swimwear	.892	1.301
72	1	502 Alcon	.837	1.239
73	4	Ladies clothes	.803	1.299
74	3	Ladies clothes	.803	1.299

**Table 3.10 Descending Order of Integration Radius Three (1/x RRA(3)) for the Second Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	32	Corridor	1.767	2.549
2	36	156 Dresses	1.744	2.516
3	35	177 Mondl	1.889	2.380
4	39	157 Designer Clothes	1.778	2.351
5	15	505 Aquasutum	1.690	2.333
6	50	704 Dolcis Shoes	1.209	2.310
7	24	187 Jacques Vert	1.447	2.252
8	20	165 Career Collection	1.802	2.240
9	19	681 Crochetta	1.700	2.213
10	41	655 Roland Cartier	1.511	2.207
11	28	184 Blouses	1.432	2.207
12	22	149 Marella	1.700	2.172
13	54	157 Y. S. L.	1.495	2.160
14	67	Lift 3	1.537	2.102
15	65	Lift 1	1.537	2.102
16	66	Lift 2	1.537	2.102
17	68	Lift 4	1.537	2.102
18	47	685 Benetton	1.080	2.102
19	40	178 Evening Separates	1.424	2.098
20	69	First Floor	1.619	2.098
21	70	Third Floor	1.619	2.098
22	49	518 Designer Shoes	1.381	2.060
23	7	684 Francis	1.277	2.040
24	38	175 Ladies Suits	1.537	2.000
25	6	508 Windmoor	1.265	1.992
26	25	185 Ladies Skirts	1.381	1.981
27	72	Circulation Space	1.283	1.979
28	61	Escalator To Third Floor	1.417	1.977
29	59	Escalator To First Floor	1.417	1.977
30	60	Escalator From Third Floor	1.417	1.977
31	62	Escalator From First Floor	1.417	1.977
32	21	182 Escada	1.520	1.975
33	71	190 Oul Set	1.471	1.963
34	23	147 Betty Barclay	1.564	1.953
35	46	529 Carvella	1.071	1.934
36	53	157 Carruti 1881	1.283	1.933
37	52	178 Evening Separates	1.283	1.933
38	64	Escalator From First Floor	1.367	1.931
39	63	Escalator To Third Floor	1.367	1.931
40	48	693 Carol	1.158	1.896
41	16	682 Cash D'or	1.327	1.886
42	18	506 Jaeger	1.432	1.884
43	51	167 Frank Usher	1.321	1.857
44	37	125 Liz Claybourne Acc.	1.334	1.852
45	5	503 Planet	1.004	1.814
46	57	Escalator To First Floor	1.395	1.737
47	58	Escalator From Third Floor	1.395	1.737
48	14	193 Liz Claybourne	1.120	1.683
49	9	500 Vyella	.979	1.626
50	27	694 Genesis	1.265	1.618
51	8	515 Country Casuals	1.031	1.613
52	2	501 Reidan	.986	1.606
53	56	514 Nicole Farhi	1.011	1.606
54	12	190 Oul Set	1.042	1.604
55	45	521 Kurt Geiger	.965	1.604
56	34	478 Kanebo Accessories	1.204	1.547
57	33	472 Dior Accessories	1.204	1.547
58	13	666 Dash	1.110	1.537
59	44	656 Ladies Shoes	.925	1.467
60	17	511 Mansfield	1.134	1.438
61	55	159 Lotus Peraud	1.115	1.422
62	11	188 Fashion Leisurewear	.898	1.387
63	30	181 Knitwear	1.046	1.327
64	43	524 Brands Shoes	.968	1.318
65	73	Escalator To First Floor	1.134	1.318
66	74	Escalator From Third Floor	1.134	1.318
67	10	186 Ladies Swimwear	.892	1.301
68	4	Ladies clothes	.803	1.299
69	3	Ladies clothes	.803	1.299
70	29	183 Tartan Fashions	1.042	1.283
71	31	180 Fashion Knitwear	1.042	1.283
72	1	502 Alcon	.837	1.239
73	26	692 J. H. Collectibles	1.015	1.198
74	42	592 Coffee On Two	.958	1.146

**Table 3.11 Descending Order of Integration (1/x RRA) for the Third Floor**

Space No	Department Name	1/x RRA	1/x RRA(3)
1	24 Circulation Space	1.890	2.341
2	22 600 The Selfridges Restaurant	1.835	2.304
3	55 461 & 440 & 441	1.783	2.312
5	56 Second Floor	1.734	2.102
5	23 176 Burberry	1.687	2.381
6	17 458 Boys Large Sizes & 454	1.672	1.963
7	25 142 Ladies Jackets	1.629	2.381
8	52 Lift 3	1.588	2.072
9	50 Lift 1	1.588	2.072
10	53 Lift 4	1.588	2.072
11	51 Lift 2	1.588	2.072
12	16 454 Boys Clothing	1.549	2.106
13	15 679 Children's Benetton	1.524	1.945
14	57 Fourth Floor	1.524	1.978
15	46 Escalator to Second Floor	1.488	1.886
16	47 Escalator from Second Floor	1.488	1.886
17	33 192 Rainwear	1.488	2.072
18	18 Circulation Space	1.488	2.061
19	21 440 & 441 & 461	1.476	1.884
20	14 460 Patricia Wigan	1.454	1.932
21	43 Escalator from Second Floor	1.432	1.787
22	32 151 Ladies Coats	1.421	1.839
23	48 Escalator to Fourth Floor	1.410	1.836
24	45 Escalator from Fourth Floor	1.410	1.836
25	42 Escalator to Second Floor	1.400	1.797
26	26 172 Timberland	1.369	1.837
27	8 Circulation Space	1.350	1.976
28	19 670 Child's Dash	1.340	1.792
29	7 461 Tiny Tots Clothing	1.331	2.228
30	12 441 Girls Wear	1.321	1.992
31	49 Escalator from Second Floor	1.321	1.727
32	44 Escalator to Fourth Floor	1.286	1.733
33	34 152 Four Seasons	1.286	1.933
34	5 201 Plain Fabrics	1.277	1.834
35	30 509 Danimac	1.260	2.151
36	54 461 & 441	1.260	1.837
37	6 657 Children Shoes	1.260	2.228
38	41 Escalator from Fourth Floor	1.260	1.680
39	9 465 Frames & Nursery	1.251	2.151
40	29 170 Ladies Hats	1.243	2.012
41	31 651 Fun Furs	1.204	1.782
42	10 463 Baby Linen	1.189	1.959
43	39 162 Your Size Dresses	1.132	1.727
44	37 211 Night Wear	1.125	2.045
45	27 690 Eastex	1.118	1.490
46	28 180 Maternity	1.112	1.438
47	20 Circulation Space	1.112	1.283
48	2 238 Wools & Needle Work	1.086	1.785
49	11 440 Girls Large Sizes	1.074	1.625
50	36 189 Your Size Separates	1.074	1.814
51	35 189 Your Size Separates	.969	1.681
52	4 208 Knit Mach. & Paper Patterns	.959	1.273
53	38 512 Berbertex Bridal Wear	.959	1.551
54	1 230 Sewing Centre	.954	1.473
55	13 546 Ladies & Men Hairdresser	.931	1.387
56	3 541 Sewing Machines	.926	1.291
57	40 Circulation Space	.765	1.106

**Table 3.12 Descending Order of Integration Radius Three (1/x RRA(3)) for the Third Floor**

Space No	Department Name	1/x RRA	1/x RRA(3)
1	23 176 Burberry	1.687	2.381
2	25 142 Ladies Jackets	1.629	2.381
3	24 Circulation Space	1.890	2.341
4	55 461 & 440 & 441	1.783	2.312
5	22 600 The Selfridges Restaurant	1.835	2.304
6	6 657 Children Shoes	1.260	2.228
7	7 461 Tiny Tots Clothing	1.331	2.228
8	9 465 Frames & Nursery	1.251	2.151
9	30 509 Danimac	1.260	2.151
10	16 454 Boys Clothing	1.549	2.106
11	56 Second Floor	1.734	2.102
12	53 Lift 4	1.588	2.072
13	51 Lift 2	1.588	2.072
14	52 Lift 3	1.588	2.072
15	33 192 Rainwear	1.488	2.072
16	50 Lift 1	1.588	2.072
17	18 Circulation Space	1.488	2.061
18	37 211 Night Wear	1.125	2.045
19	29 170 Ladies Hats	1.243	2.012
20	12 441 Girls Wear	1.321	1.992
21	57 Fourth Floor	1.524	1.978
22	8 Circulation Space	1.350	1.976
23	17 458 Boys Large Sizes & 454	1.672	1.963
24	10 463 Baby Linen	1.189	1.959
25	15 679 Children's Benetton	1.524	1.945
26	34 152 Four Seasons	1.286	1.933
27	14 460 Patricia Wigan	1.454	1.932
28	46 Escalator to Second Floor	1.488	1.886
29	47 Escalator from Second Floor	1.488	1.886
30	21 440 & 441 & 461	1.476	1.884
31	32 151 Ladies Coats	1.421	1.839
32	54 461 & 441	1.260	1.837
33	26 172 Timberland	1.369	1.837
34	48 Escalator to Fourth Floor	1.410	1.836
35	45 Escalator from Fourth Floor	1.410	1.836
36	5 201 Plain Fabrics	1.277	1.834
37	36 189 Your Size Separates	1.074	1.814
38	19 670 Child's Dash	1.340	1.792
39	43 Escalator from Second Floor	1.432	1.787
40	2 238 Wools & Needle Work	1.086	1.785
41	31 651 Fun Furs	1.204	1.782
42	42 Escalator to Second Floor	1.400	1.797
43	44 Escalator to Fourth Floor	1.286	1.733
44	39 162 Your Size Dresses	1.132	1.727
45	49 Escalator from Second Floor	1.321	1.727
46	35 189 Your Size Separates	.969	1.681
47	41 Escalator from Fourth Floor	1.260	1.680
48	11 440 Girls Large Sizes	1.074	1.625
49	38 512 Berbertex Bridal Wear	.959	1.551
50	27 690 Eastex	1.118	1.490
51	1 230 Sewing Centre	.954	1.473
52	28 180 Maternity	1.112	1.438
53	13 546 Ladies & Men Hairdresser	.931	1.387
54	3 541 Sewing Machines	.926	1.291
55	20 Circulation Space	1.112	1.283
56	4 208 Knit Mach. & Paper Patterns	.959	1.273
57	40 Circulation Space	.765	1.106



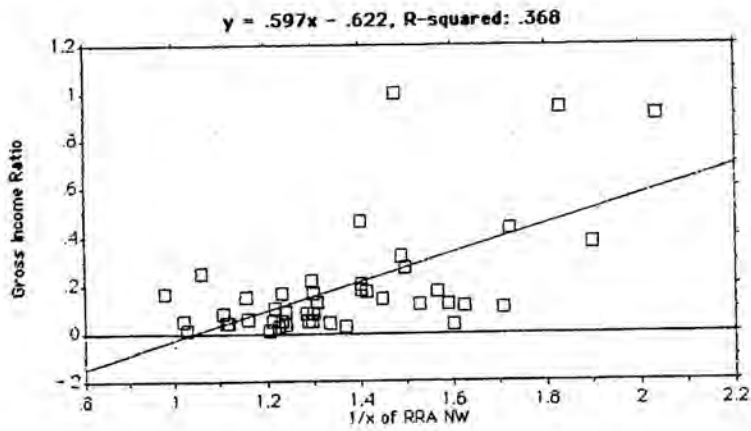
**Table 3.13 Descending Order of Integration (1/x RRA) for the Fourth Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	12	Circulation Space	1.985	2.050
2	16	395 Garden Furniture	1.933	2.228
3	10	532 Oly. Zero Rated+ 534 Oly. Clothes	1.792	2.125
4	8	259 Table Mats	1.792	2.125
5	30	Third Floor	1.708	2.071
6	2	534 Olympus Clothes	1.669	1.973
7	11	533 Olympus Footwear	1.597	1.686
8	14	258 Gifts	1.530	1.791
9	28	Lift 1	1.499	1.670
10	23	Lift 2	1.499	1.670
11	21	Lift 4	1.499	1.670
12	6	357 Indoor Games	1.499	1.727
13	29	535 Olympus Equipment	1.499	1.559
14	27	Escalator from 3rd Floor	1.499	1.726
15	18	Lift 3	1.499	1.670
16	9	536 Olympus Ski-Wear	1.469	1.731
17	5	356 Big Toys	1.440	1.612
18	15	343 Pictures & Mirrors	1.413	1.814
19	25	Escalator to 3rd Floor	1.413	1.731
20	26	Escalator to 3rd Floor	1.336	1.545
21	7	315 Cycles	1.312	1.480
22	24	Escalator from 3rd Floor	1.289	1.540
23	1	535 Olympus Equipment	1.289	1.552
24	3	353 Soft Toys	1.266	1.722
25	4	354 Boys Toys	1.224	1.426
26	19	258 Candles	1.204	1.626
27	17	257 Adult Games	1.148	1.403
28	20	594 Top Of The Shop Restaurant	1.130	1.344
29	13	469 School	1.130	1.171
30	22	535 Olympus Equipment	1.020	1.121

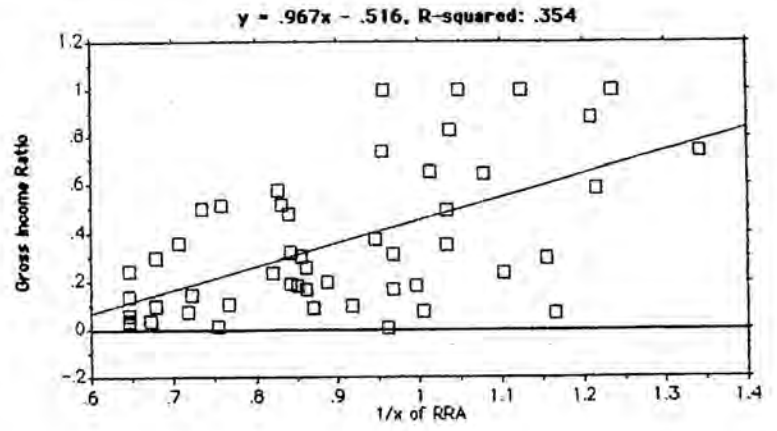
**Table 3.14 Descending Order of Integration Radius Three (1/x RRA(3)) for the Fourth Floor**

	Space No	Department Name	1/x RRA	1/x RRA (3)
1	16	395 Garden Furniture	1.933	2.228
2	8	259 Table Mats	1.792	2.125
3	10	532 Oly. Zero Rated+ 534 Oly. Clothes	1.792	2.125
4	30	Third Floor	1.708	2.071
5	12	Circulation Space	1.985	2.050
6	2	534 Olympus Clothes	1.669	1.973
7	15	343 Pictures & Mirrors	1.413	1.814
8	14	258 Gifts	1.530	1.791
9	9	536 Olympus Ski-Wear	1.469	1.731
10	25	Escalator to 3rd Floor	1.413	1.731
11	6	357 Indoor Games	1.499	1.727
12	27	Escalator from 3rd Floor	1.499	1.726
13	3	353 Soft Toys	1.266	1.722
14	11	533 Olympus Footwear	1.597	1.686
15	28	Lift 1	1.499	1.670
16	21	Lift 4	1.499	1.670
17	23	Lift 2	1.499	1.670
18	18	Lift 3	1.499	1.670
19	19	258 Candles	1.204	1.626
20	5	356 Big Toys	1.440	1.612
21	29	535 Olympus Equipment	1.499	1.559
22	1	535 Olympus Equipment	1.289	1.552
23	26	Escalator to 3rd Floor	1.336	1.545
24	24	Escalator from 3rd Floor	1.289	1.540
25	7	315 Cycles	1.312	1.480
26	4	354 Boys Toys	1.224	1.426
27	17	257 Adult Games	1.148	1.403
28	20	594 Top Of The Shop Restaurant	1.130	1.344
29	13	469 School	1.130	1.171
30	22	535 Olympus Equipment	1.020	1.121

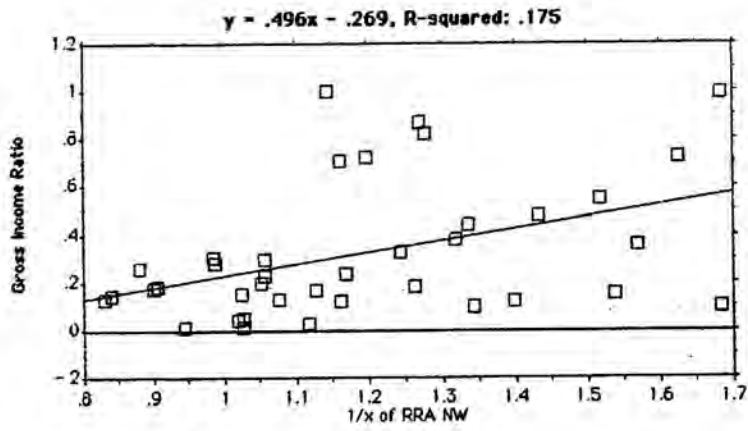
## **Appendix II**



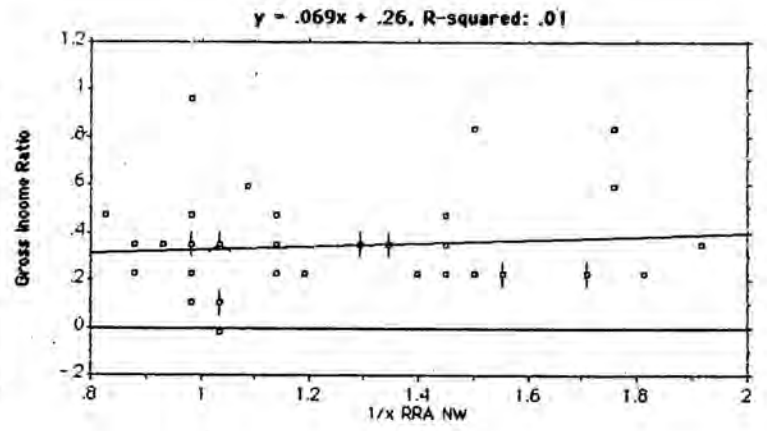
**Ground Floor**



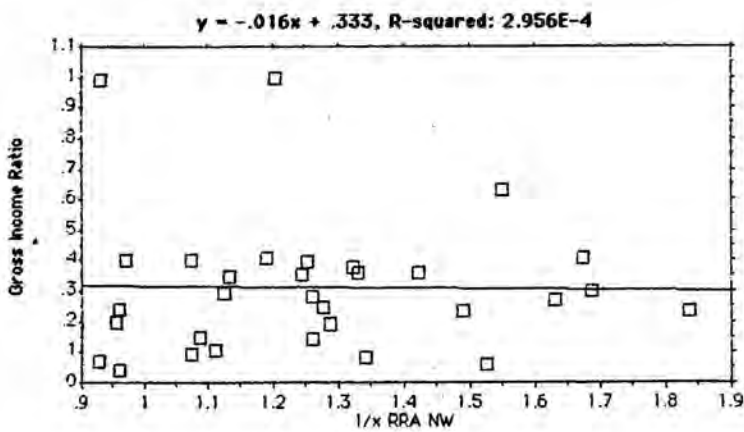
**Basement Floor**



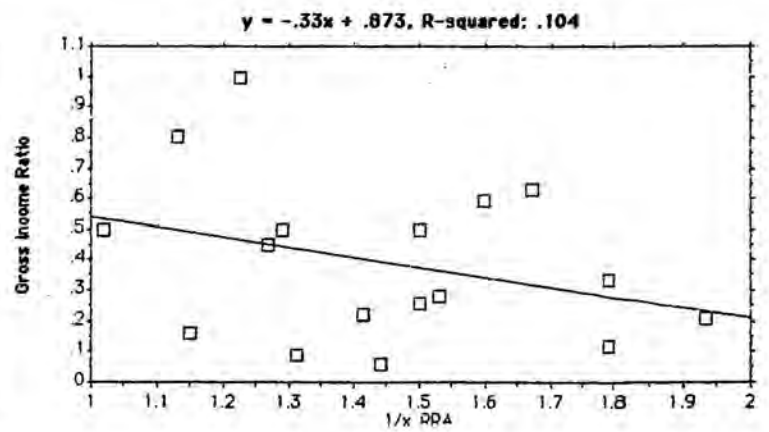
**First Floor**



**Second Floor**

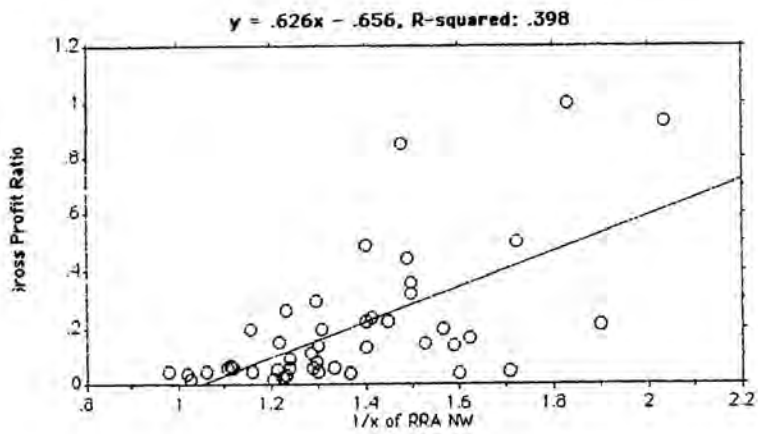


**Third Floor**

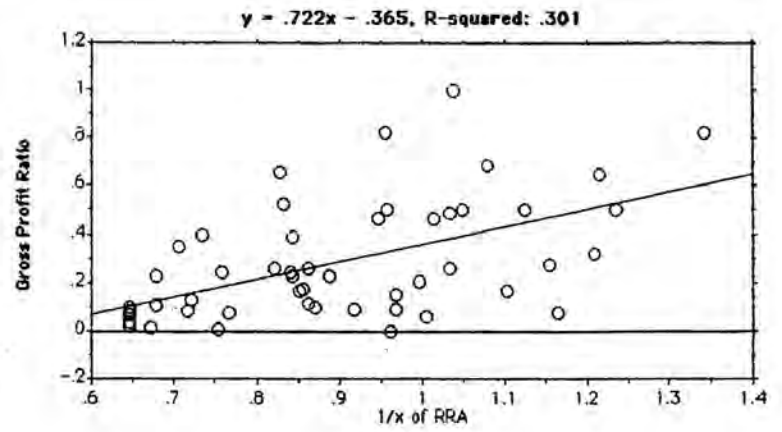


**Fourth Floor**

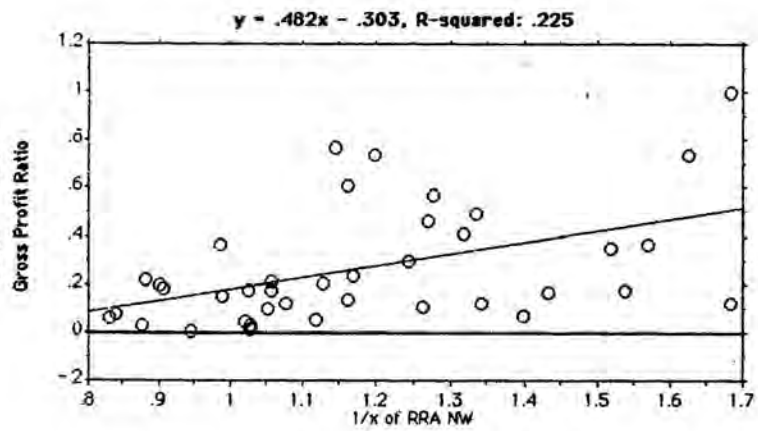
**Figures 4.8 a-f**



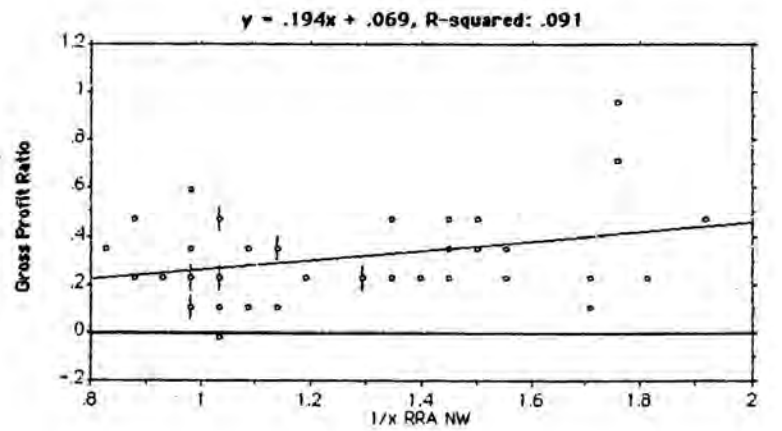
Ground Floor



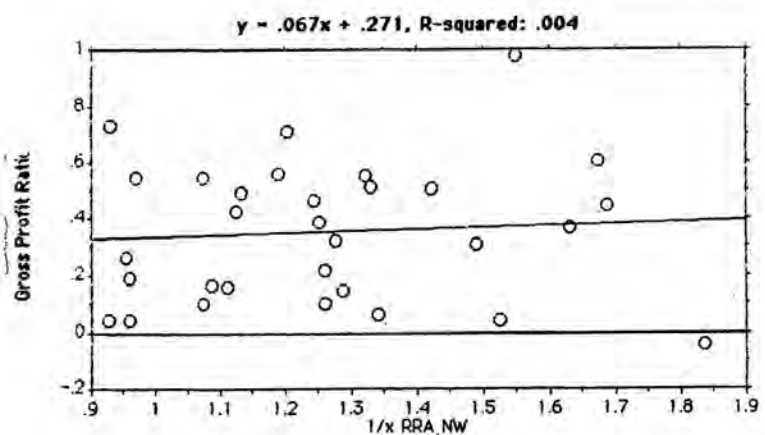
Basement Floor



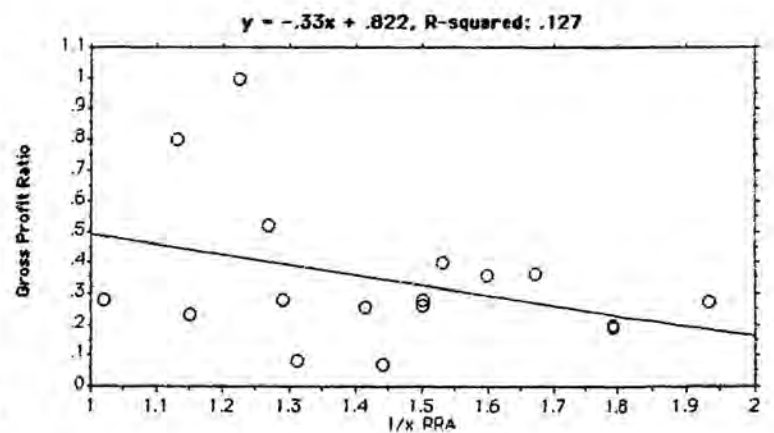
First Floor



Second Floor

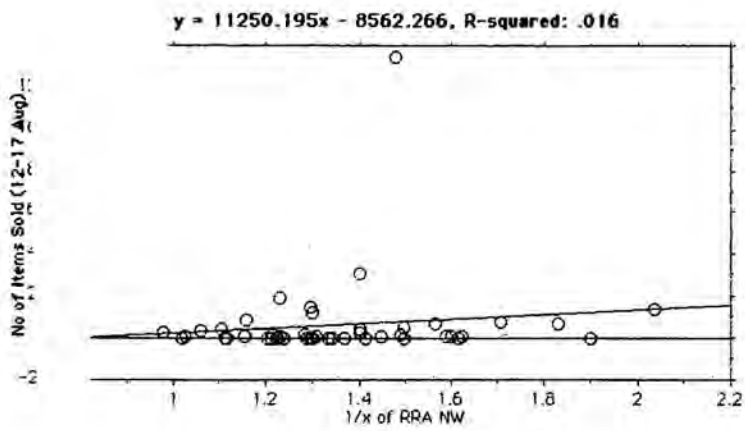


Third Floor

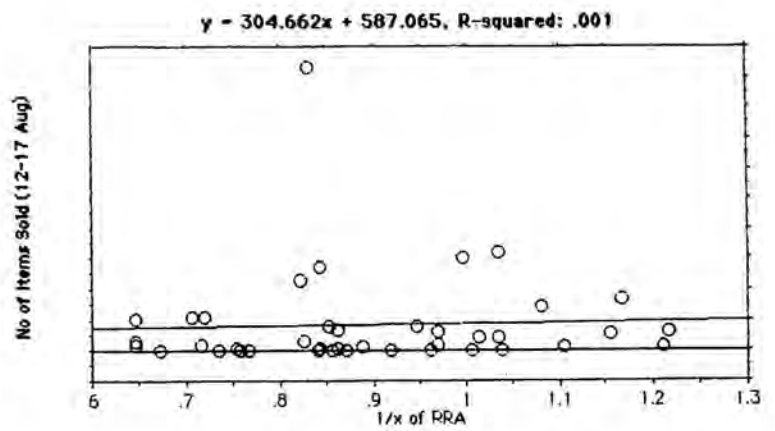


Fourth Floor

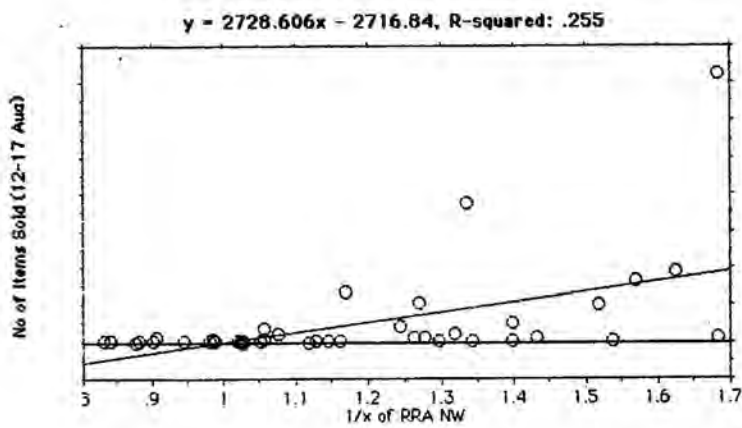
Figures 49 a-f



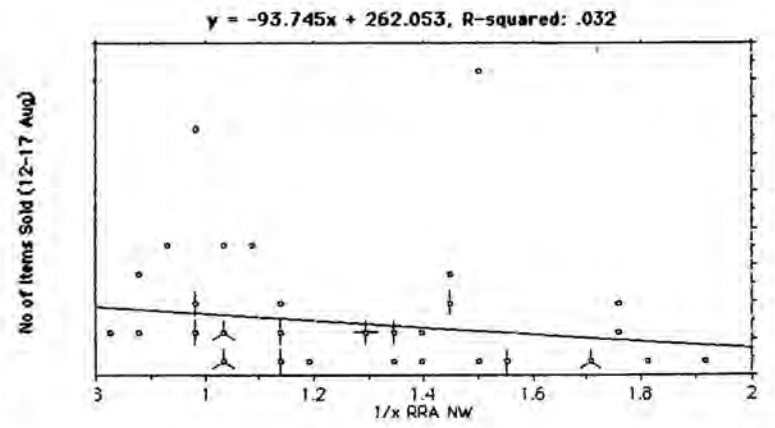
**Ground Floor**



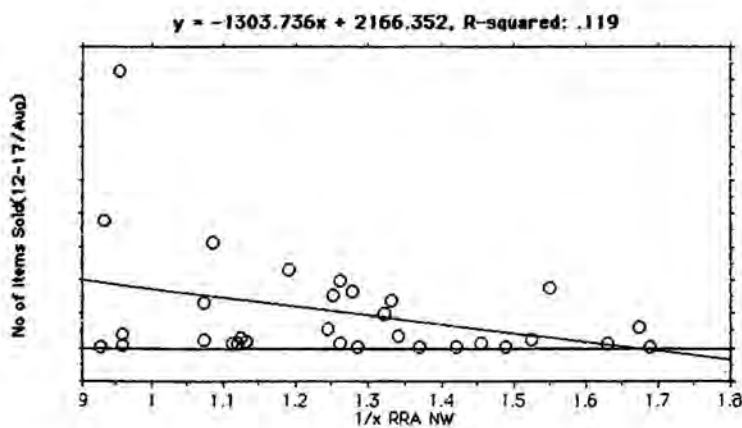
**Basement Floor**



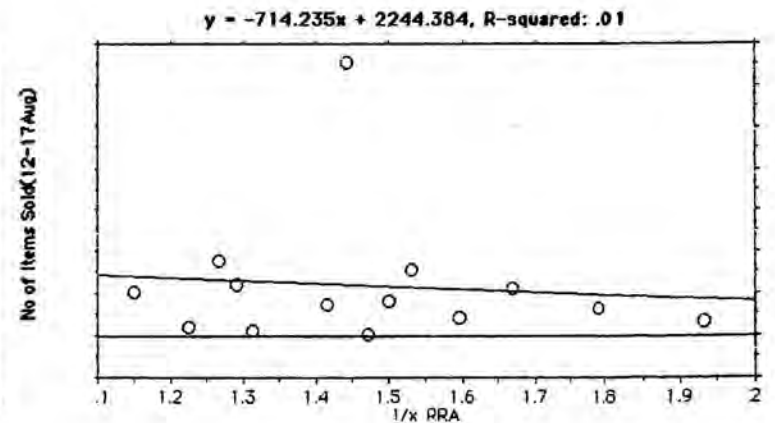
**First Floor**



**Second Floor**

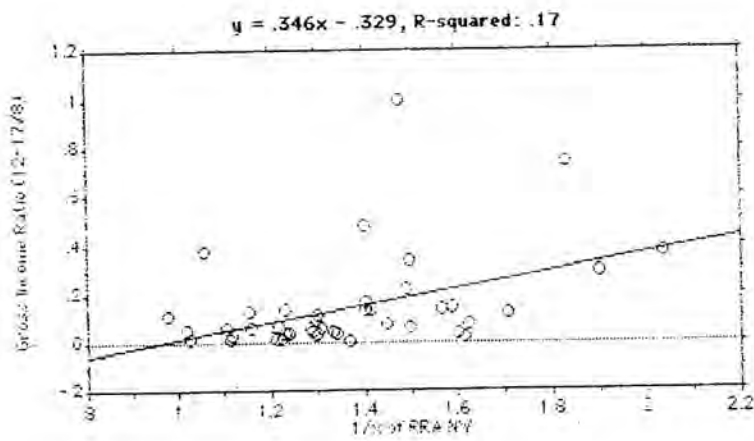


**Third Floor**

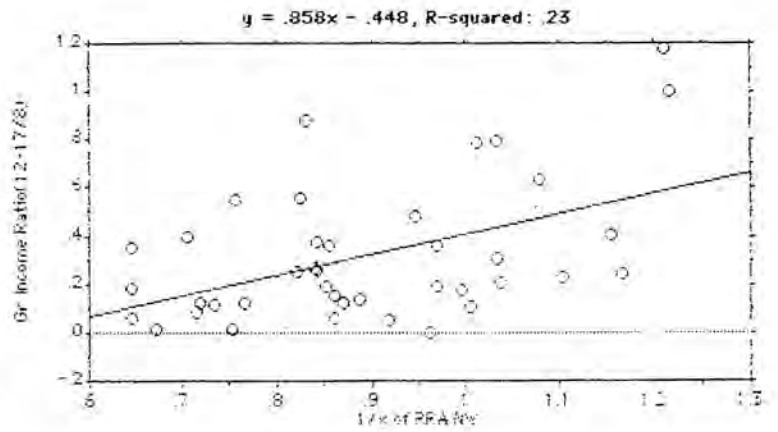


**Fourth Floor**

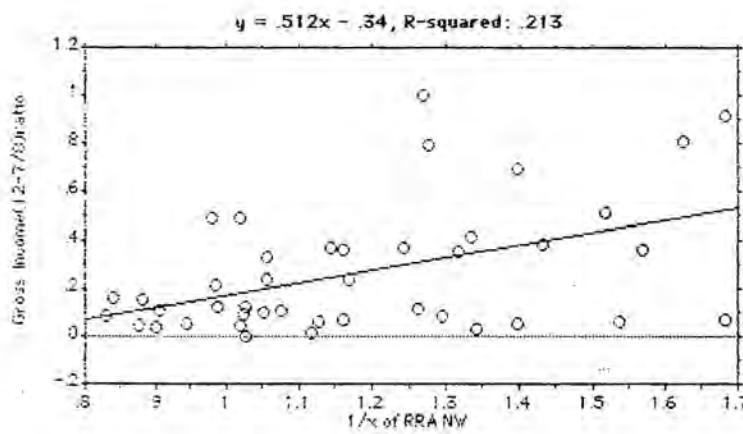
**Figures 4.10 a-f**



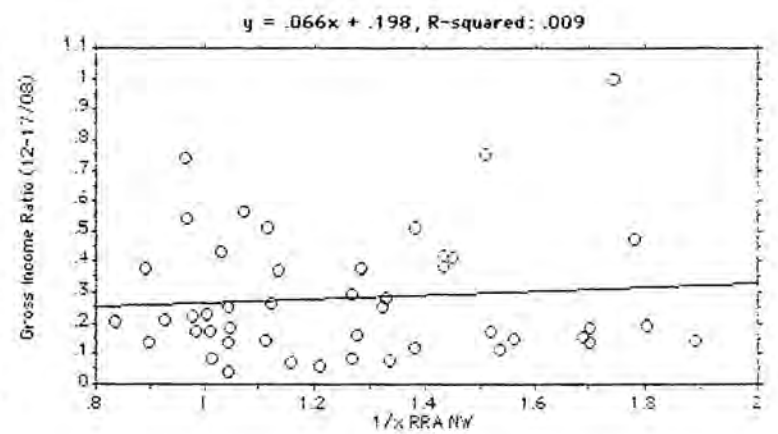
**Ground Floor**



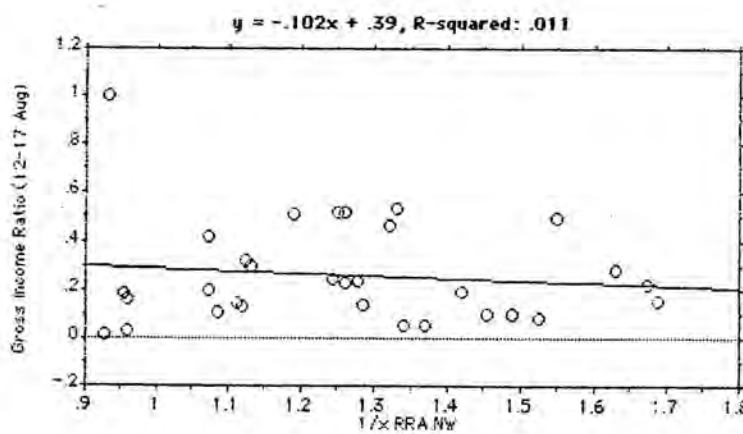
**Basement Floor**



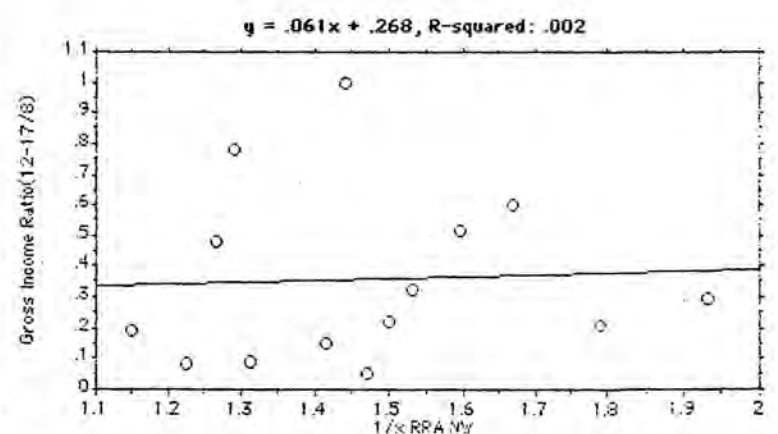
**First Floor**



**Second Floor**

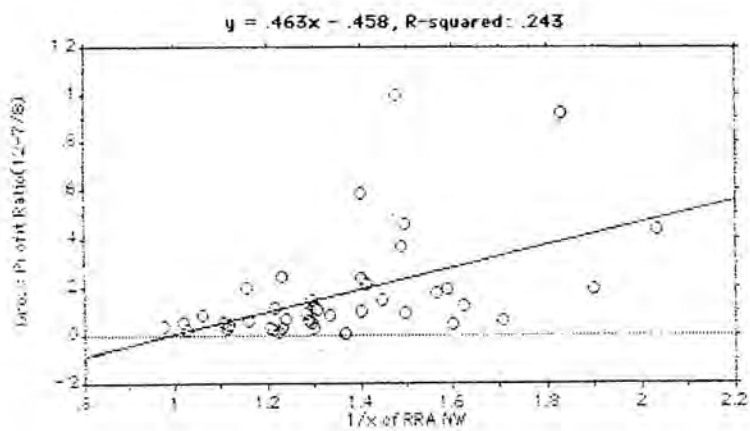


**Third Floor**

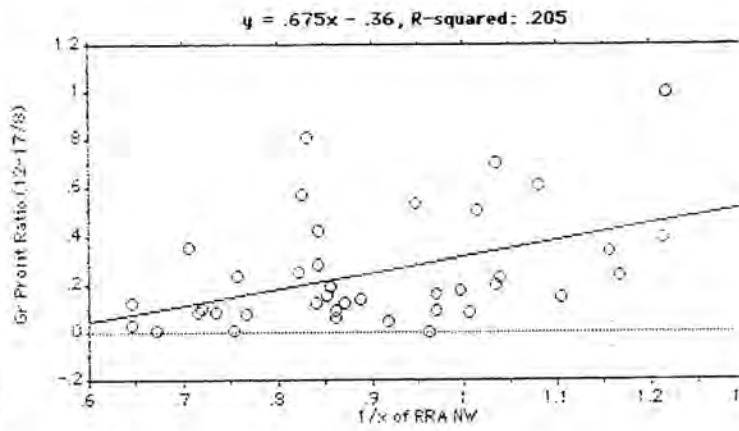


**Fourth Floor**

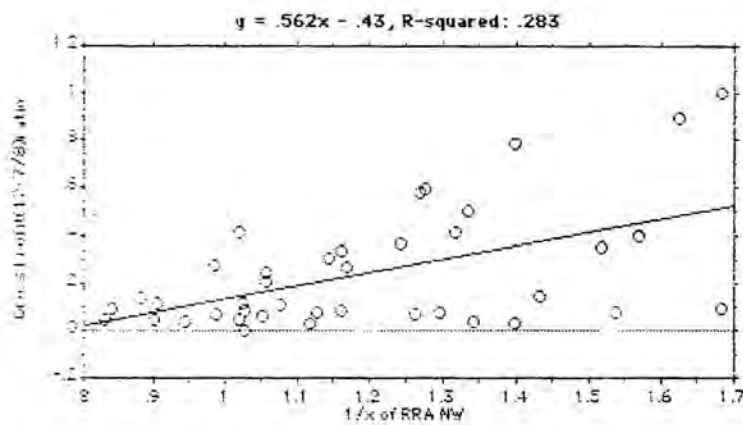
**Figures 4.11 a-f**



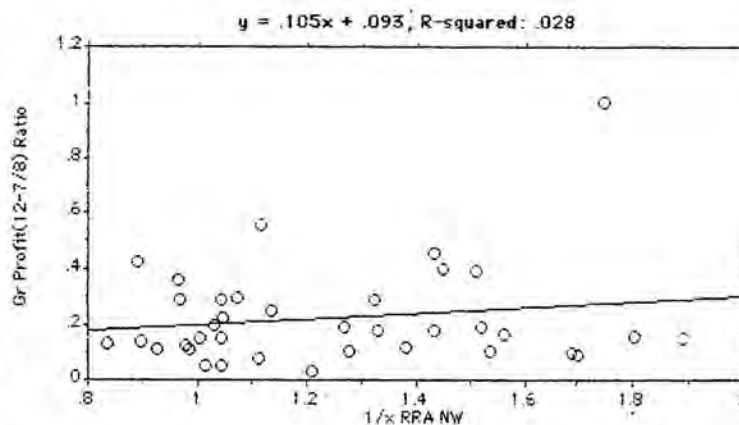
**Ground Floor**



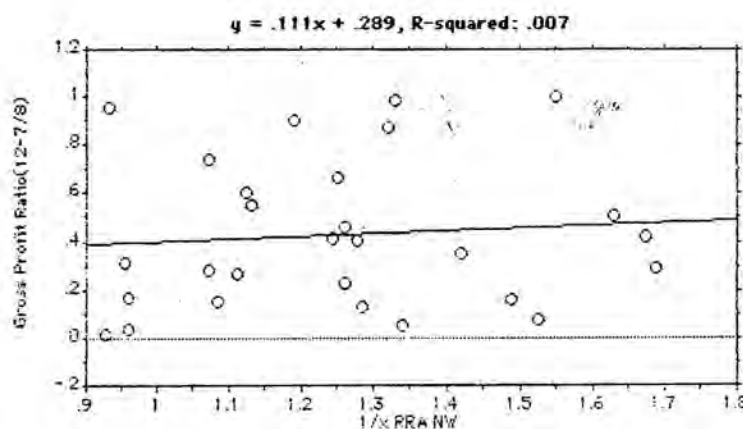
**Basement Floor**



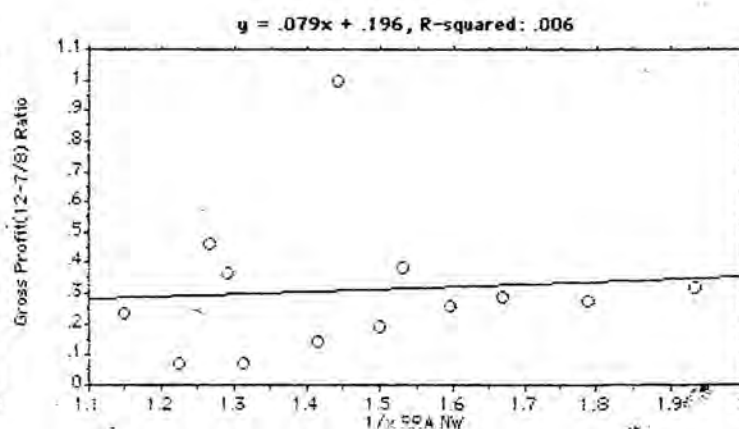
**First Floor**



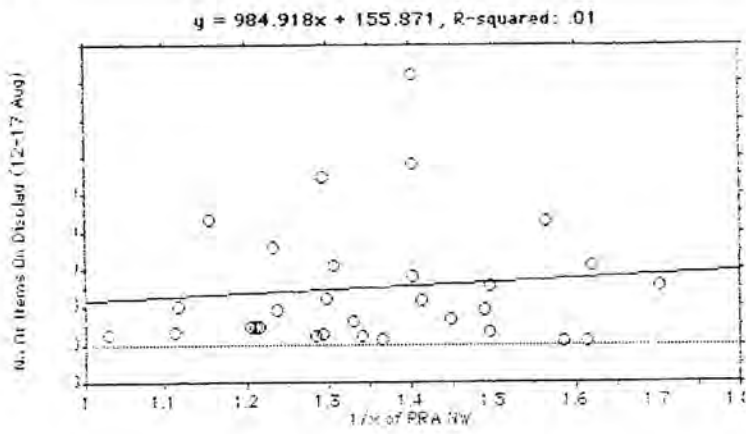
**Second Floor**



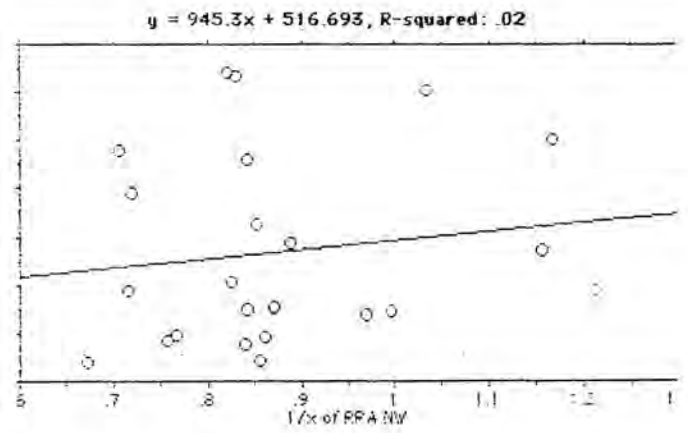
**Third Floor**



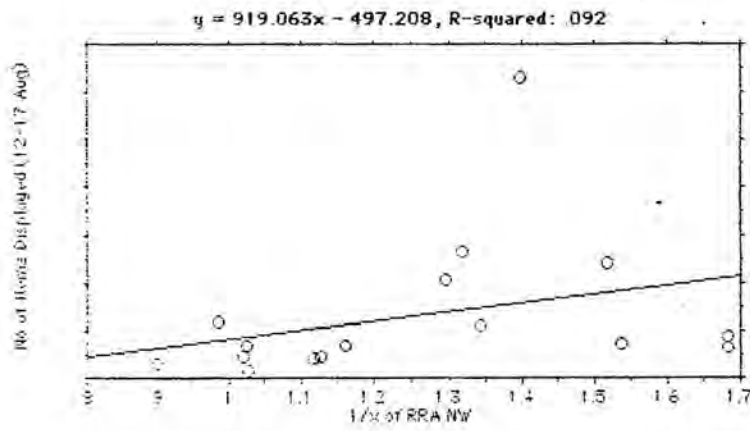
**Fourth Floor**



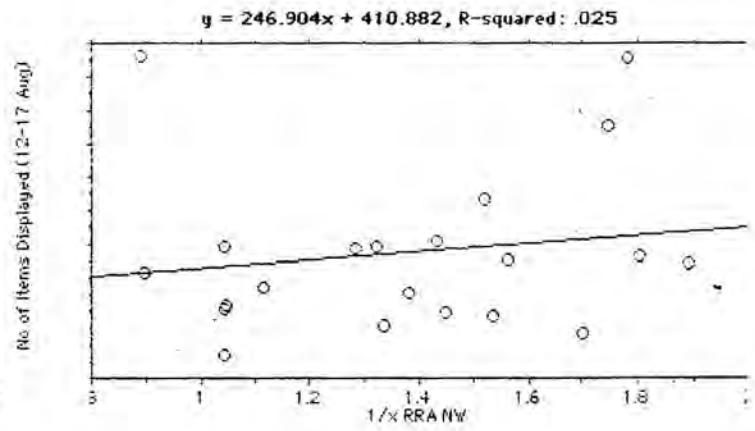
**Ground Floor**



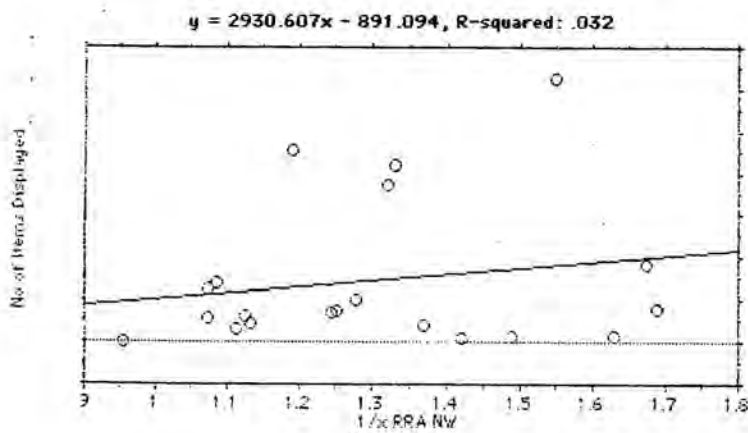
**Basement Floor**



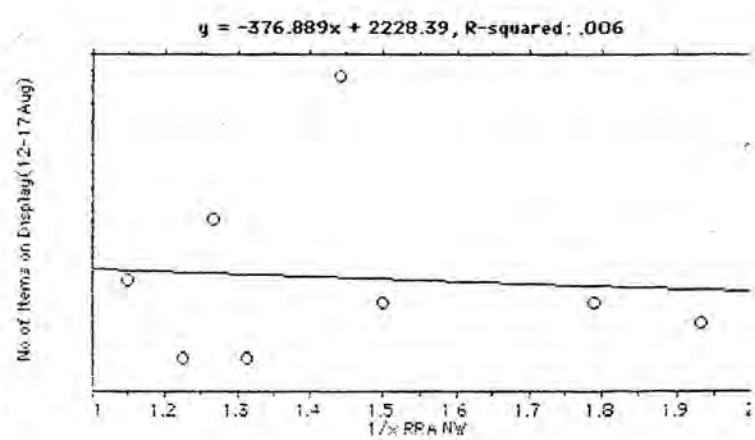
**First Floor**



**Second Floor**



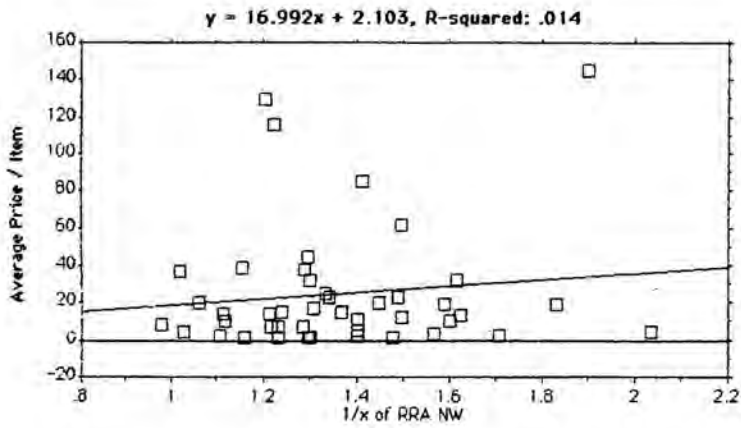
**Third Floor**



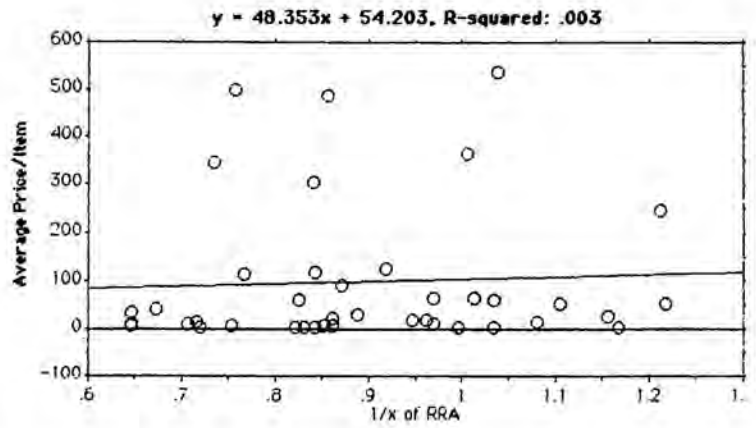
**Fourth Floor**

**Figures 4.13 a-f**

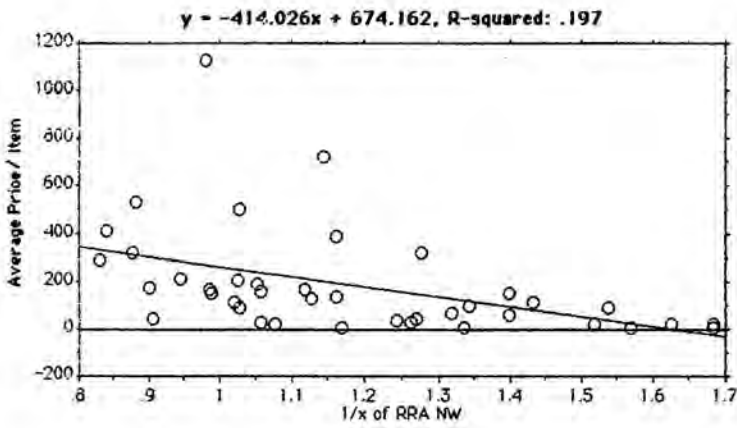




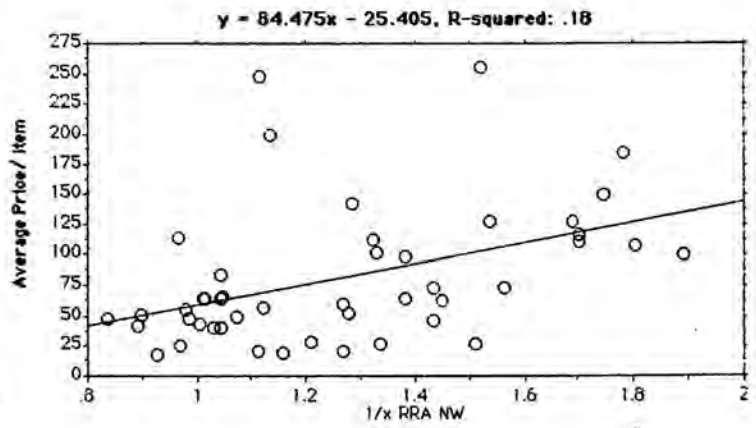
Ground Floor



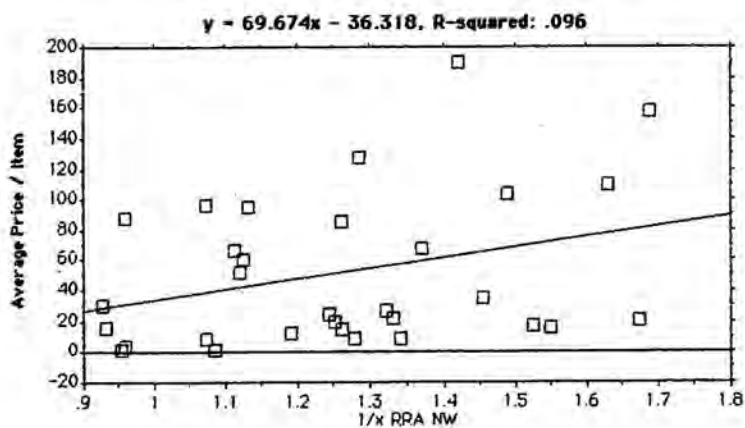
Basement Floor



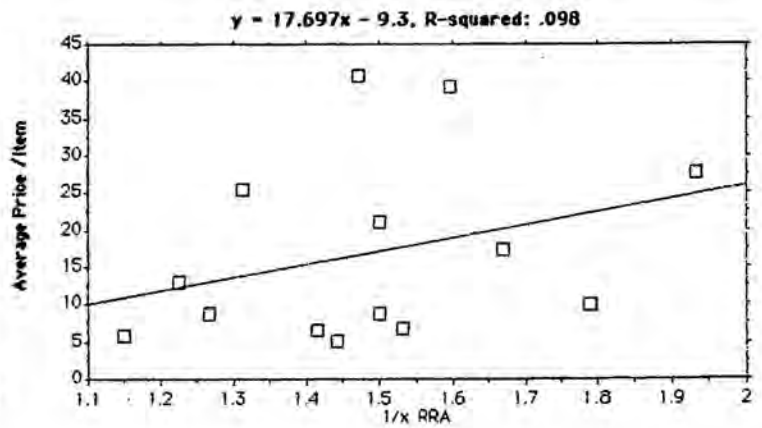
First Floor



Second Floor

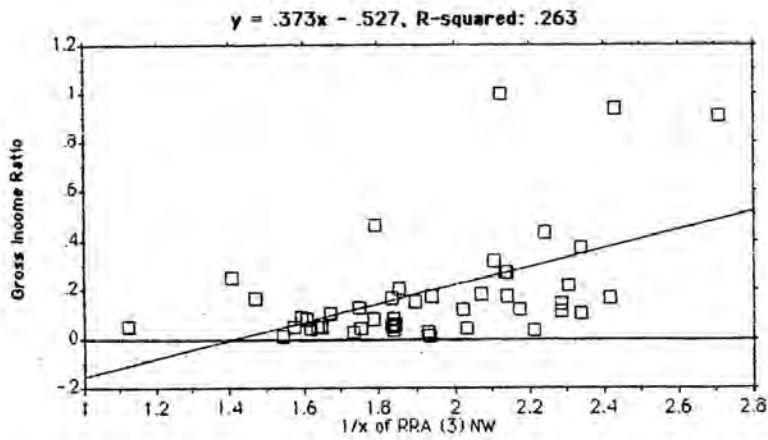


Third Floor

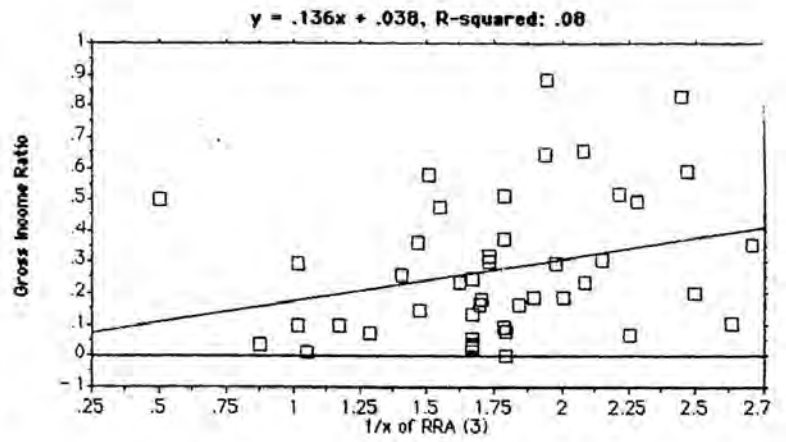


Fourth Floor

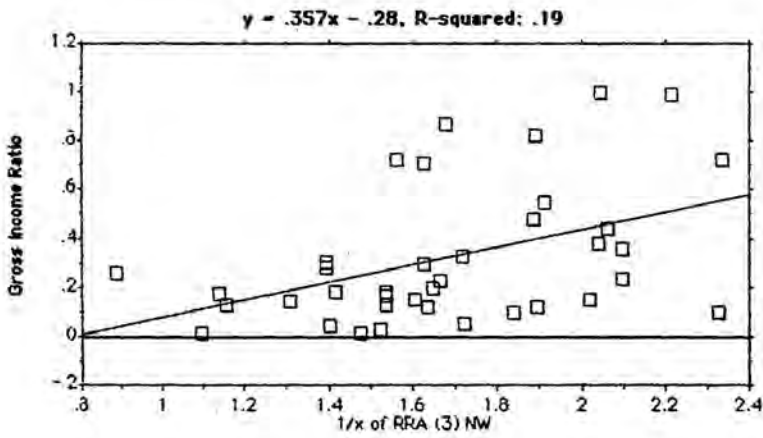
Figures 4.14 a-f



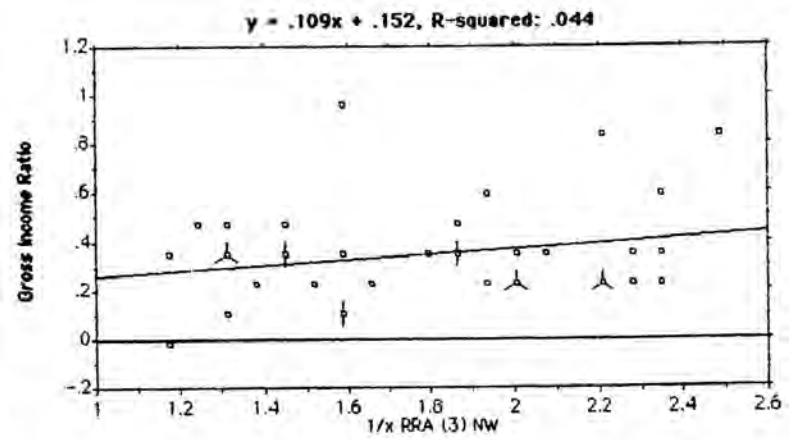
Ground Floor



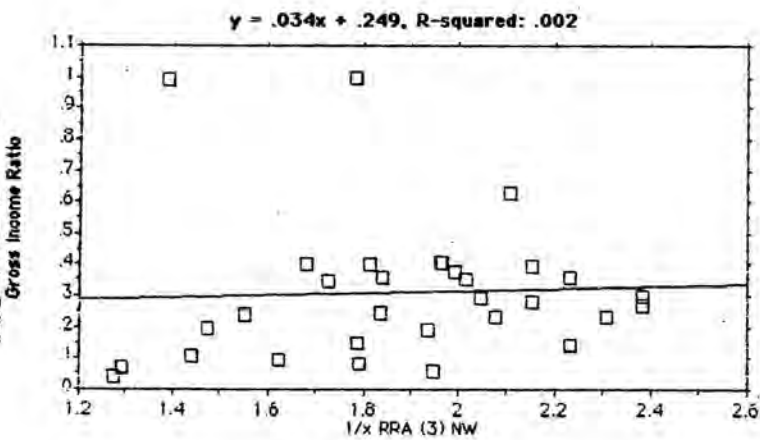
Basement Floor



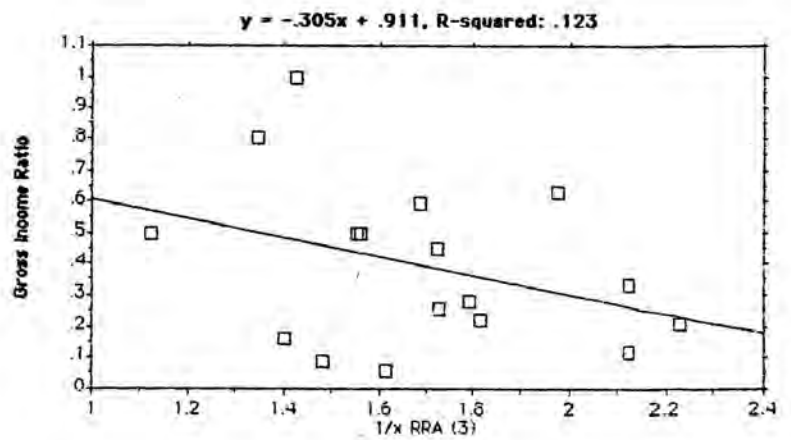
First Floor



Second Floor

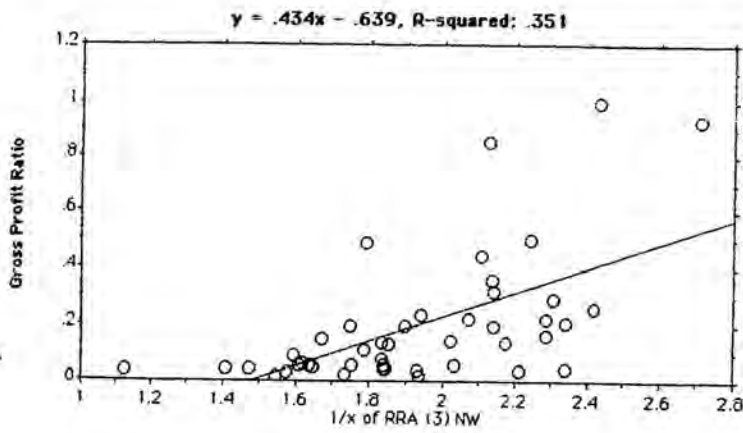


Third Floor

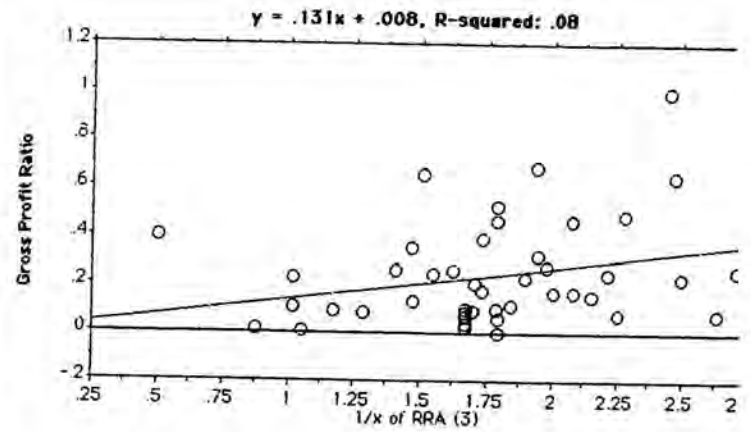


Fourth Floor

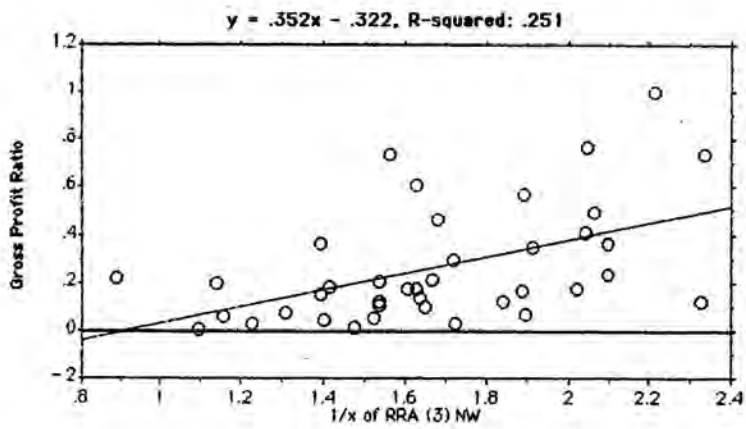
Figures 4.22 a-f



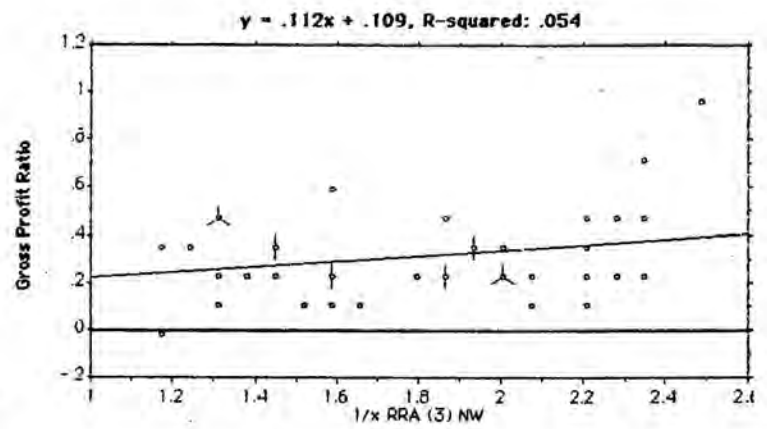
**Ground Floor**



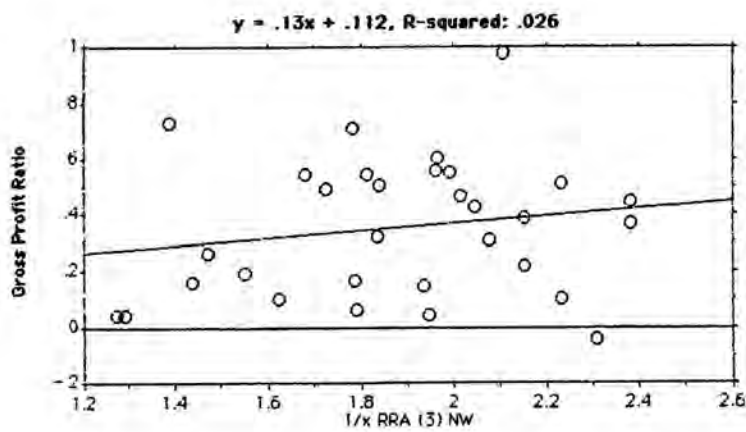
**Basement Floor**



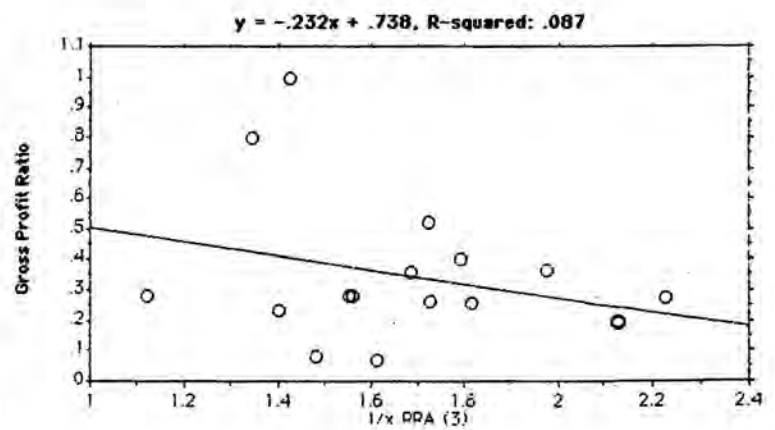
**First Floor**



**Second Floor**

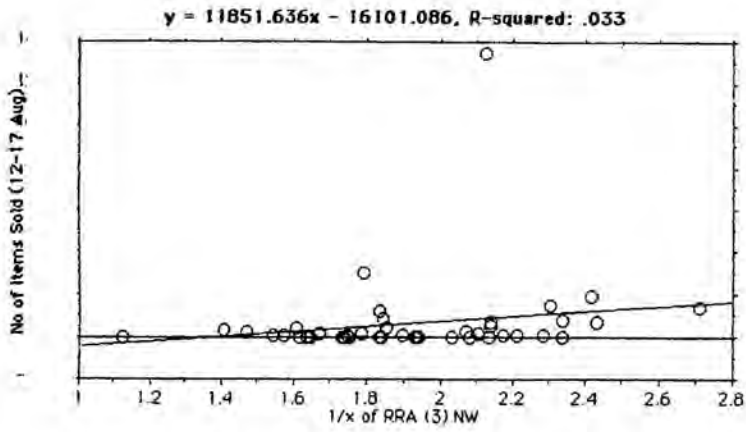


**Third Floor**

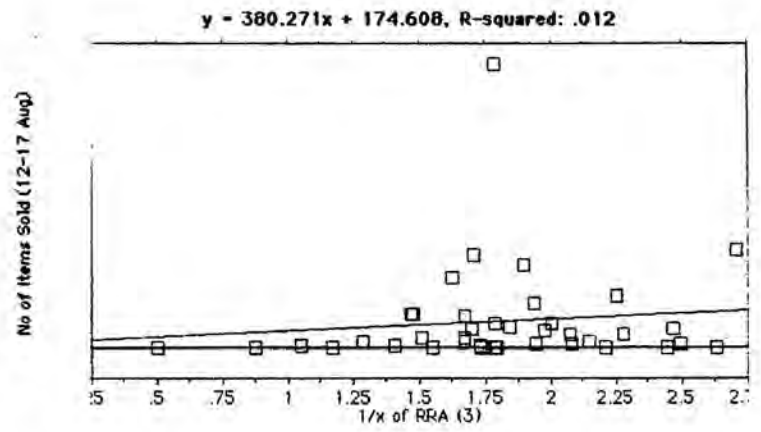


**Fourth Floor**

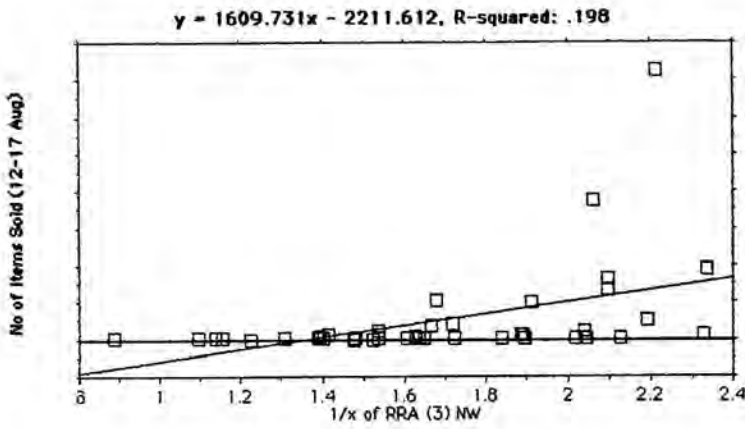
**Figures 4.23 a-f**



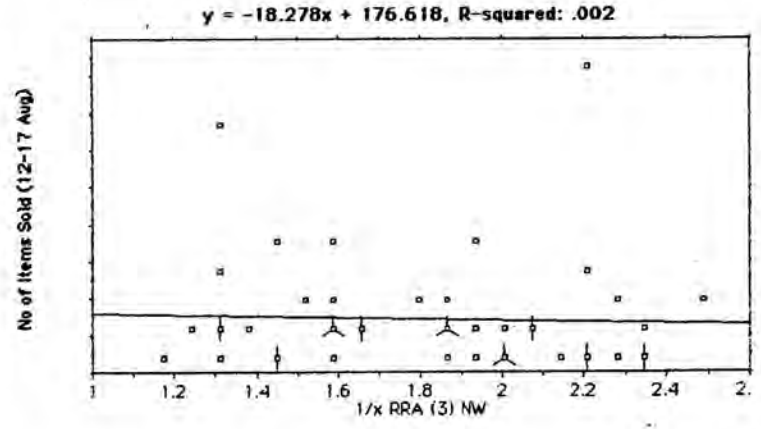
**Ground Floor**



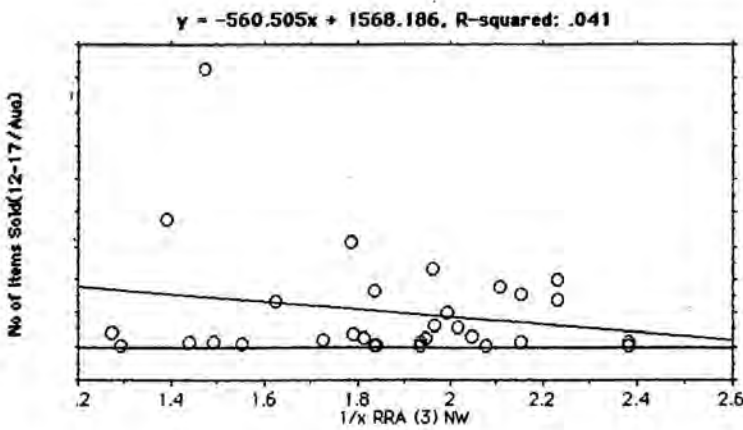
**Basement Floor**



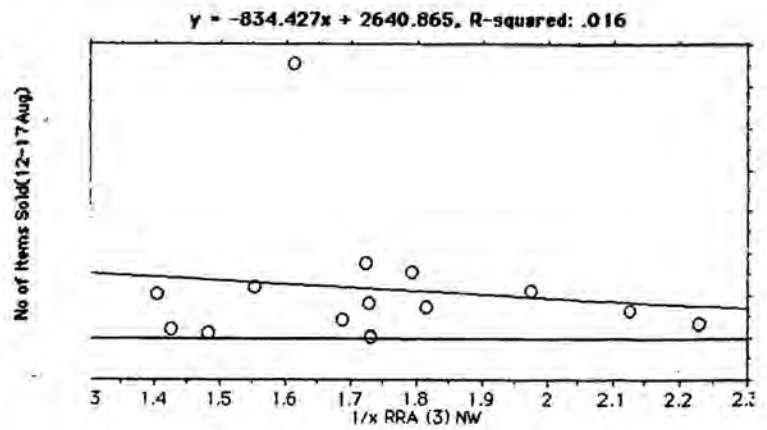
**First Floor**



**Second Floor**

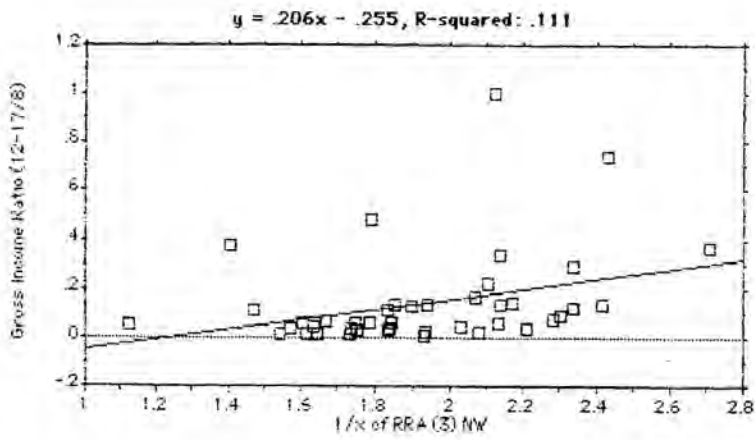


**Third Floor**

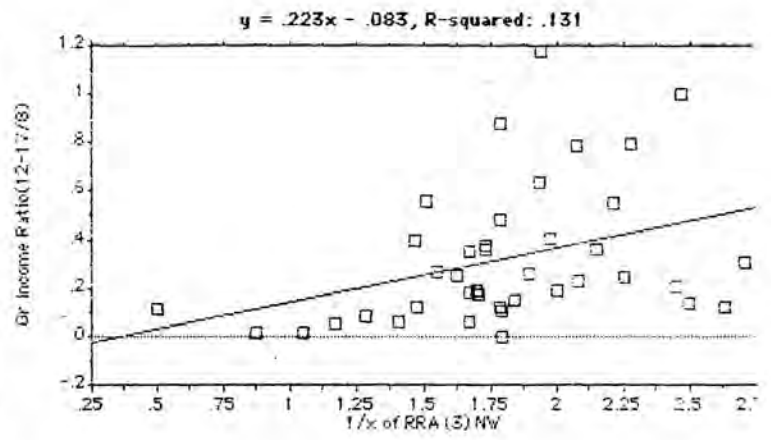


**Fourth Floor**

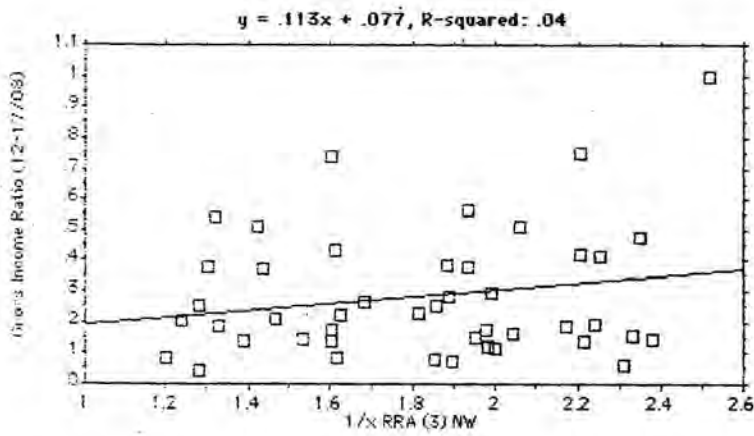
**Figures 4.24 a-f**



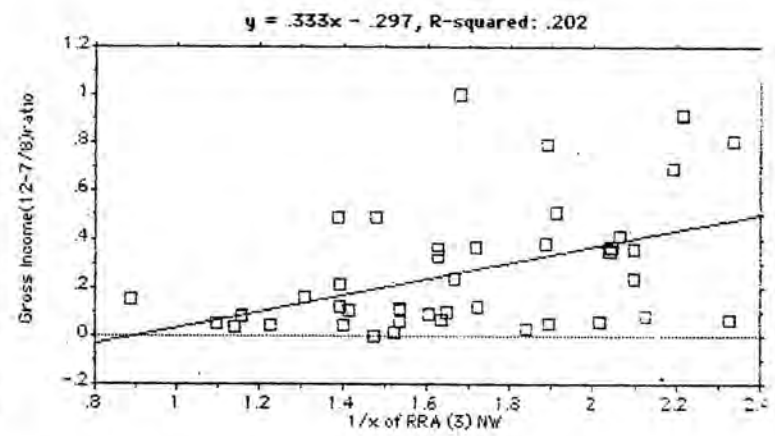
**Ground Floor**



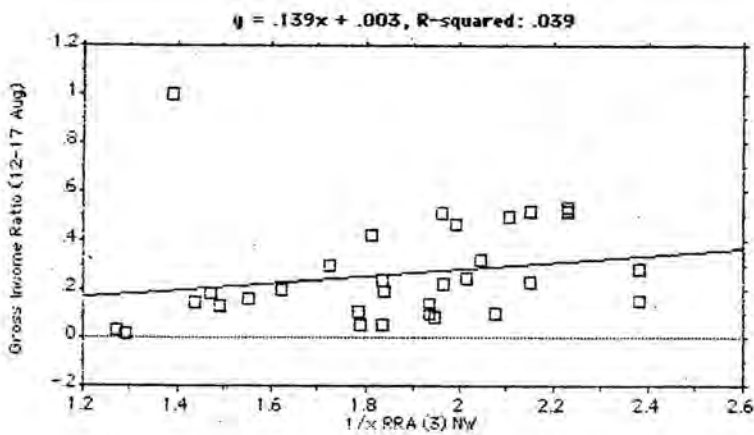
**Basement Floor**



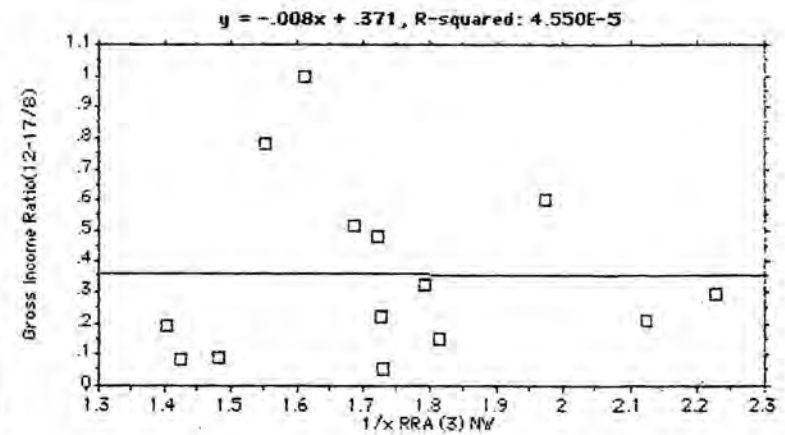
**First Floor**



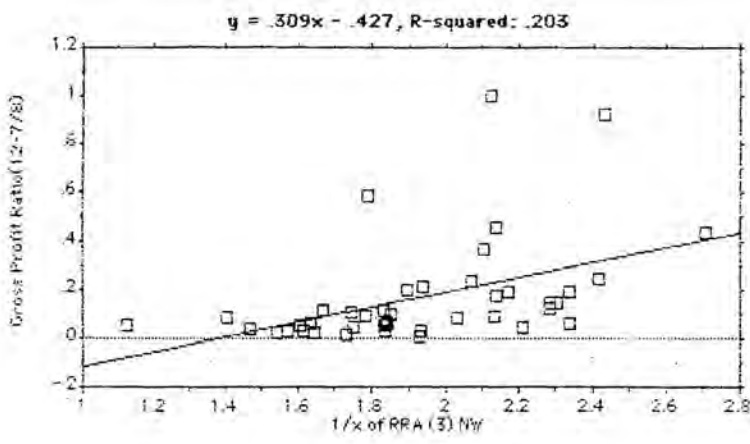
**Second Floor**



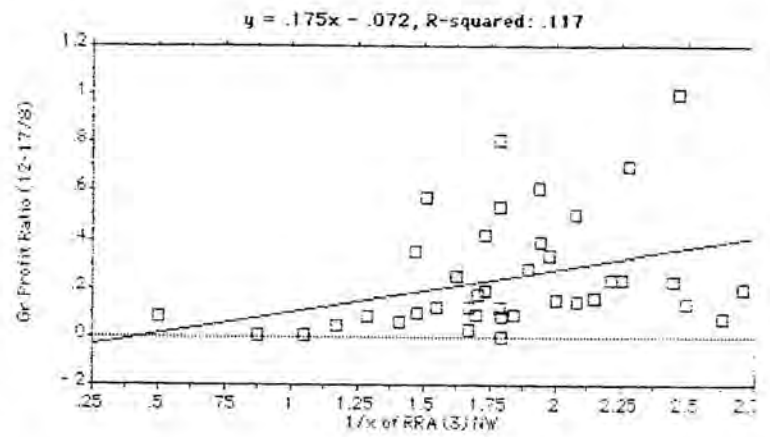
**Third Floor**



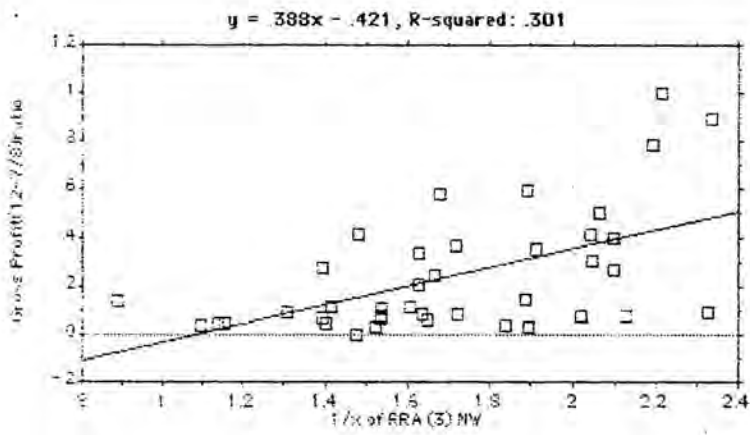
**Fourth Floor**



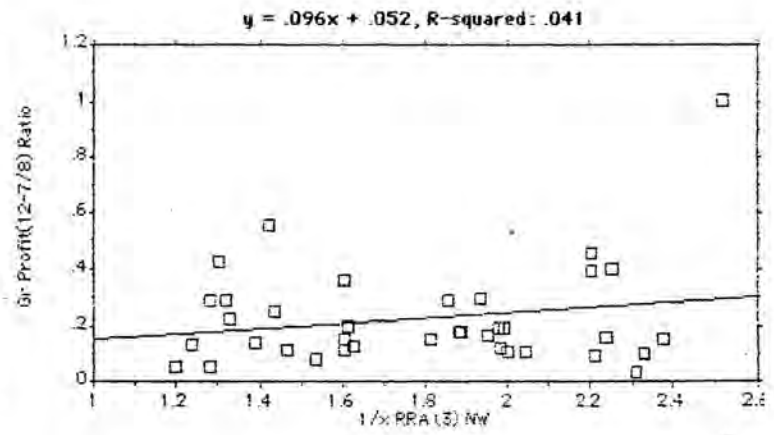
**Ground Floor**



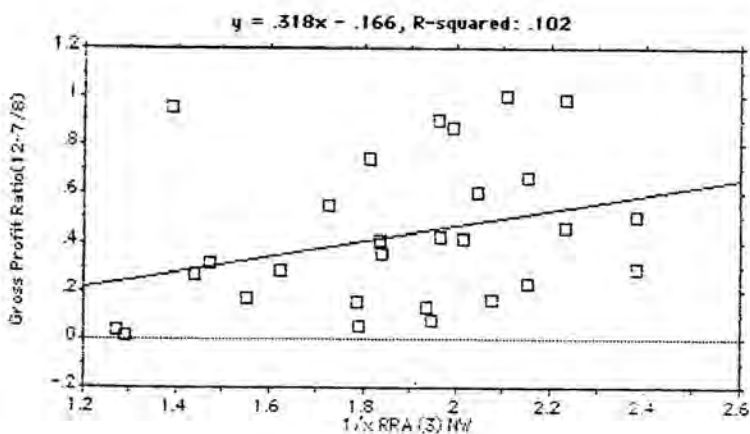
**Basement Floor**



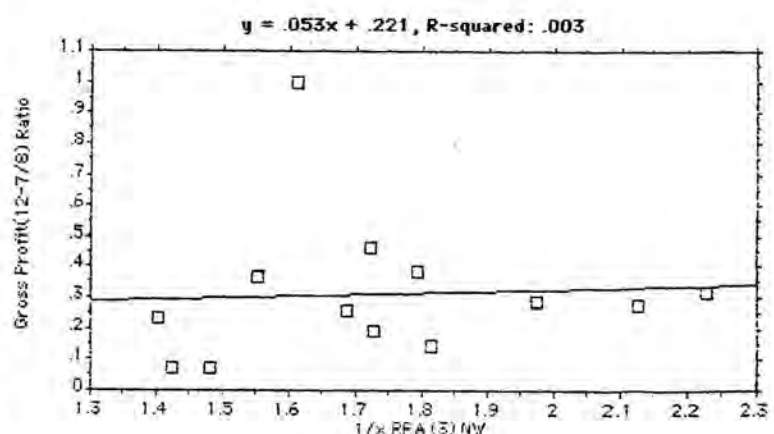
**First Floor**



**Second Floor**



**Third Floor**

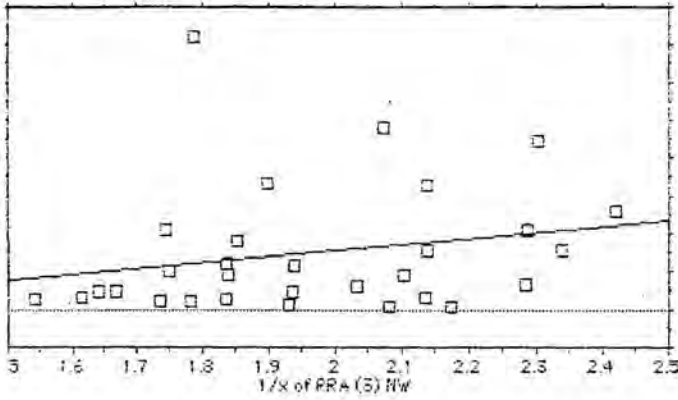


**Fourth Floor**

**Figures 4.26 a-f**

No of Items on Display (12-17 Aug)

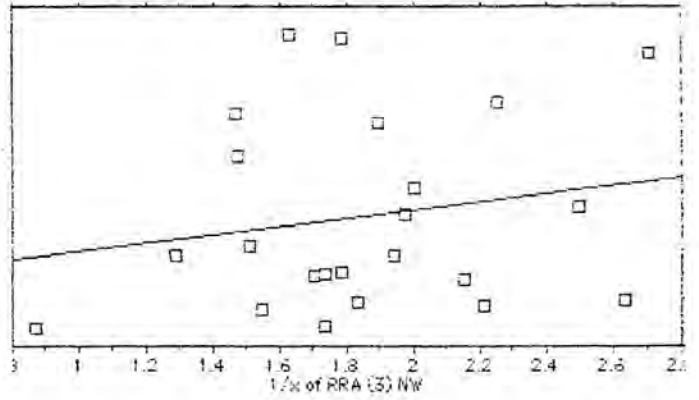
$y = 1566.492x - 1579.826$ , R-squared: .049



**Ground Floor**

No of Items on Display(12-17/8)

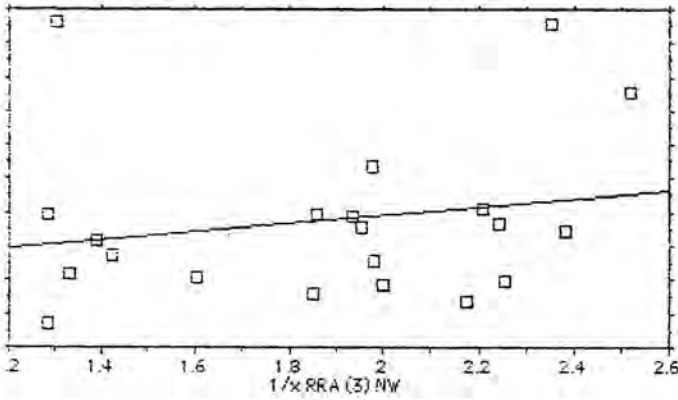
$y = 424.384x + 560.917$ , R-squared: .034



**Basement Floor**

No of Items Displayed (12-17 Aug)

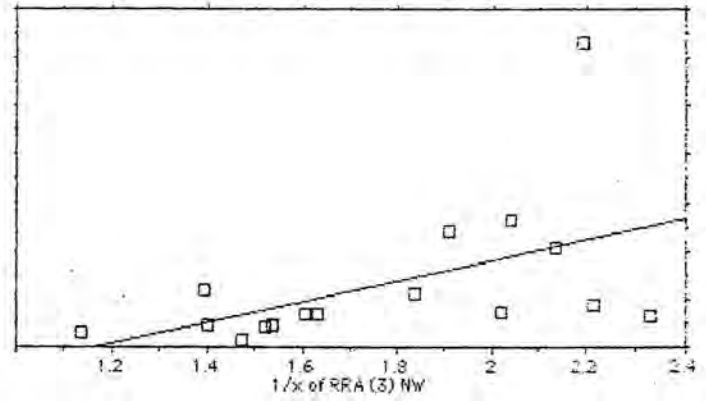
$y = 244.56x + 292.211$ , R-squared: .041



**First Floor**

No of Items Displayed (12-17 Aug)

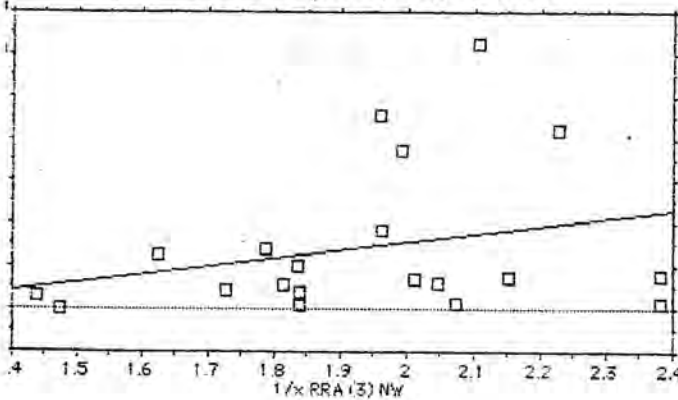
$y = 1081.458x - 1258.222$ , R-squared: .254



**Second Floor**

No of Items Displayed

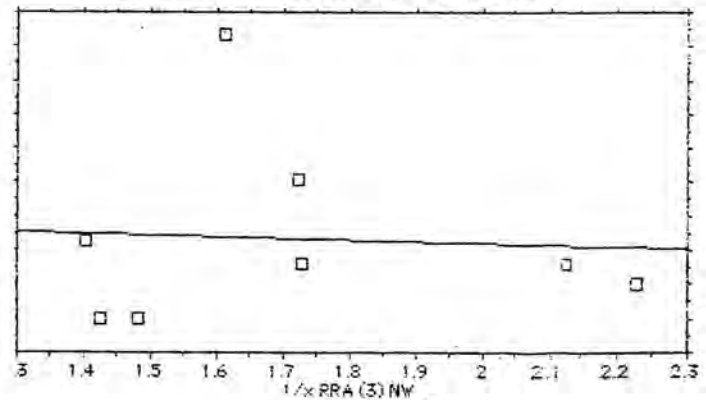
$y = 3728.151x - 4290.601$ , R-squared: .074



**Third Floor**

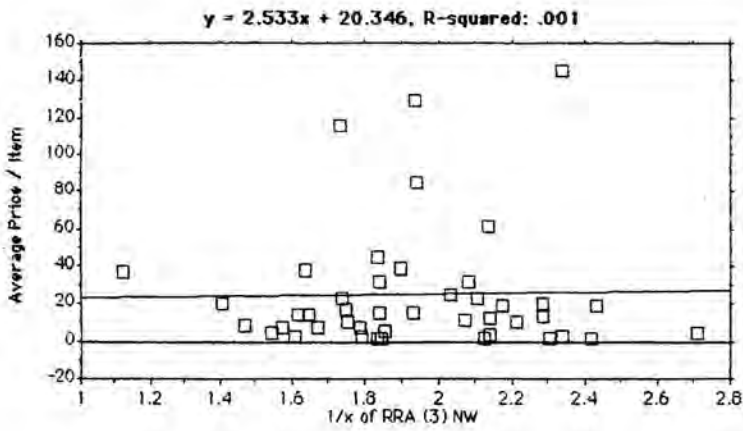
No of Items on Display(12-17Aug)

$y = -242.211x + 2096.709$ , R-squared: .003

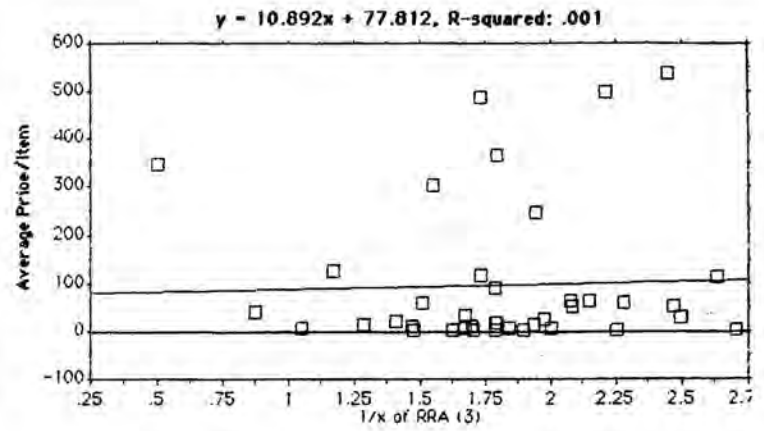


**Fourth Floor**

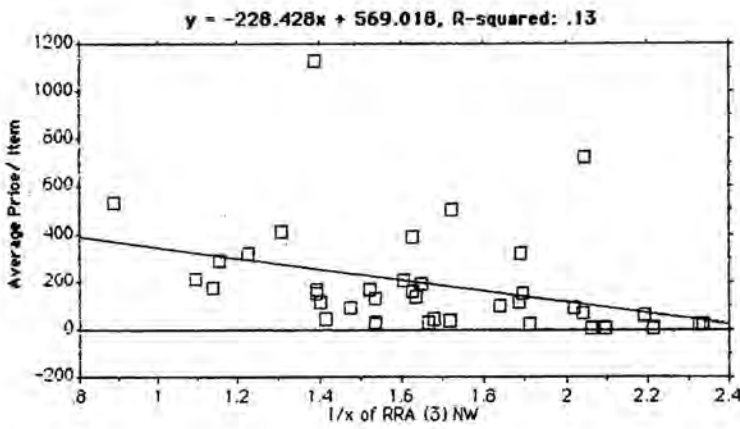
**Figures 427 a-f**



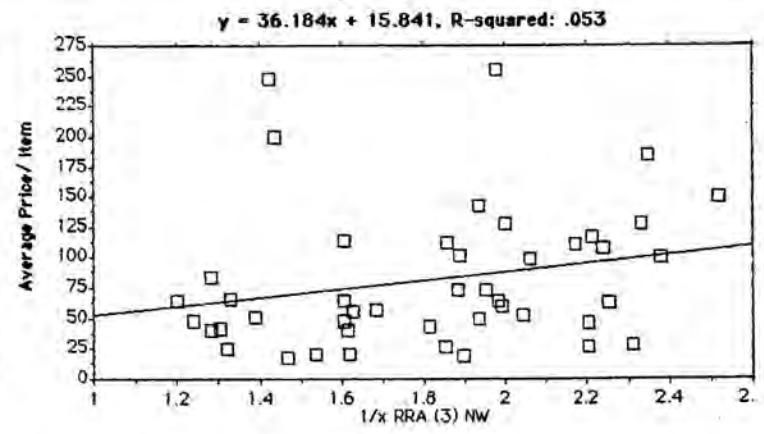
Ground Floor



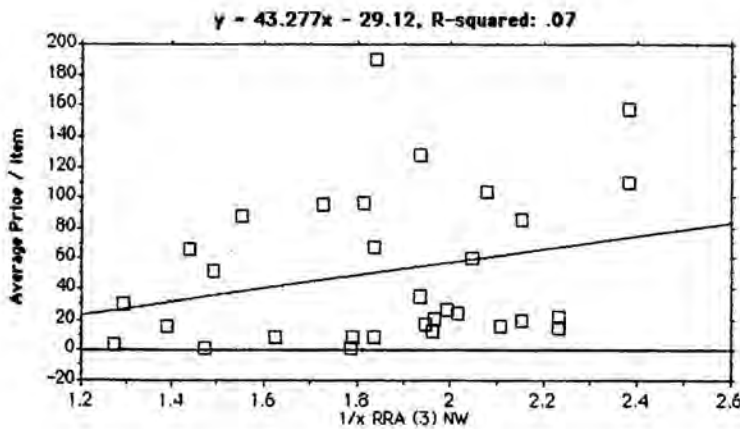
Basement Floor



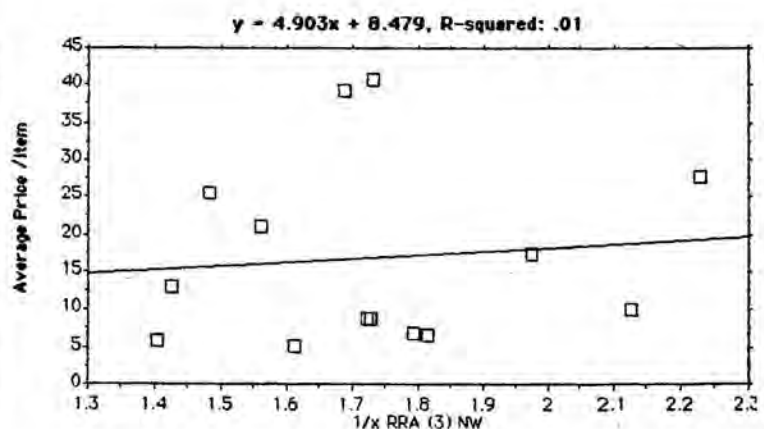
First Floor



Second Floor



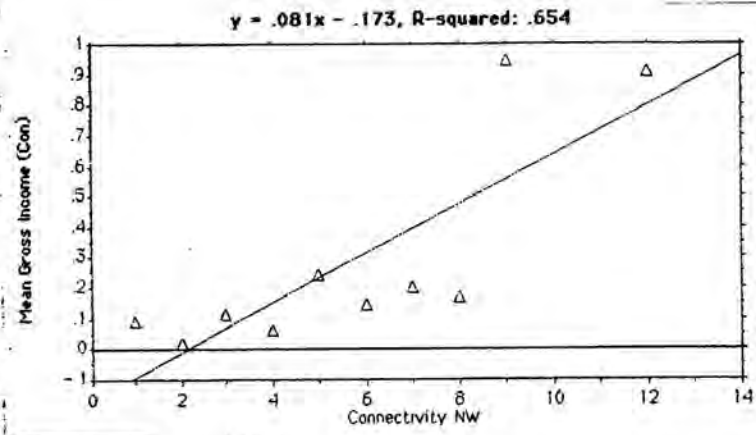
Third Floor



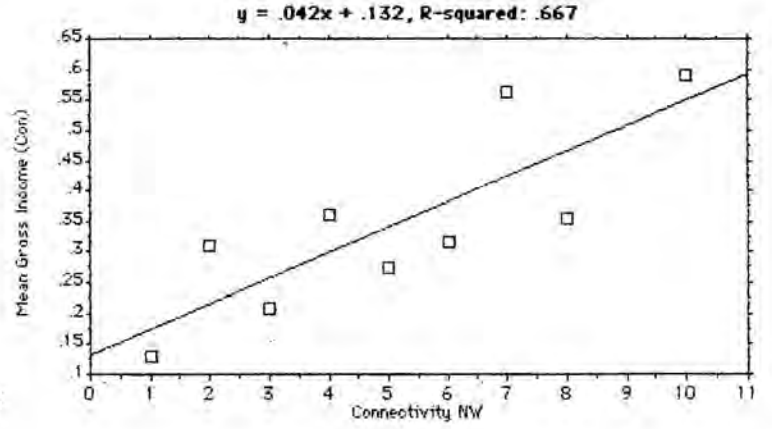
Fourth Floor

Figures 4.28 a-f

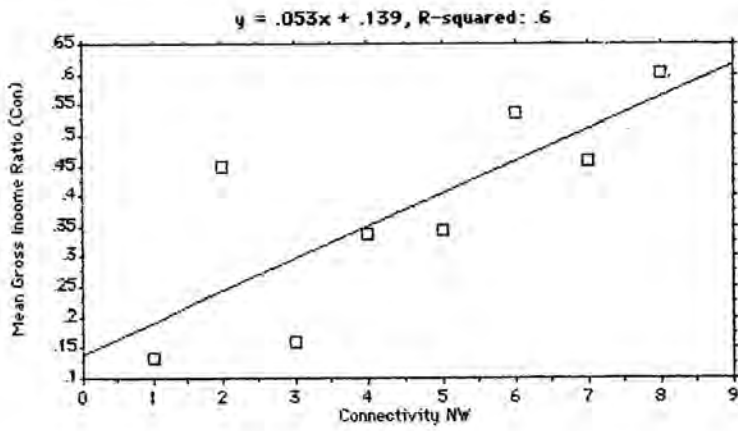




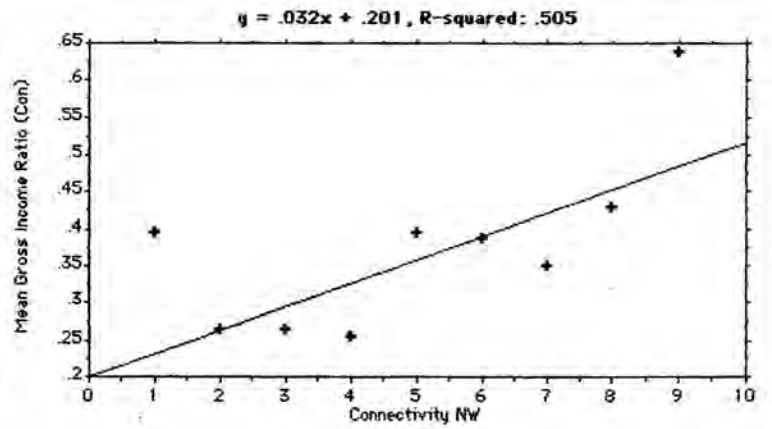
Ground Floor



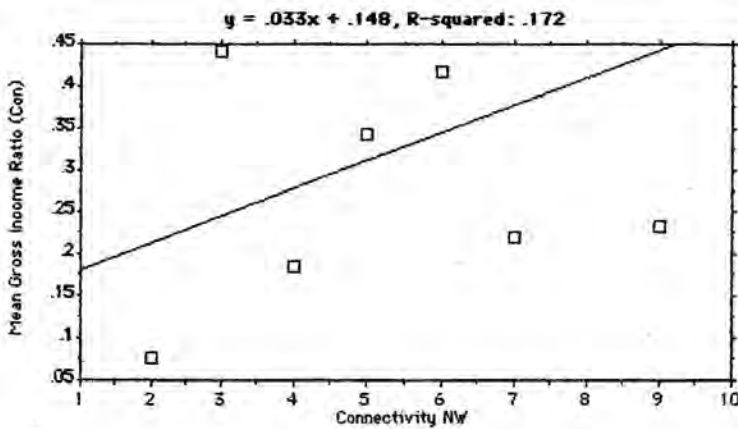
Basement Floor



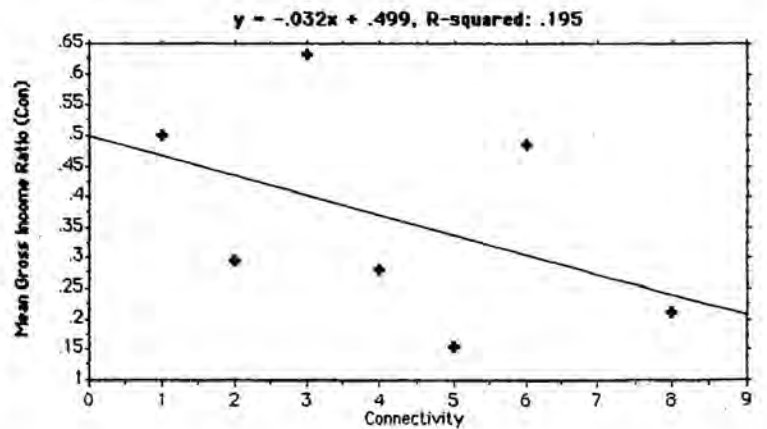
First Floor



Second Floor

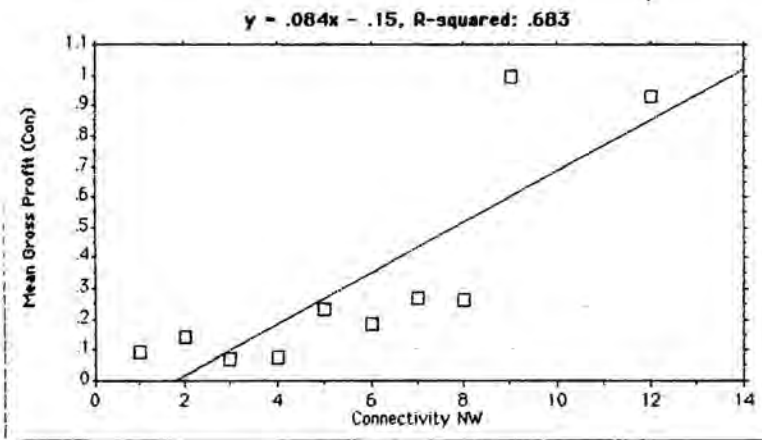


Third Floor

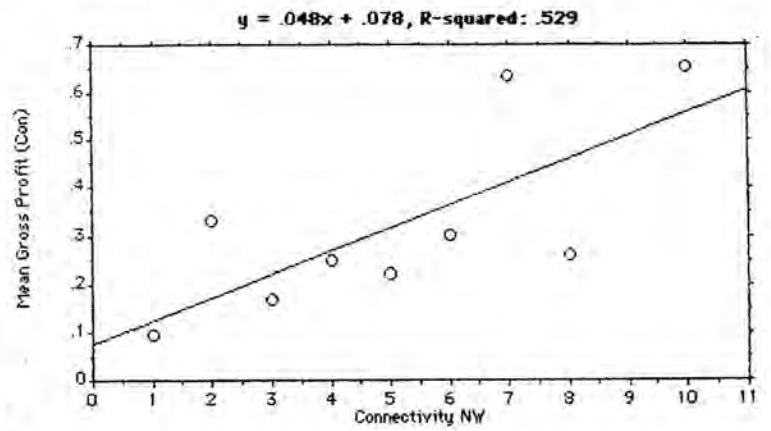


Fourth Floor

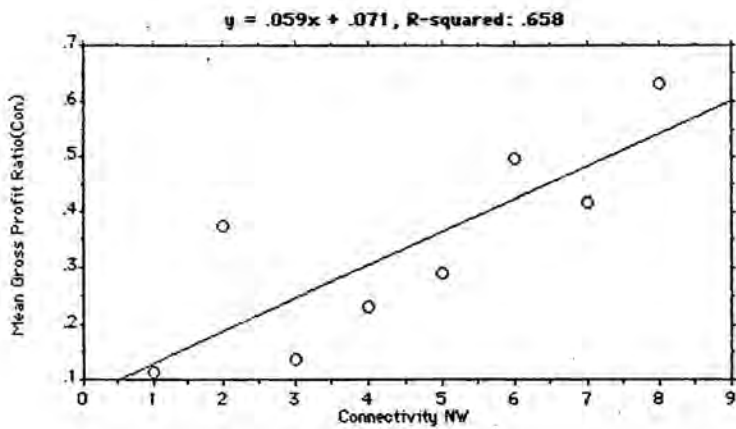
Figures 4.35 a-f



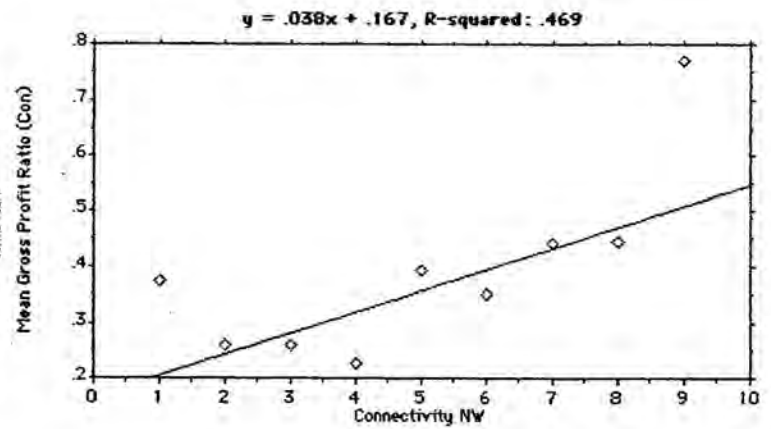
**Ground Floor**



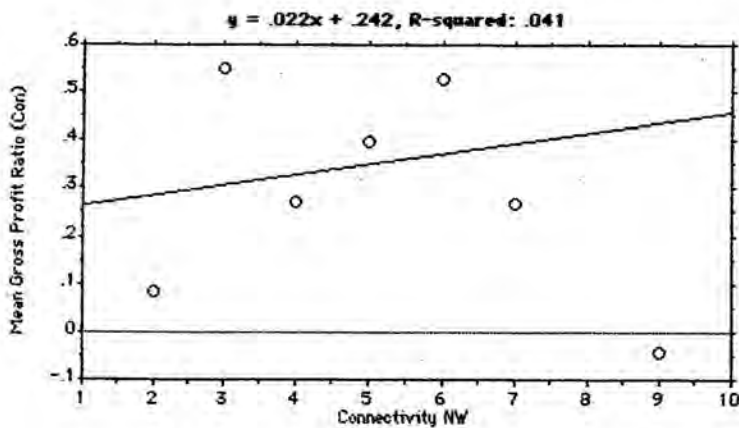
**Basement Floor**



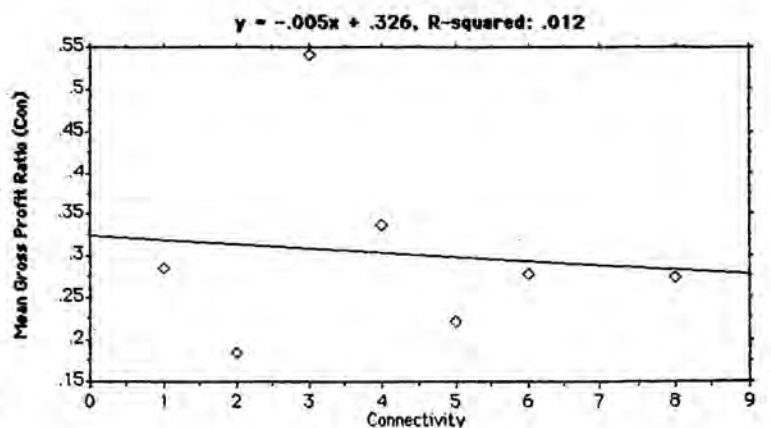
**First Floor**



**Second Floor**

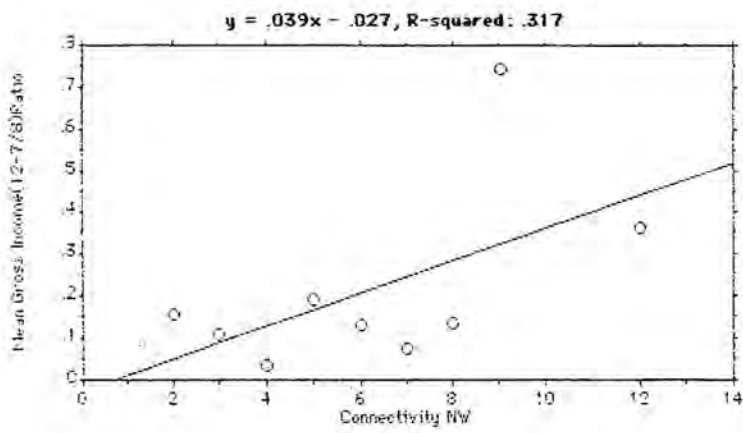


**Third Floor**

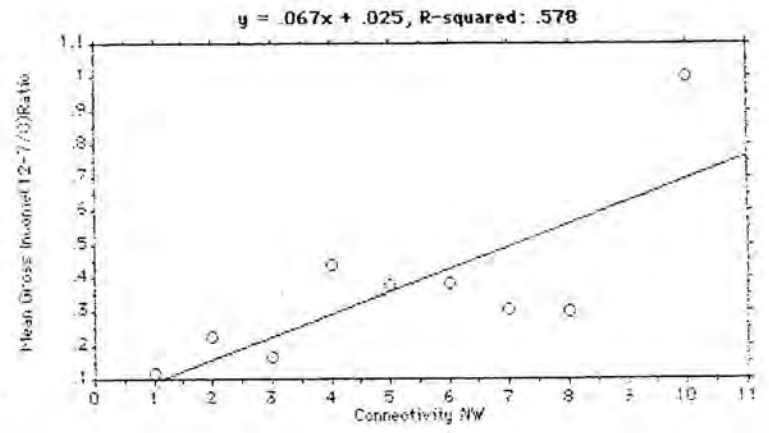


**Fourth Floor**

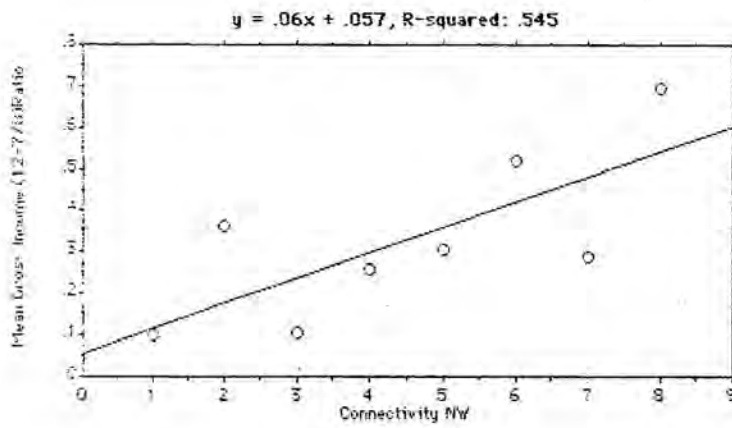
**Figures 4.36 a-f**



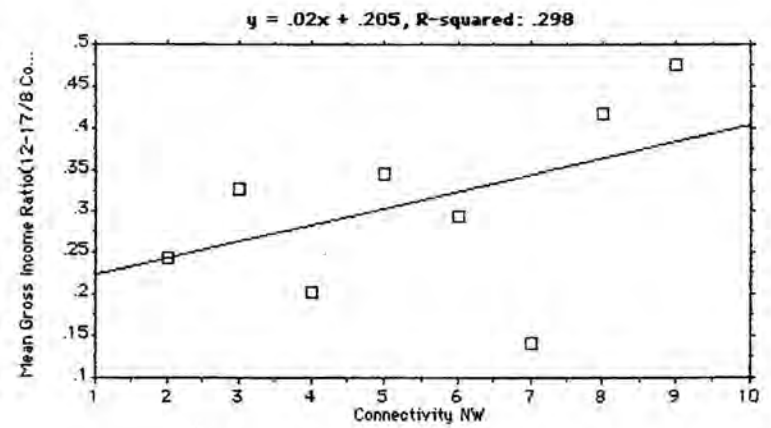
**Ground Floor**



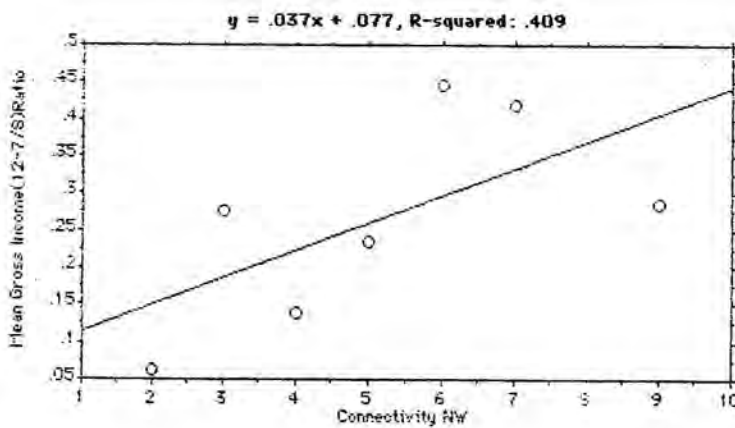
**Basement Floor**



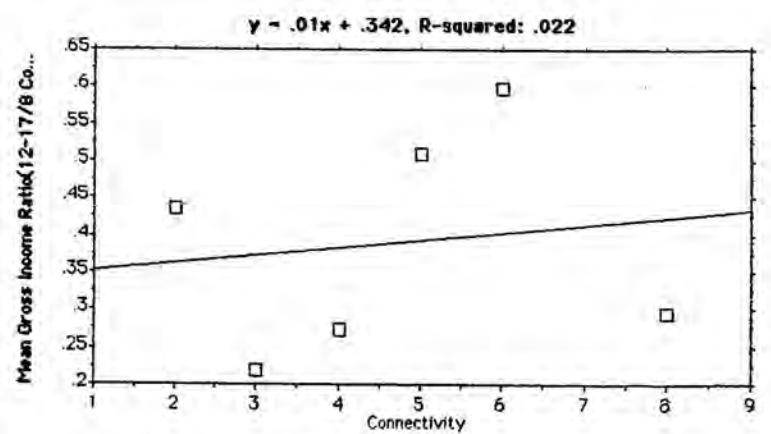
**First Floor**



**Second Floor**

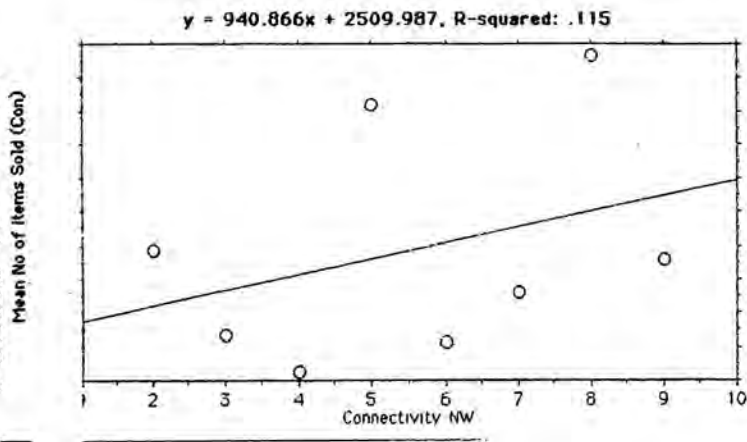


**Third Floor**

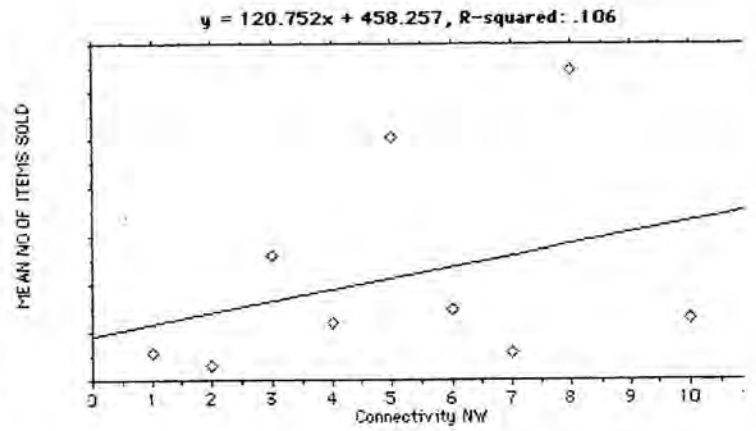


**Fourth Floor**

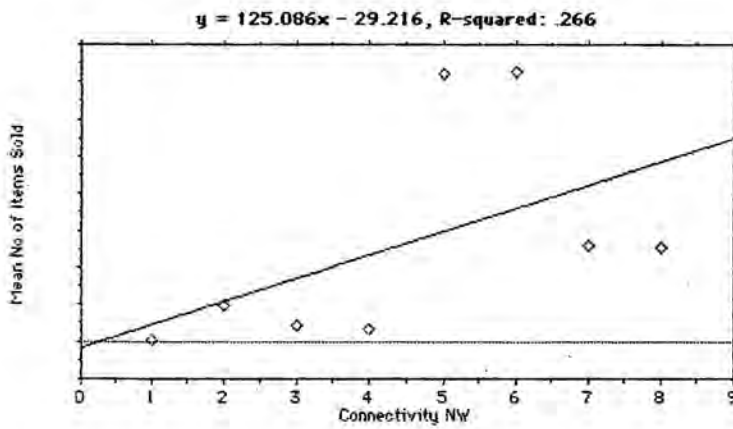
**Figures 4.37 a-f**



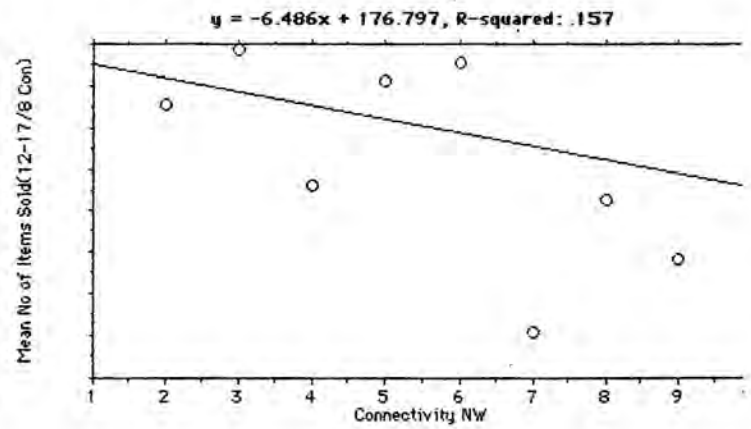
**Ground Floor**



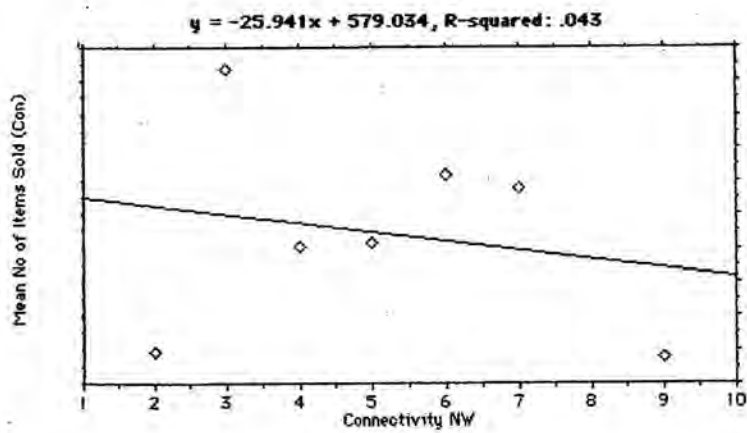
**Basement Floor**



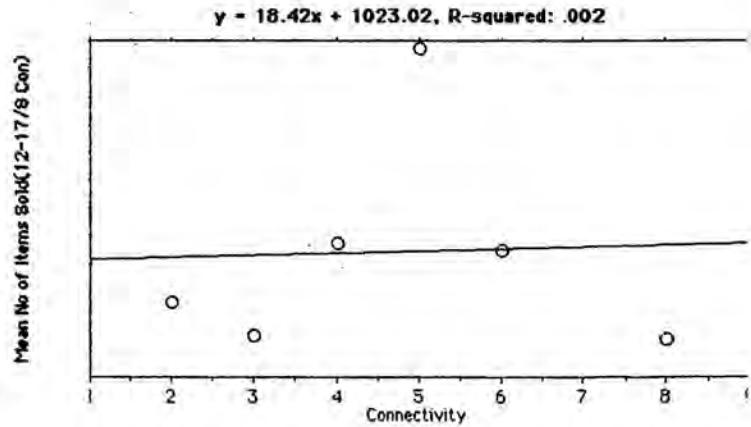
**First Floor**



**Second Floor**

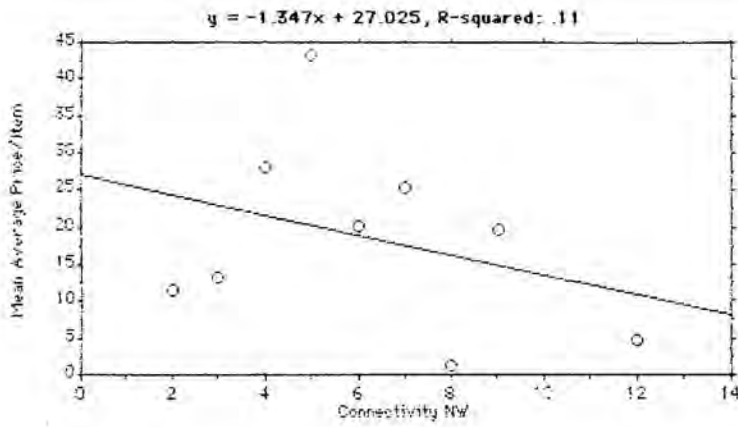


**Third Floor**

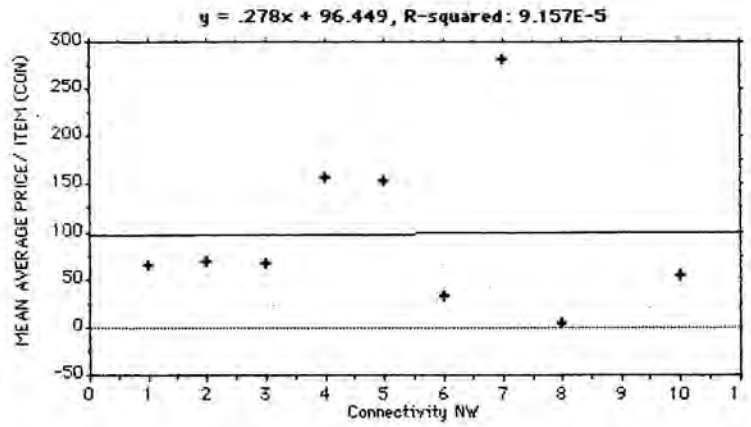


**Fourth Floor**

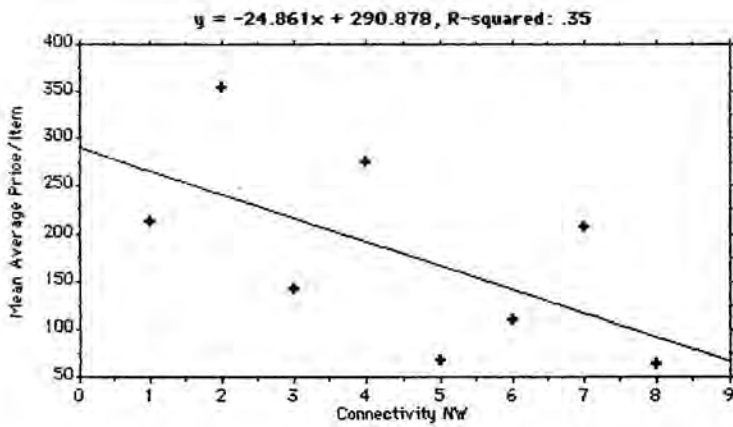
**Figures 4.39 a-f**



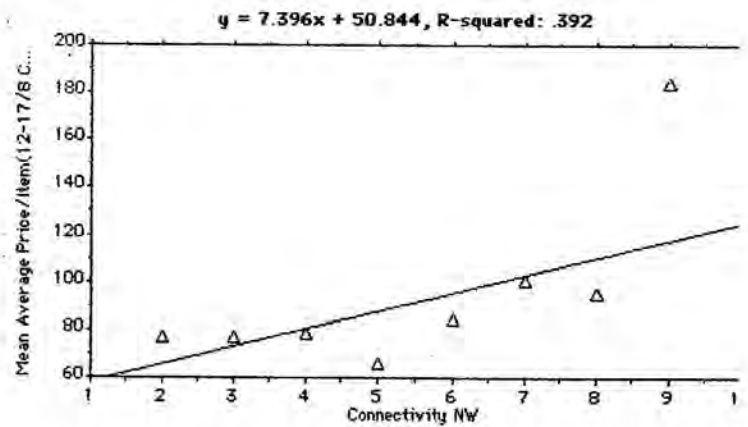
**Ground Floor**



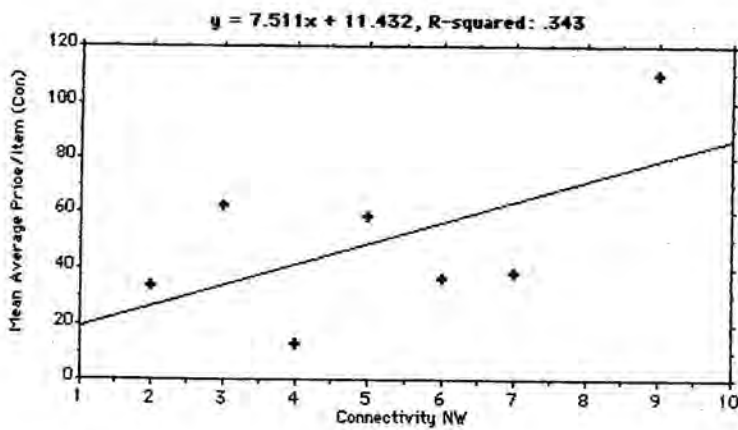
**Basement Floor**



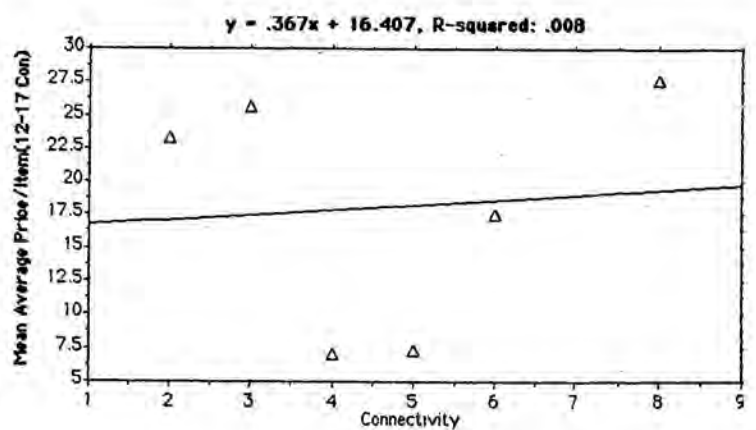
**First Floor**



**Second Floor**

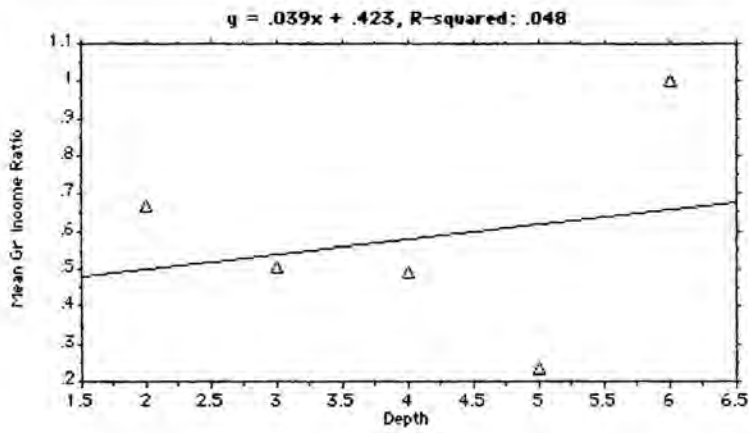


**Third Floor**

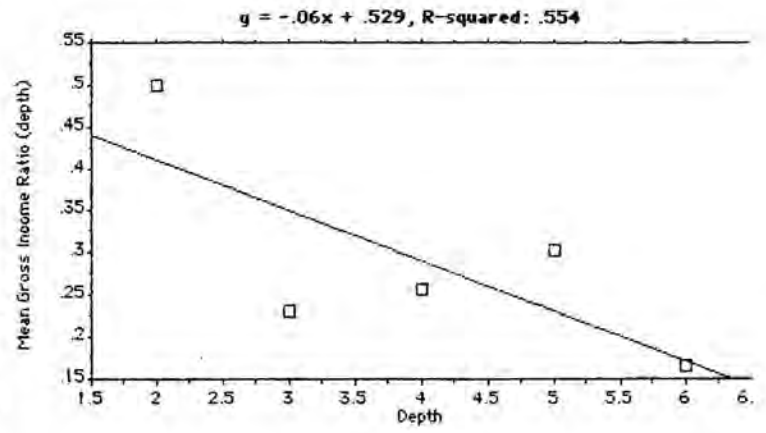


**Fourth Floor**

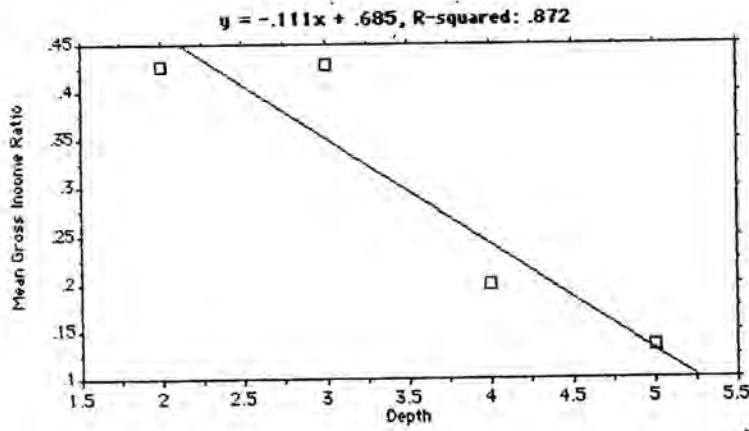
**Figures 4.40 a-f**



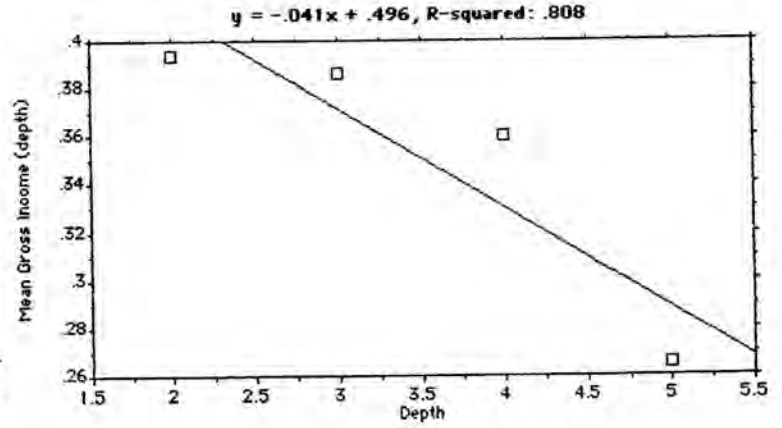
**Ground Floor**



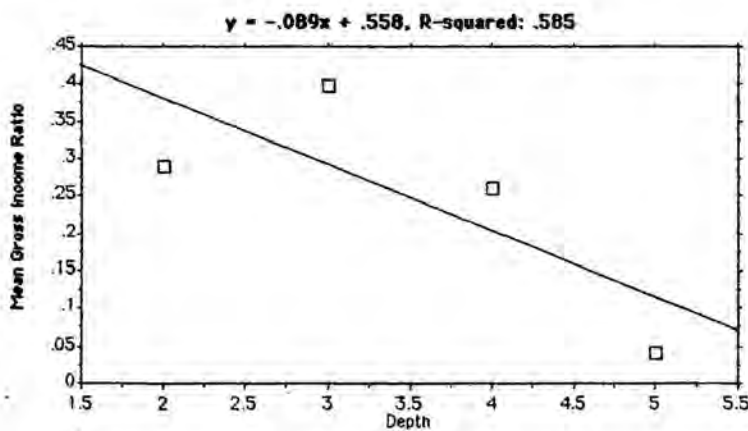
**Basement Floor**



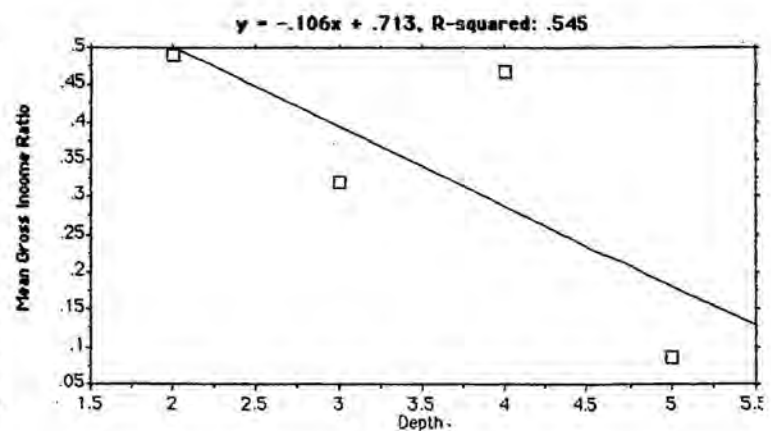
**First Floor**



**Second Floor**

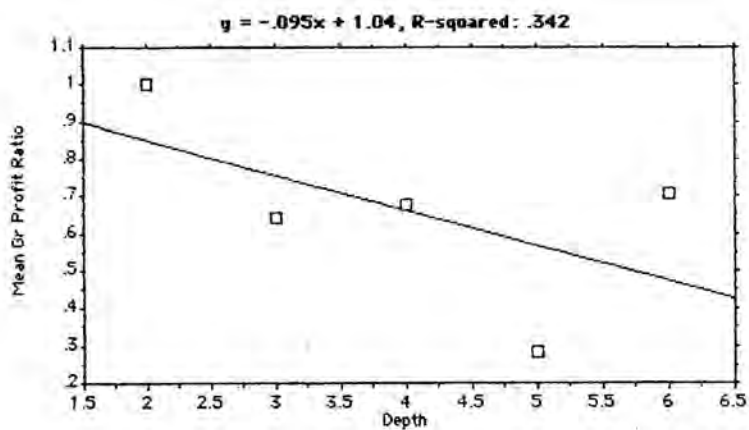


**Third Floor**

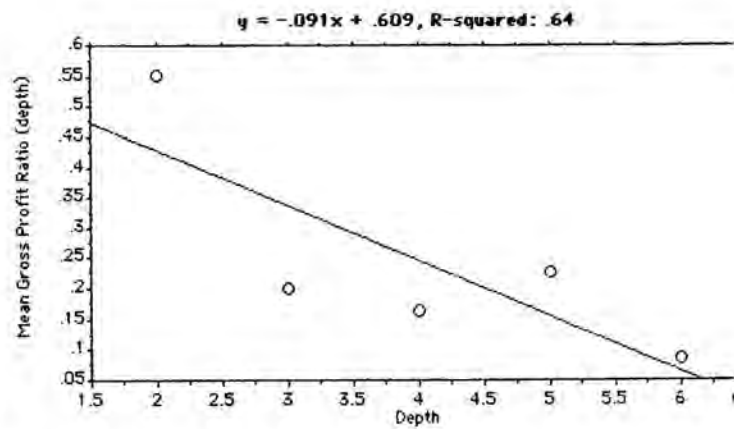


**Fourth Floor**

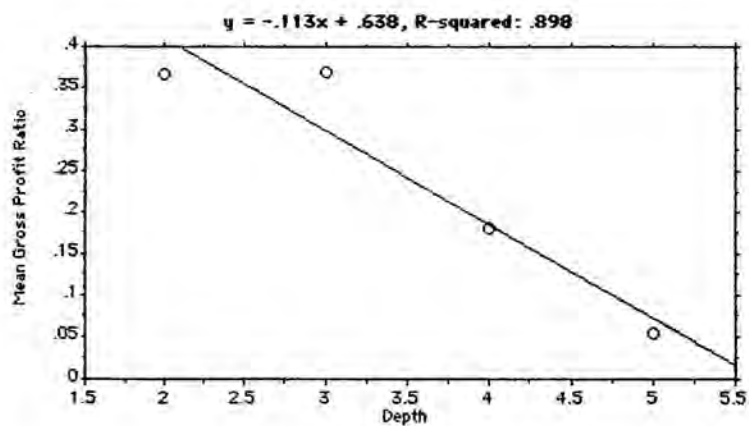
**Figures 4.47 a-f**



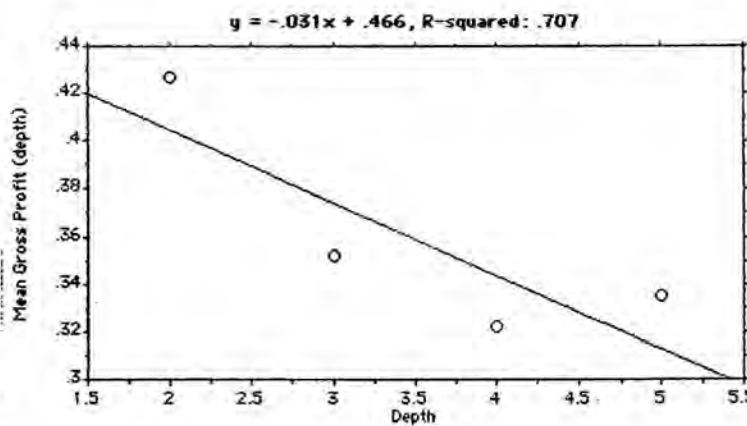
**Ground Floor**



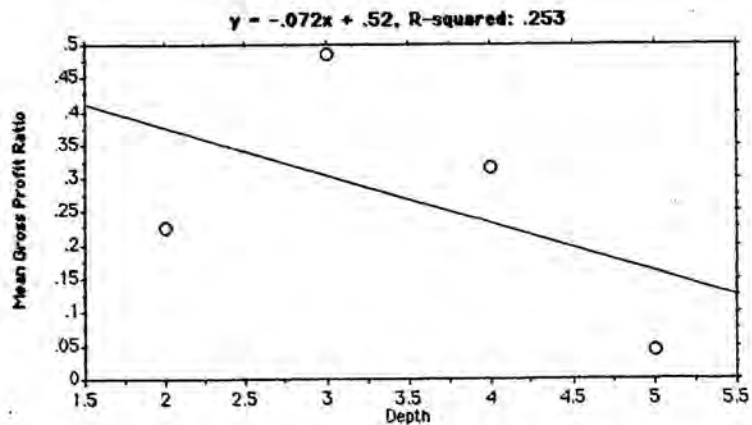
**Basement Floor**



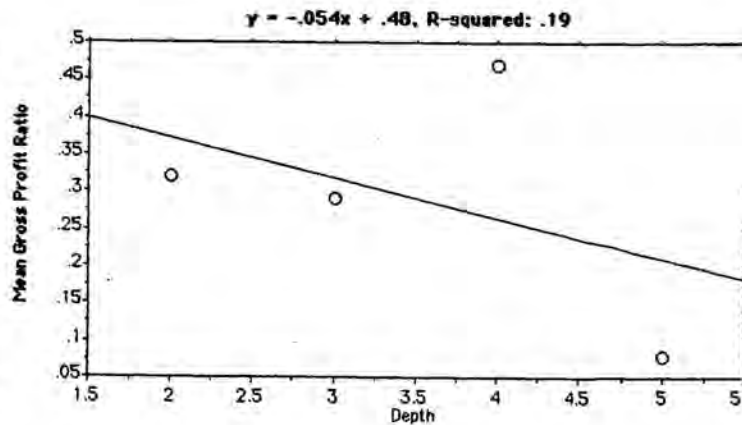
**First Floor**



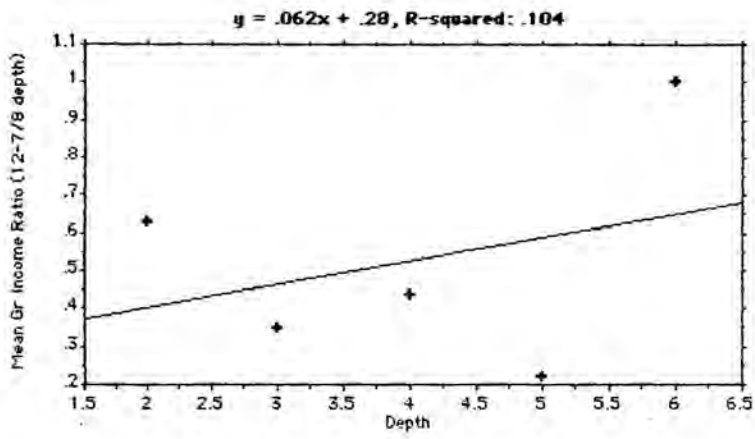
**Second Floor**



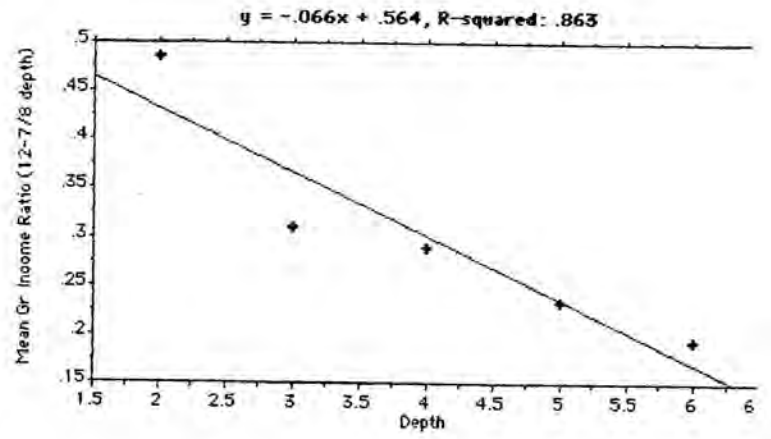
**Third Floor**



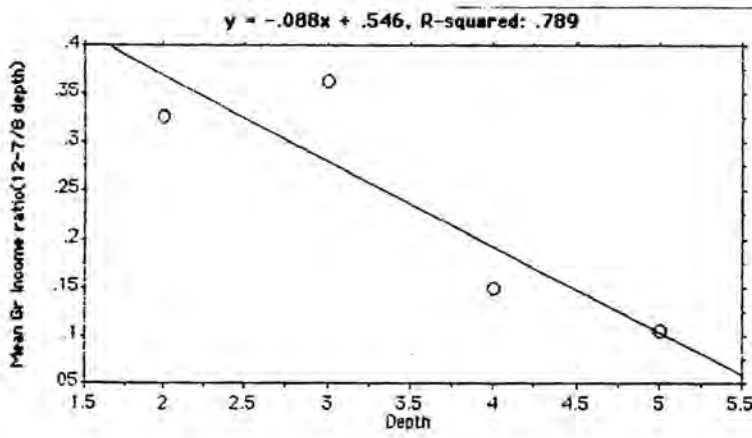
**Fourth Floor**



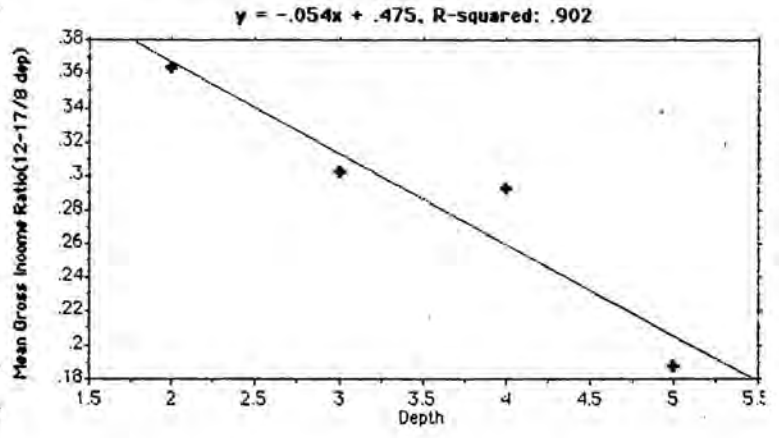
Ground Floor



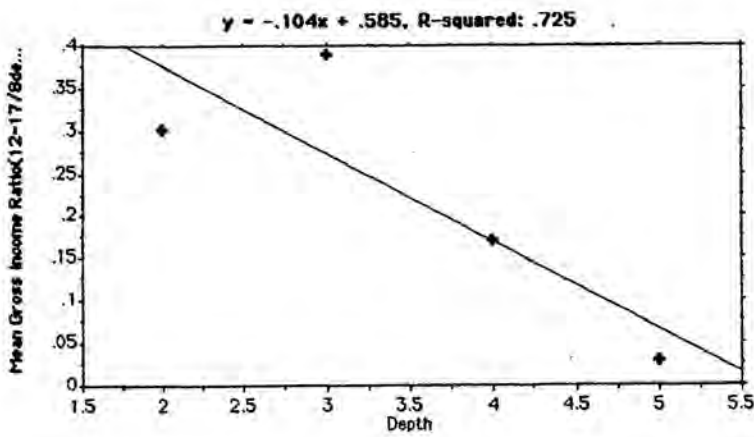
Basement Floor



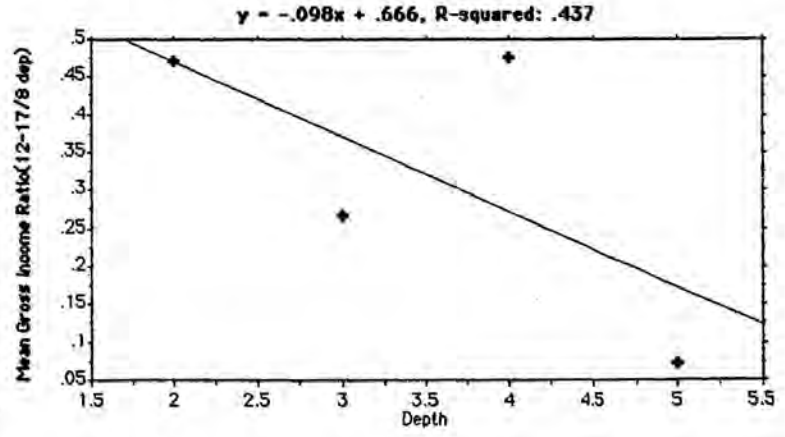
First Floor



Second Floor



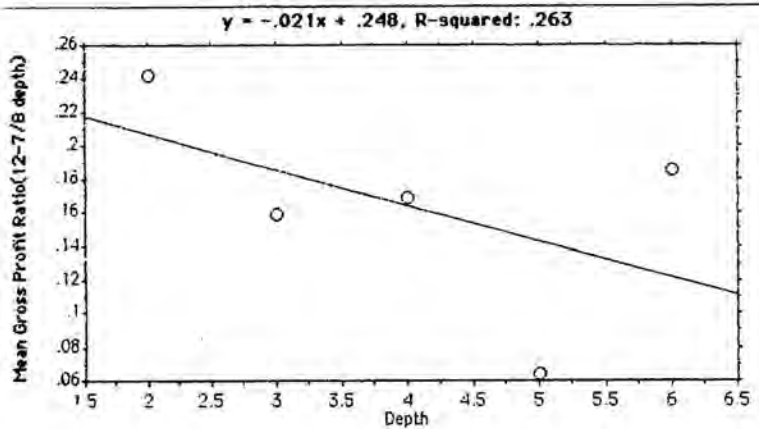
Third Floor



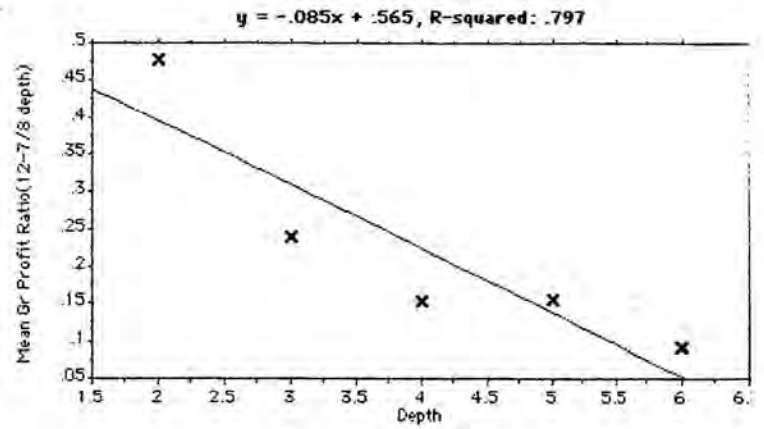
Fourth Floor

Figures 4.49 a-f

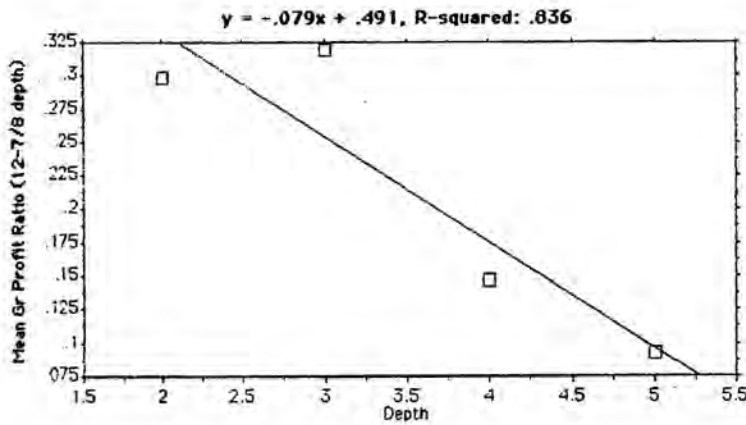




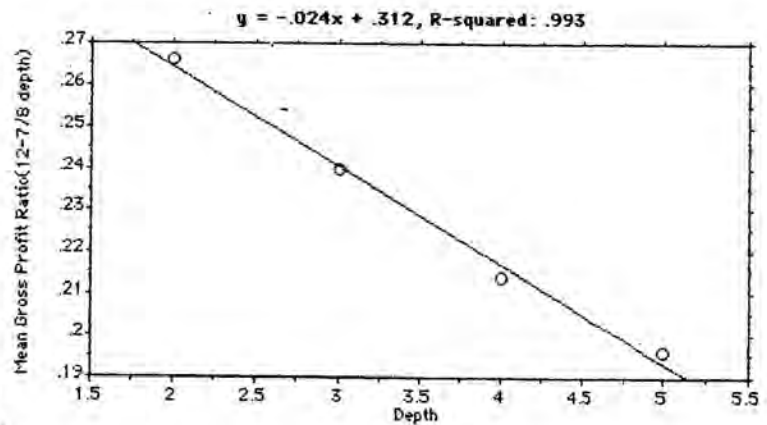
**Ground Floor**



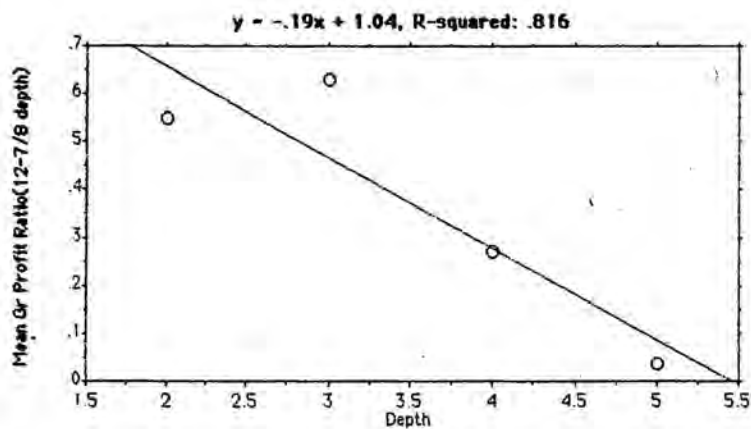
**Basement Floor**



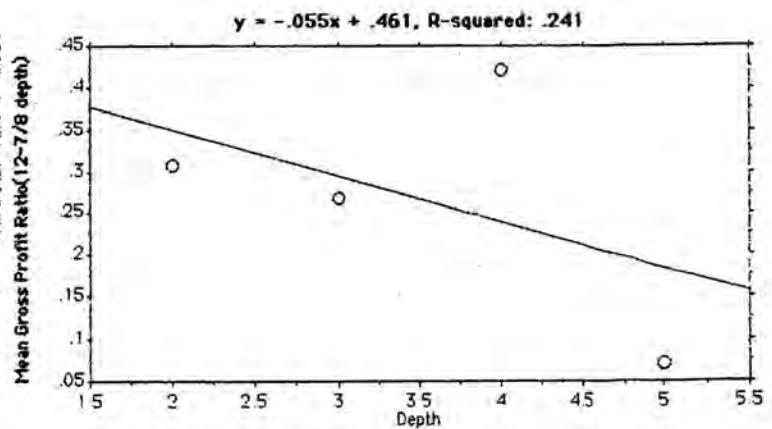
**First Floor**



**Second Floor**

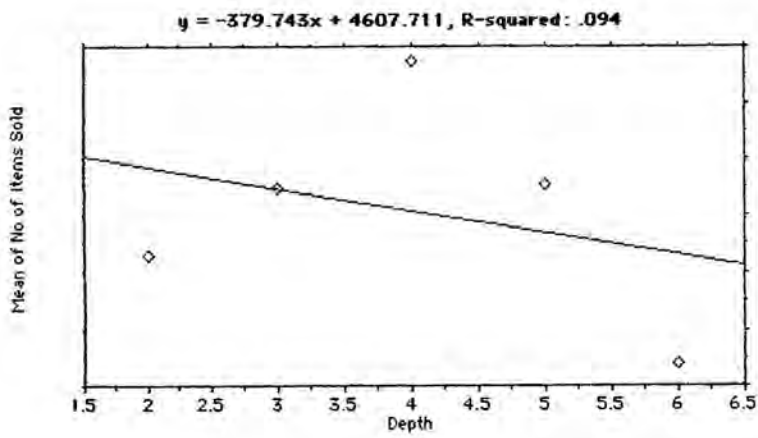


**Third Floor**

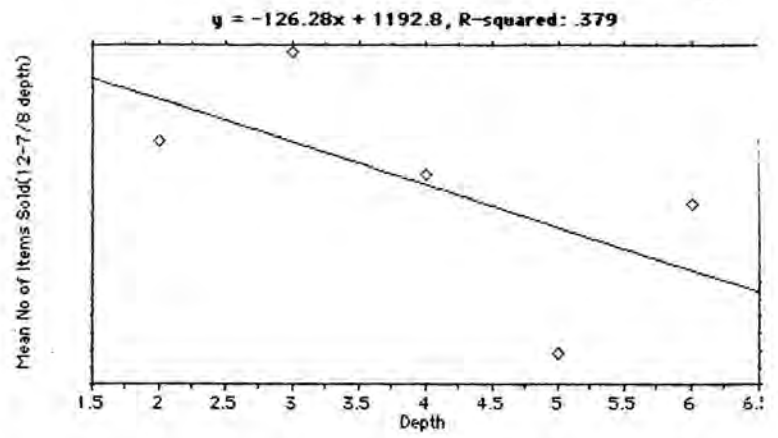


**Fourth Floor**

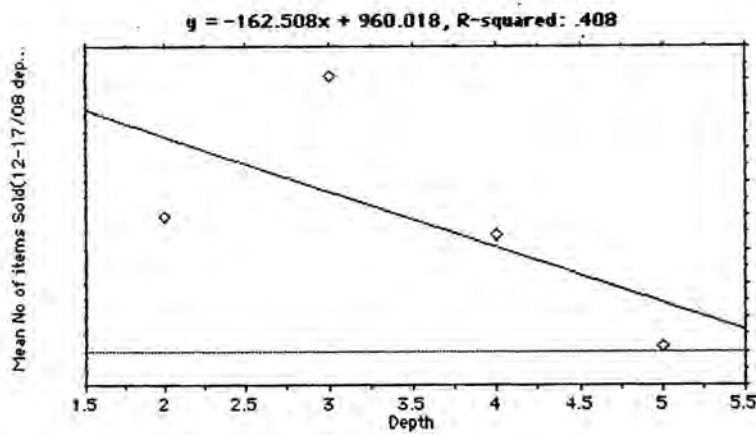
**Figures 4.50 a-f**



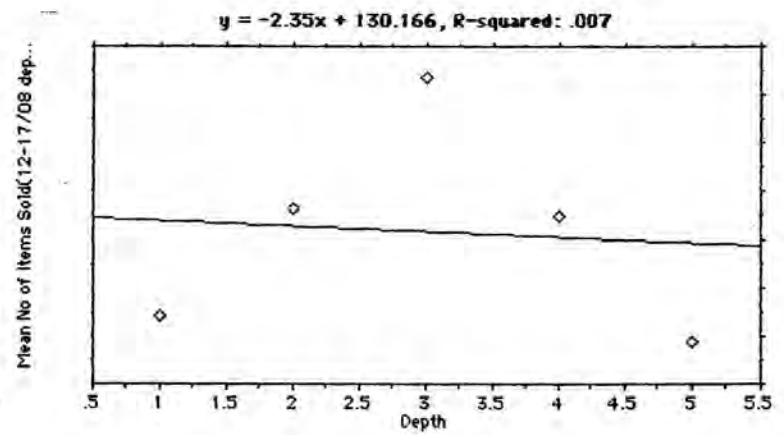
Ground Floor



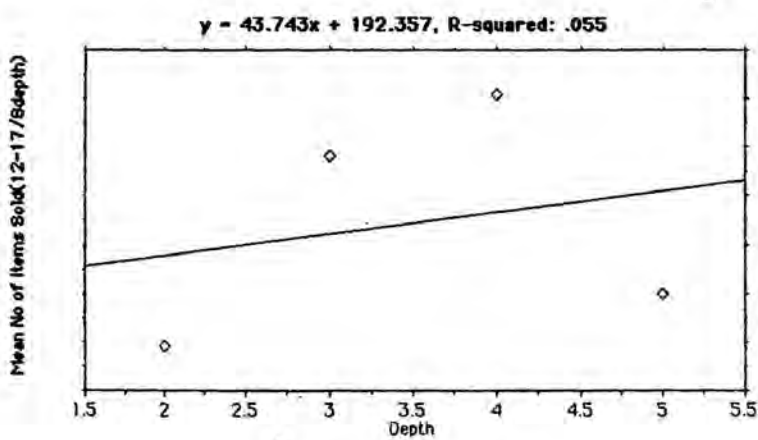
Basement Floor



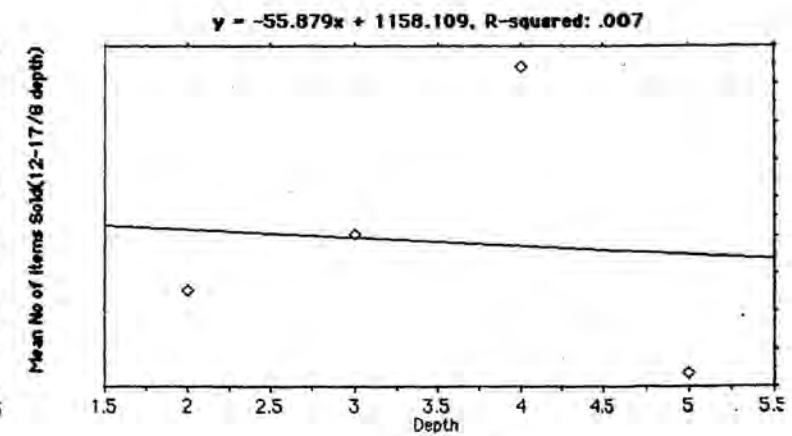
First Floor



Second Floor

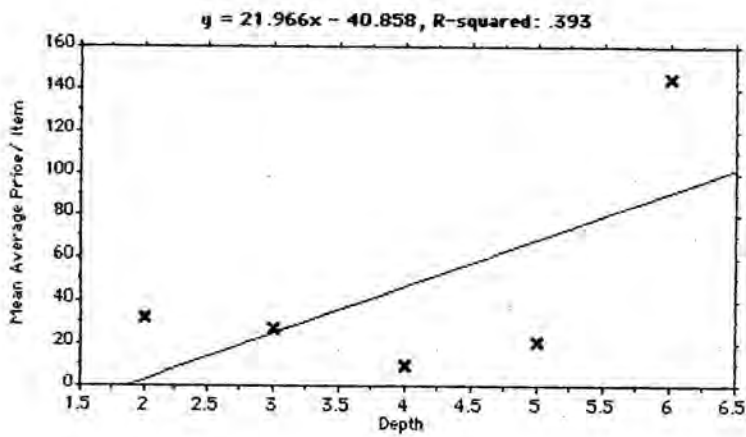


Third Floor

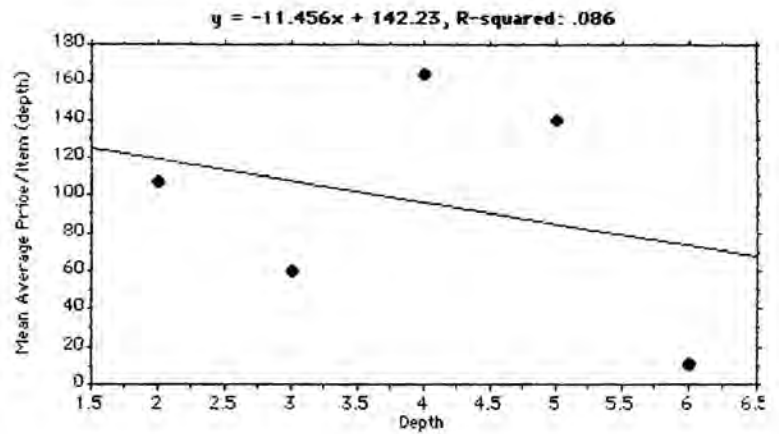


Fourth Floor

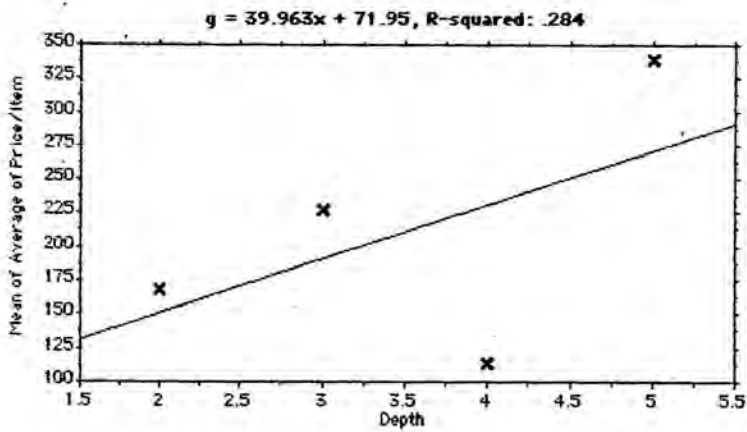
Figures 4.51 a-f



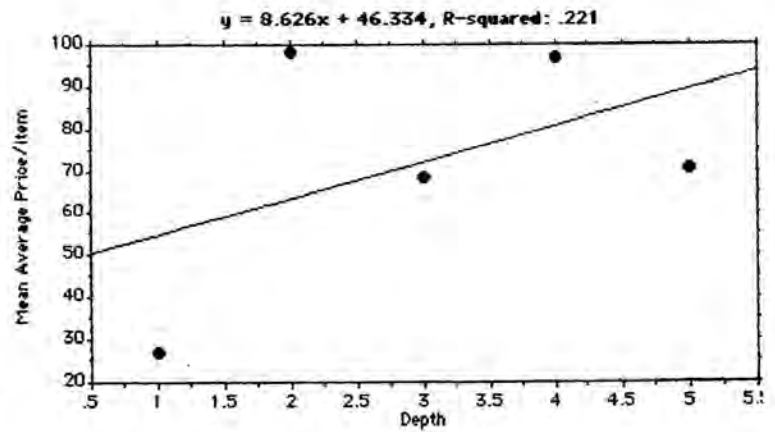
Ground Floor



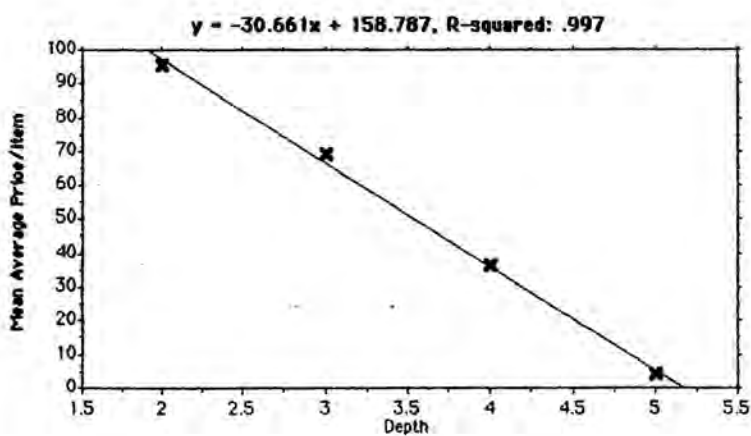
Basement Floor



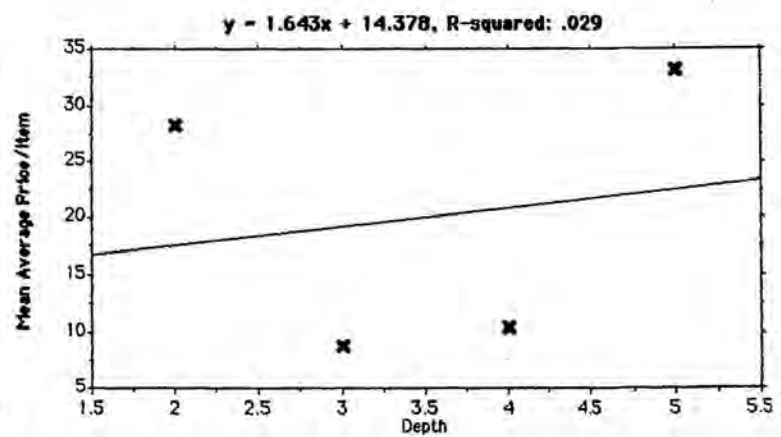
First Floor



Second Floor

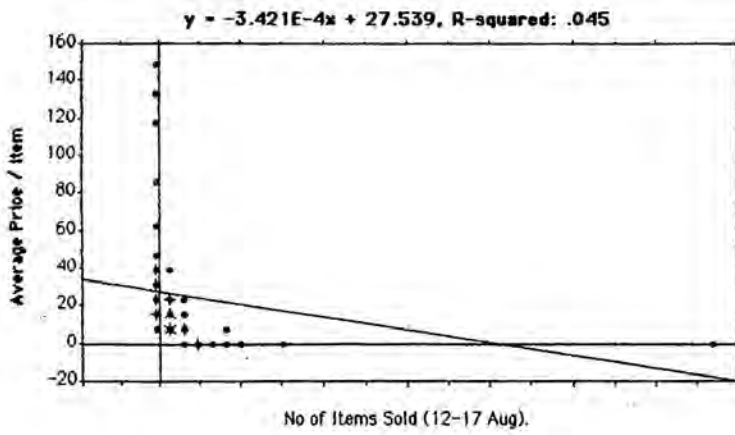


Third Floor

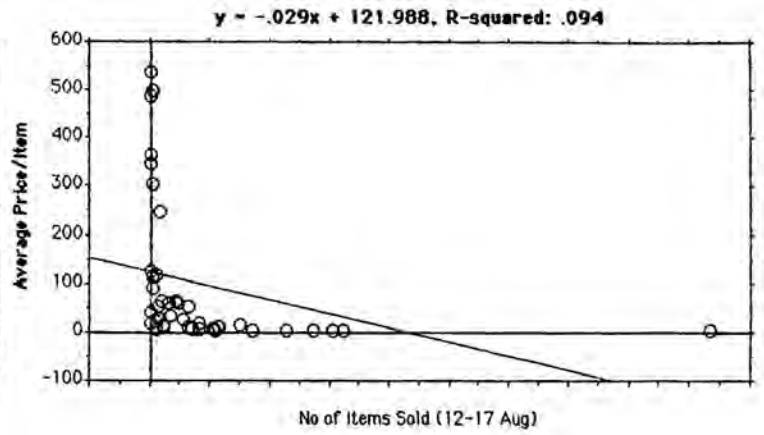


Fourth Floor

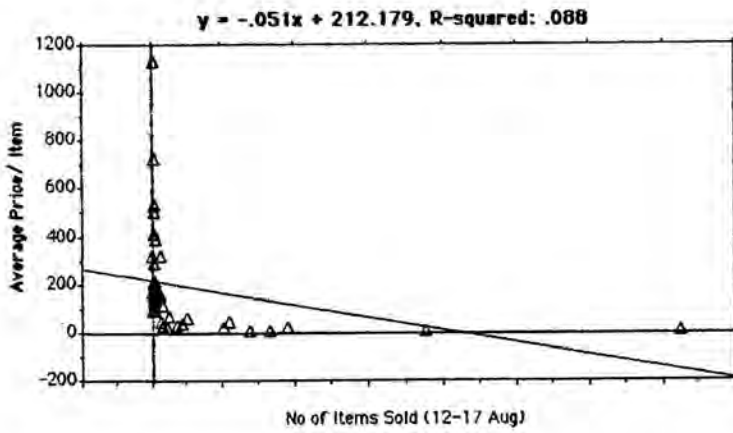
Figures 4.52 a-f



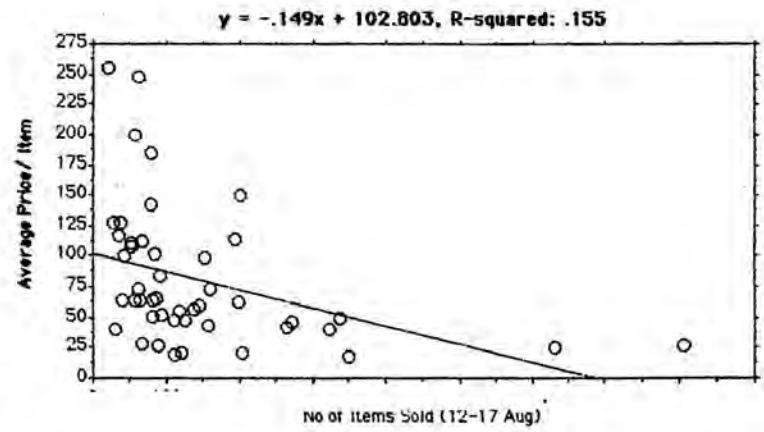
**Ground Floor**



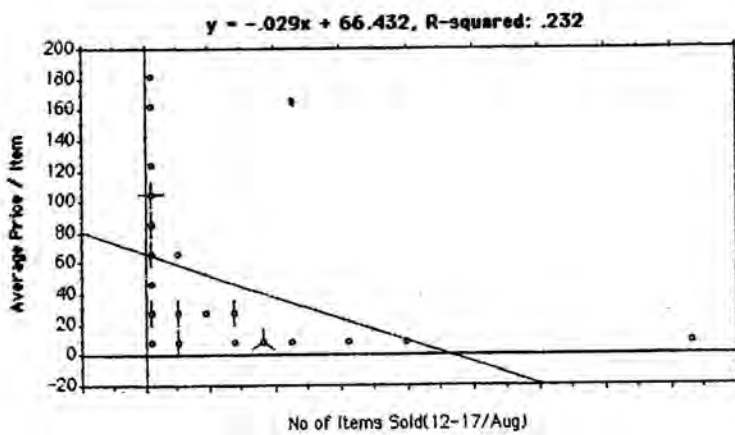
**Basement Floor**



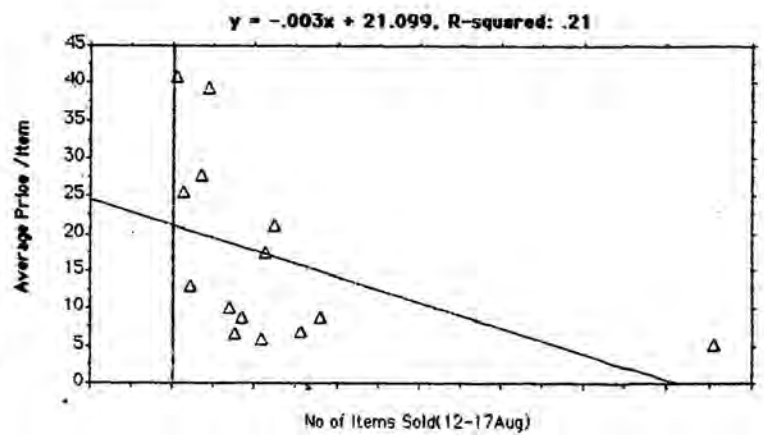
**First Floor**



**Second Floor**

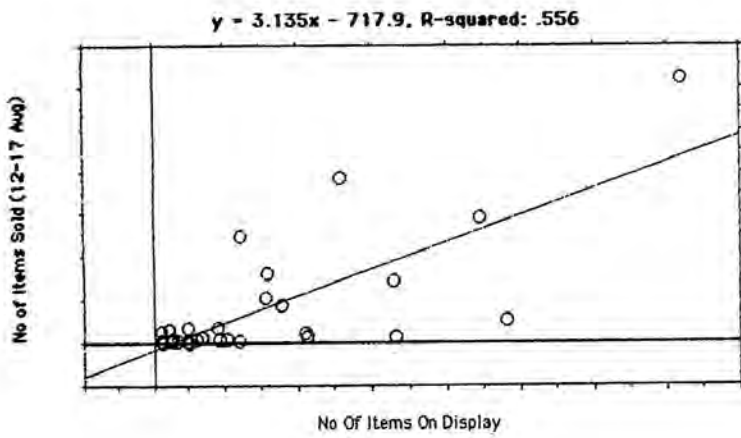


**Third Floor**

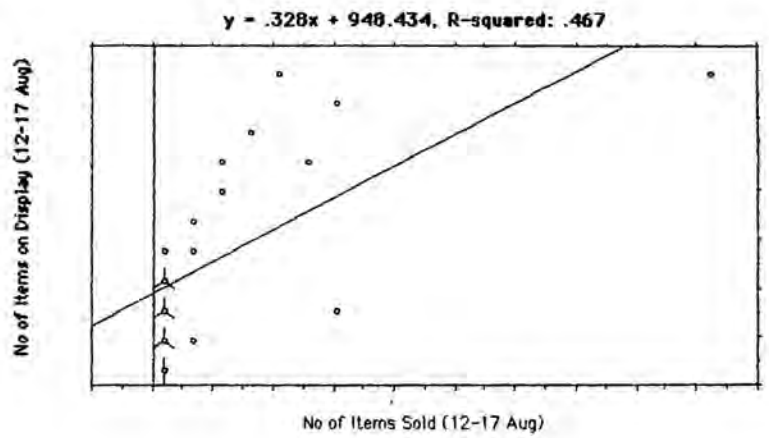


**Fourth Floor**

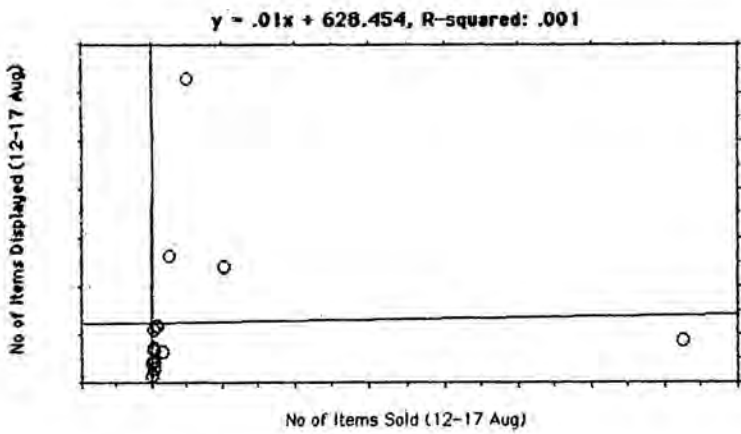
**Figures 4.61 a-f**



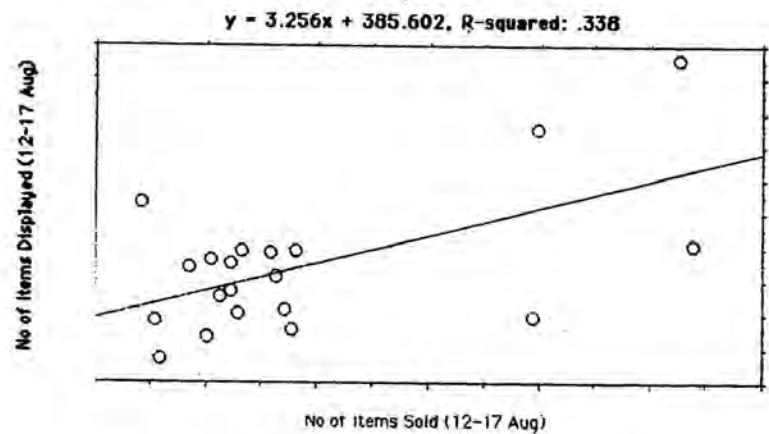
**Ground Floor**



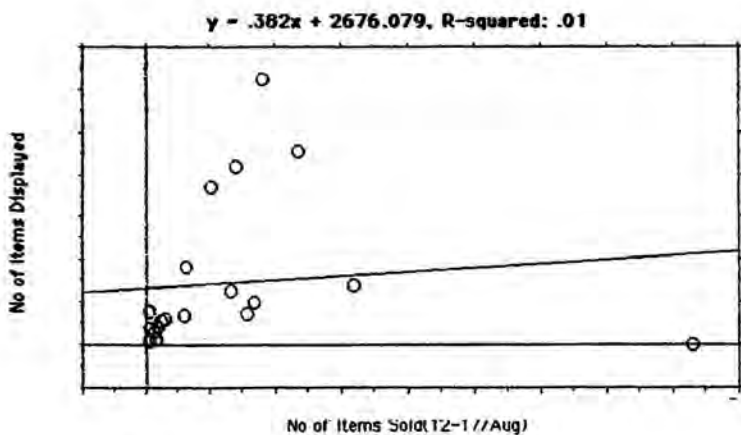
**Basement Floor**



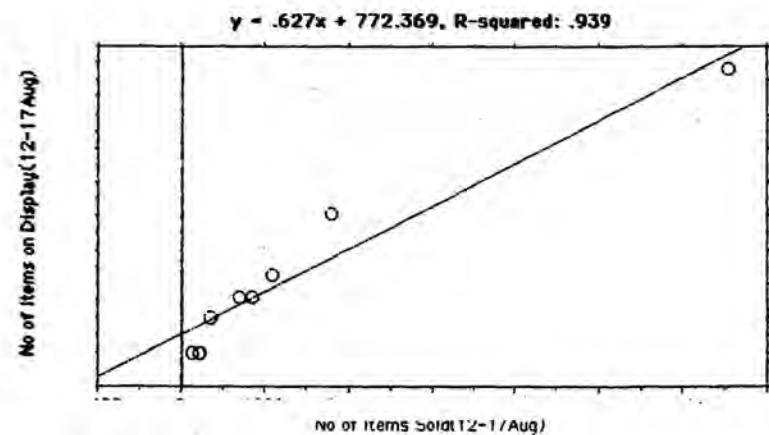
**First Floor**



**Second Floor**

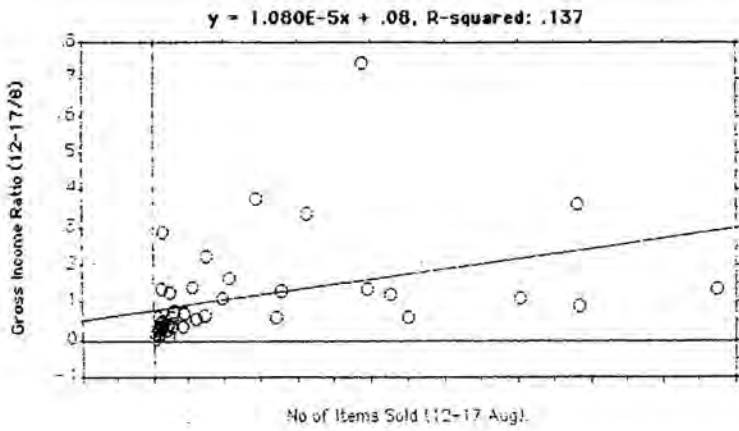


**Third Floor**

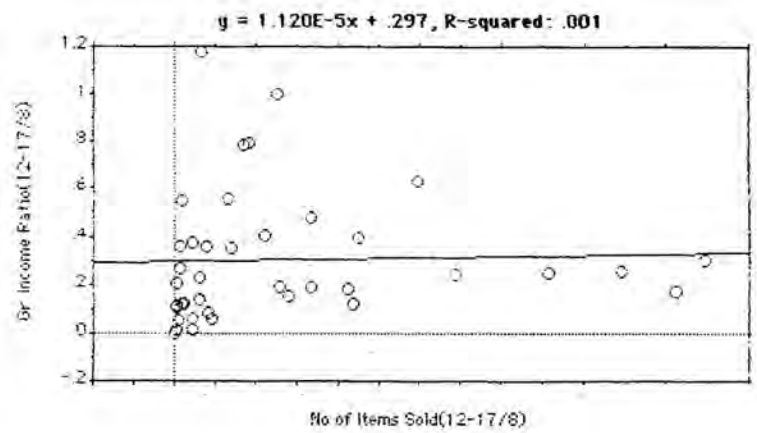


**Fourth Floor**

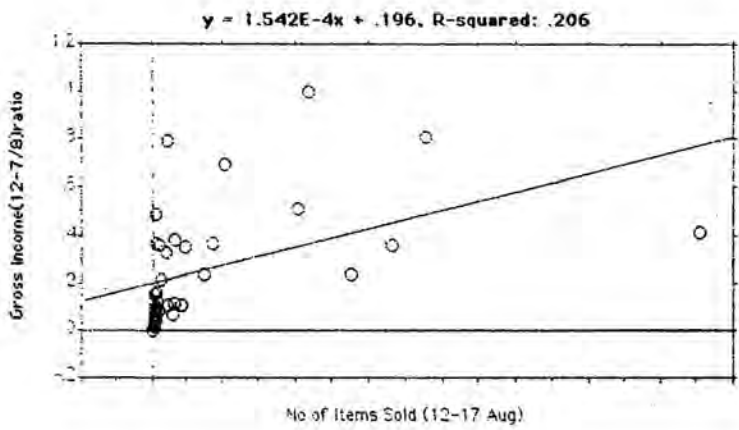
**Figures 4.64 a-f**



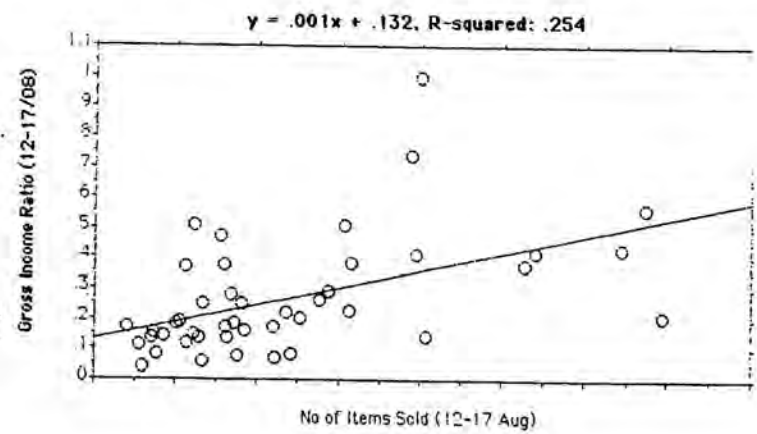
**Ground Floor**



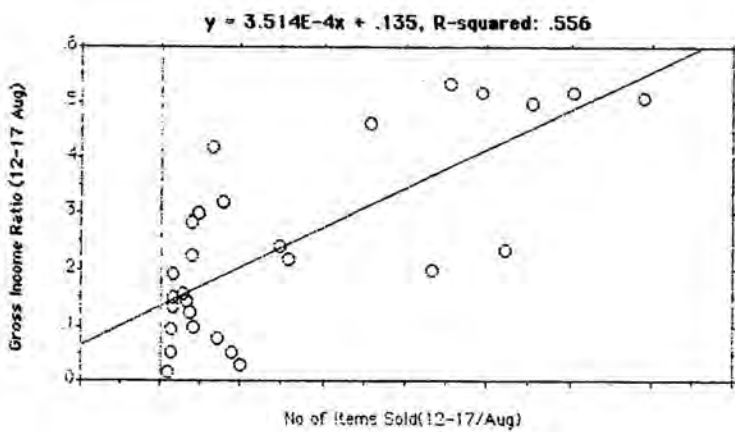
**Basement Floor**



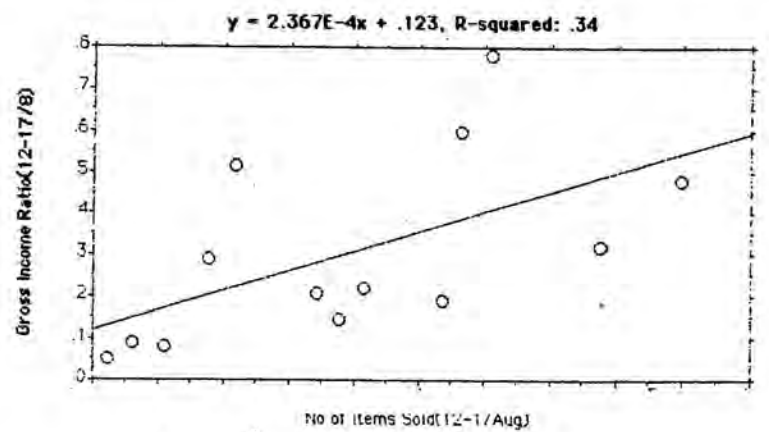
**First Floor**



**Second Floor**

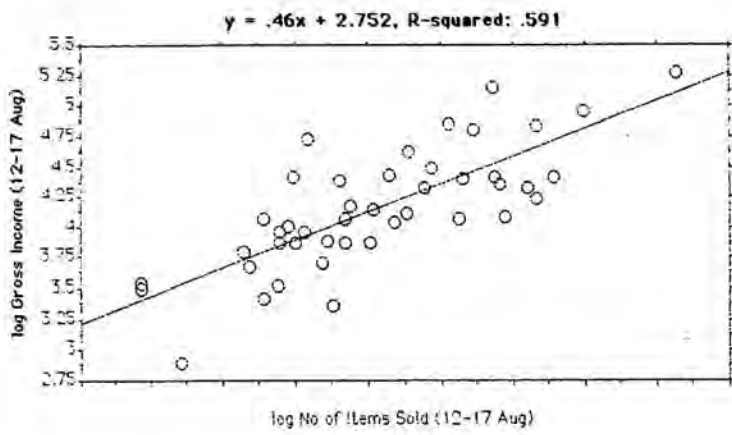


**Third Floor**

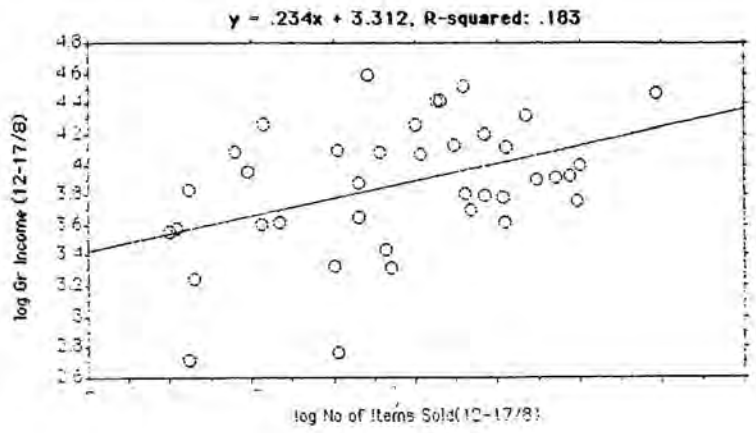


**Fourth Floor**

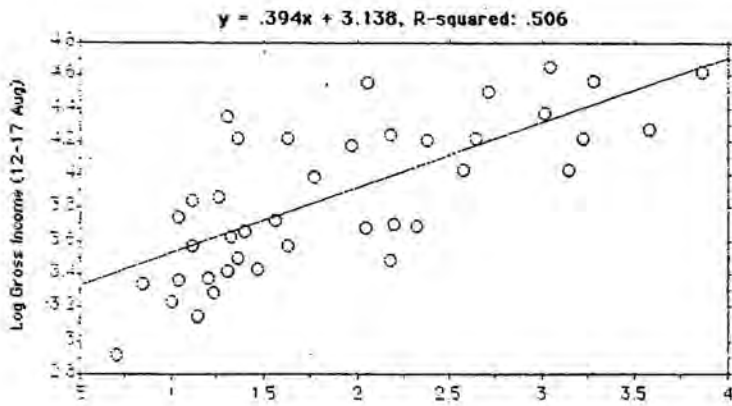
**Figures 4.67 a-f**



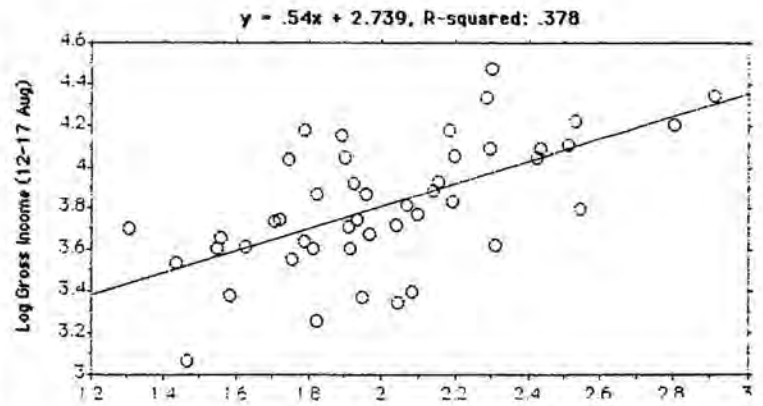
**Ground Floor**



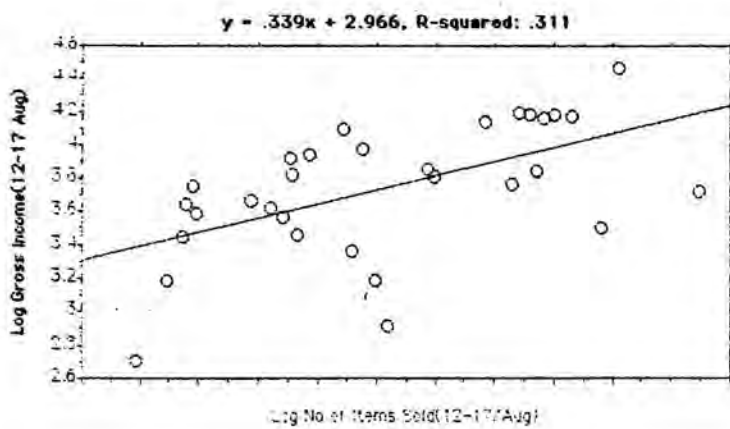
**Basement Floor**



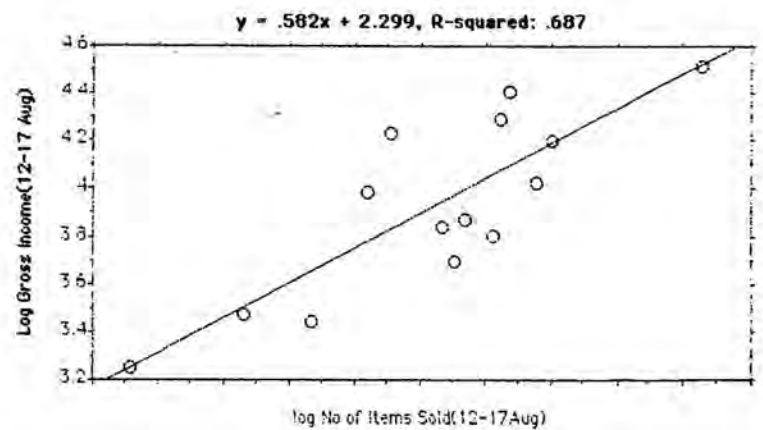
**First Floor**



**Second Floor**



**Third Floor**

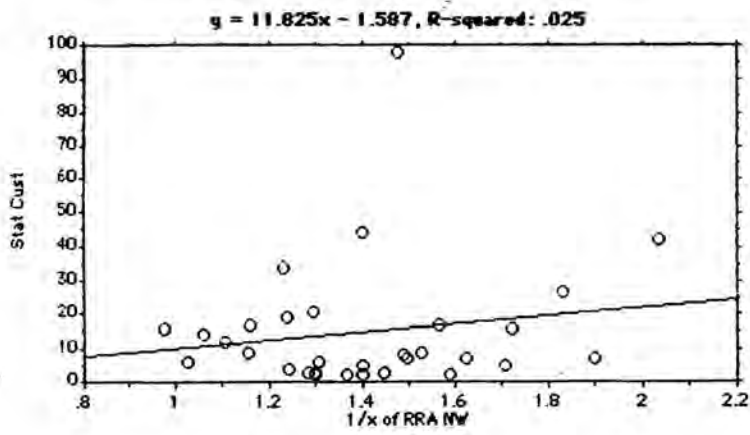


**Fourth Floor**

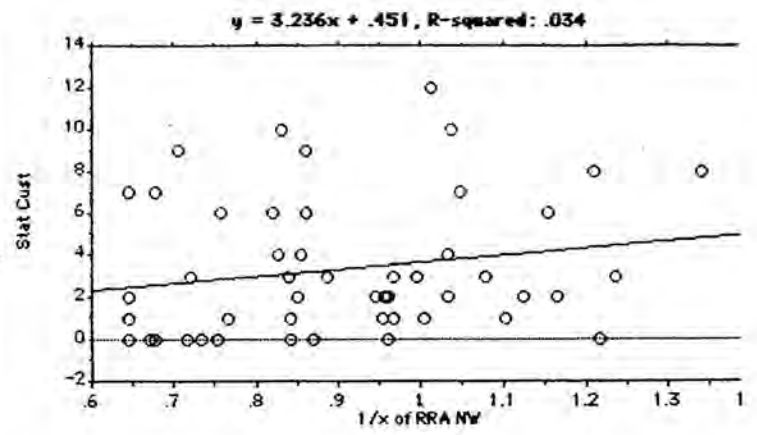
**Figures 4.68 a-f**

## **Appendix III**

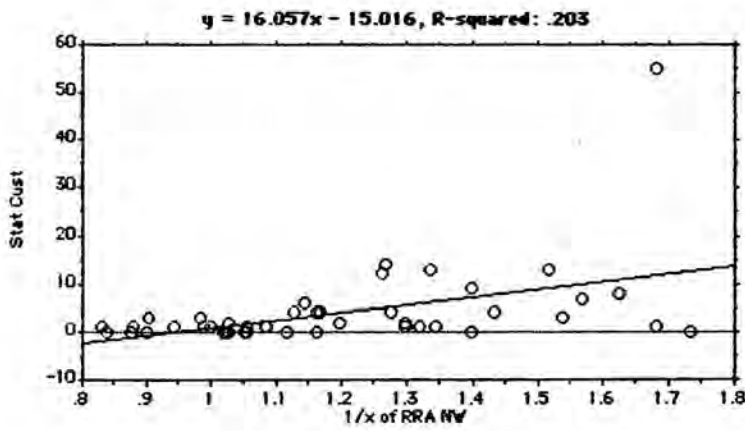




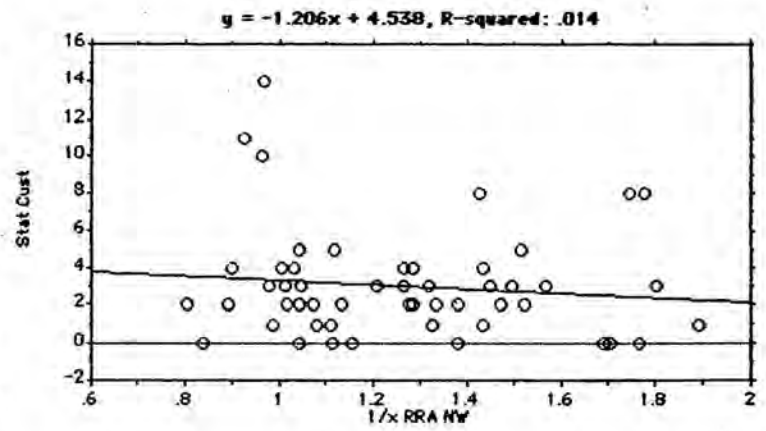
**Ground Floor**



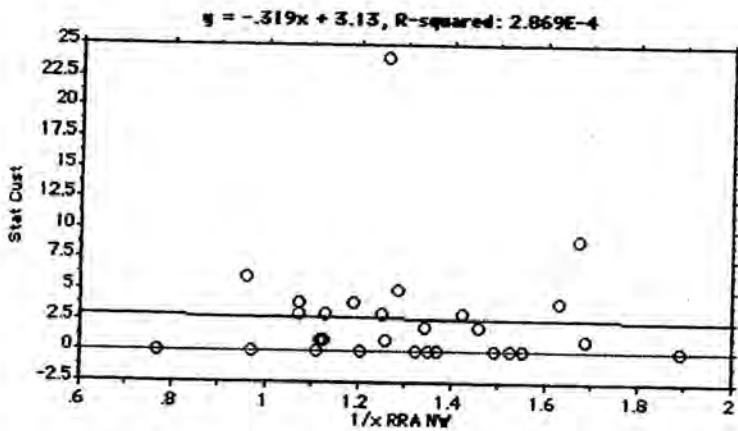
**Basement Floor**



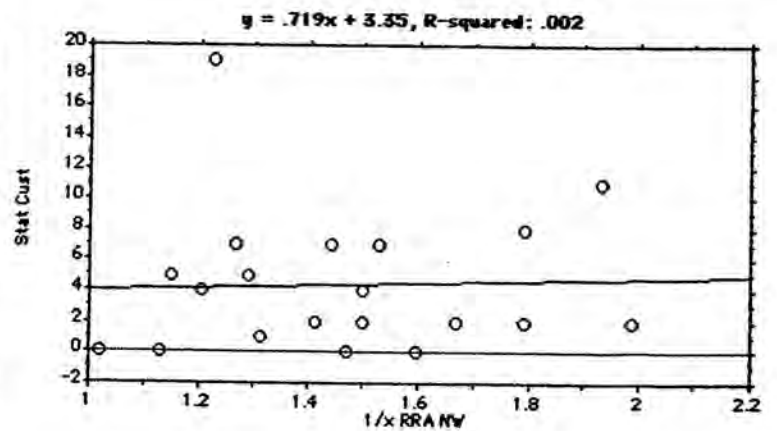
**First Floor**



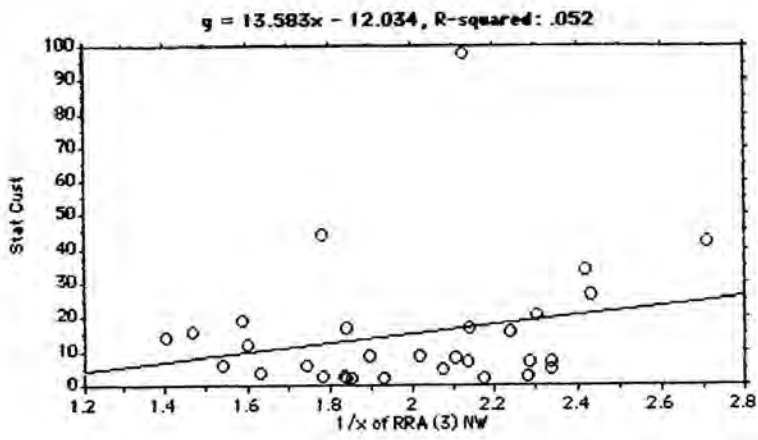
**Second Floor**



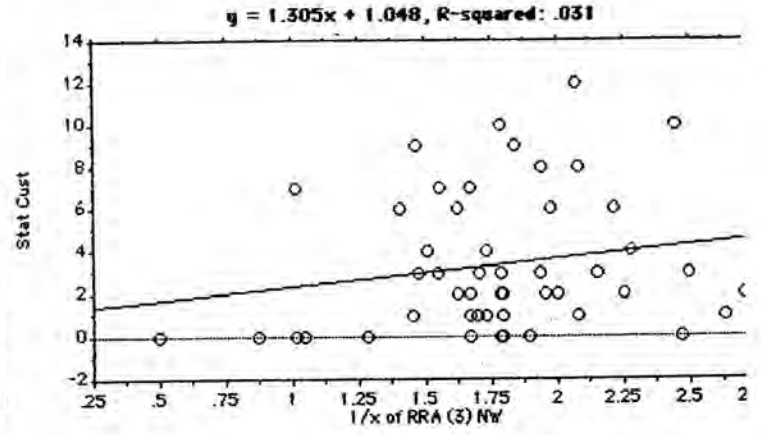
**Third Floor**



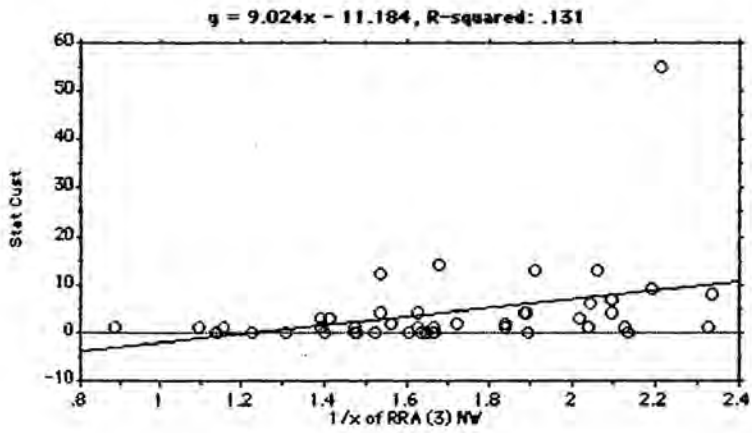
**Fourth Floor**



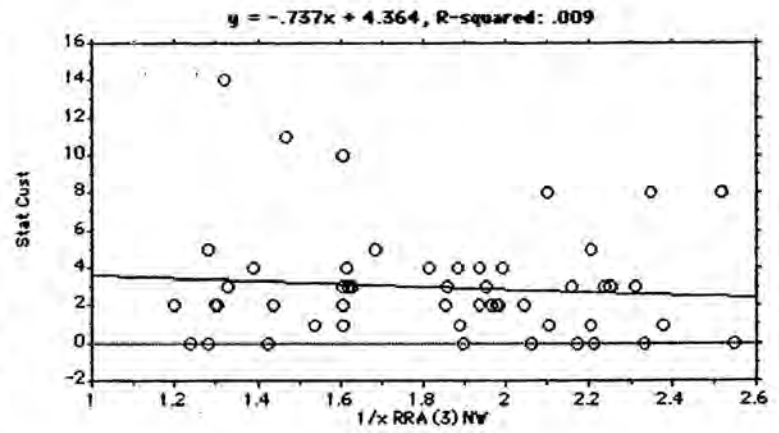
Ground Floor



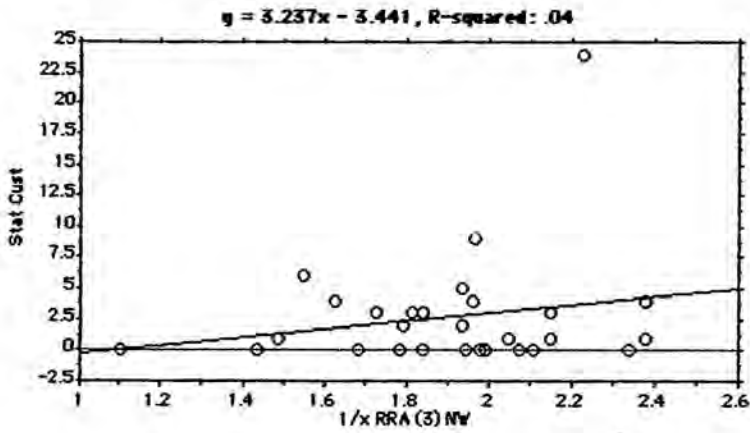
Basement Floor



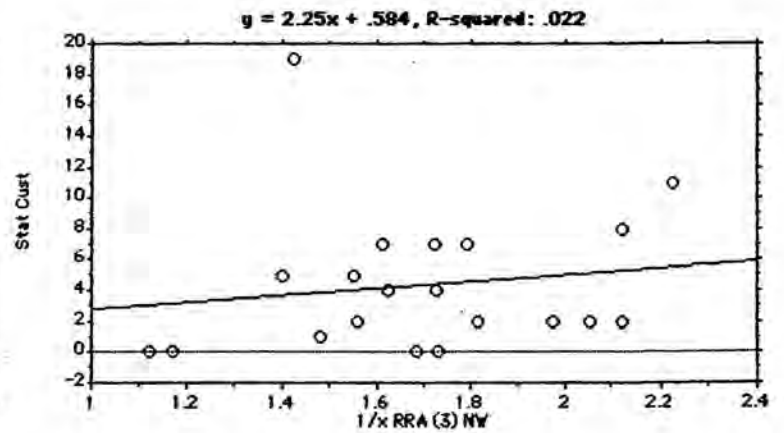
First Floor



Second Floor

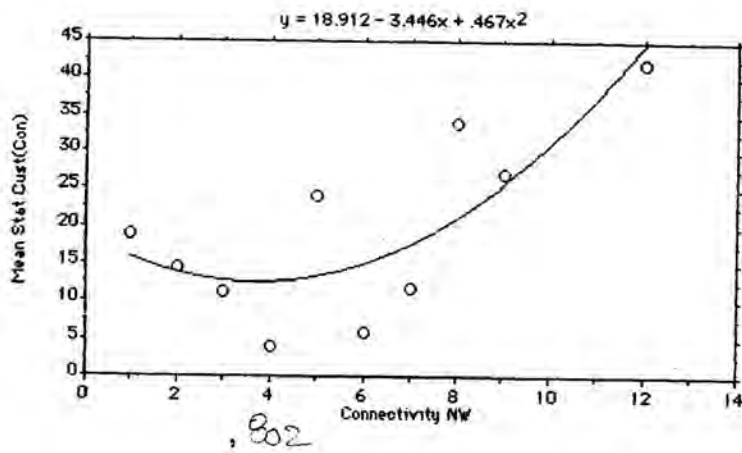


Third Floor

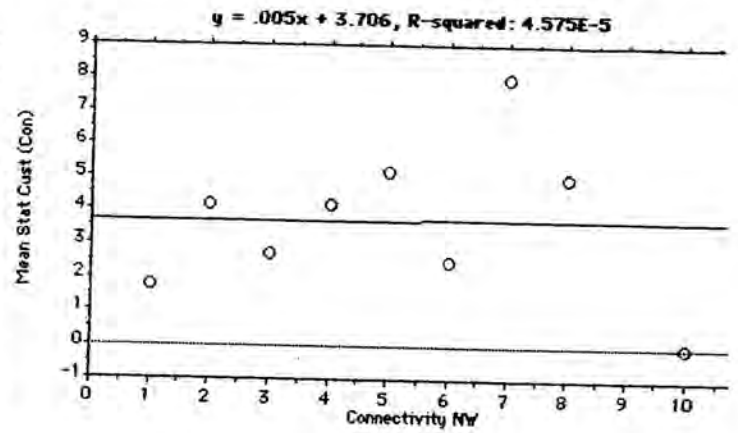


Fourth Floor

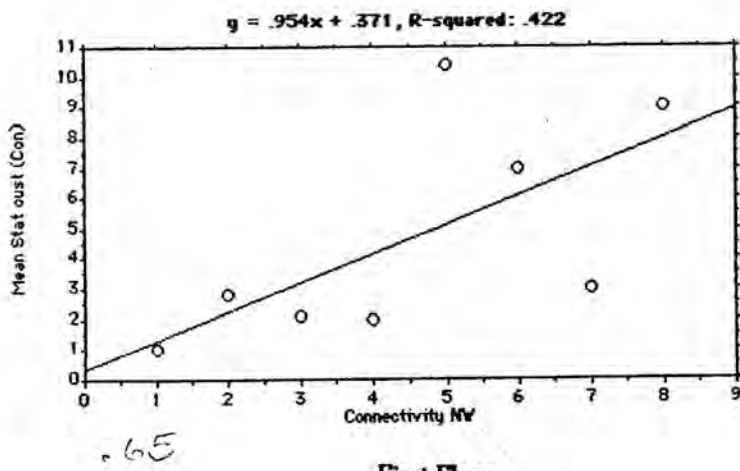
Figures 5.4 a-f



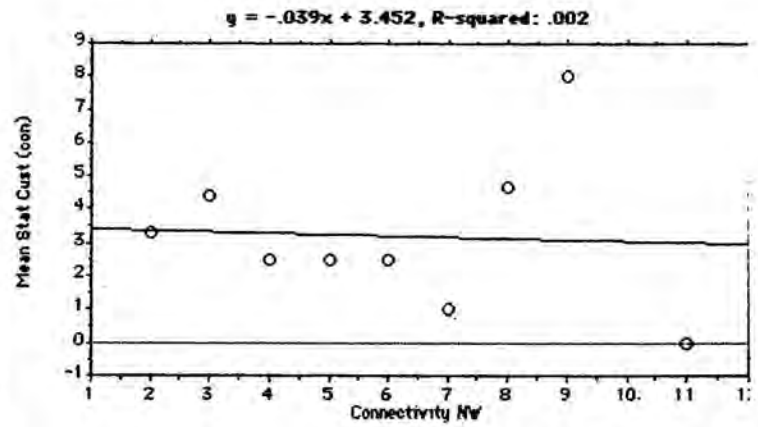
Ground Floor



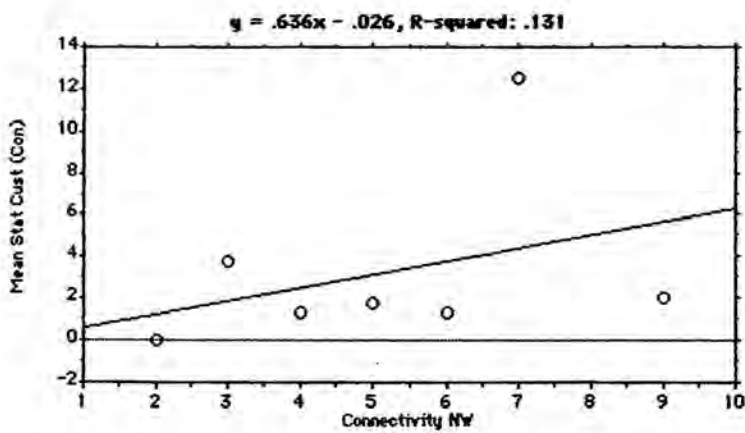
Basement Floor



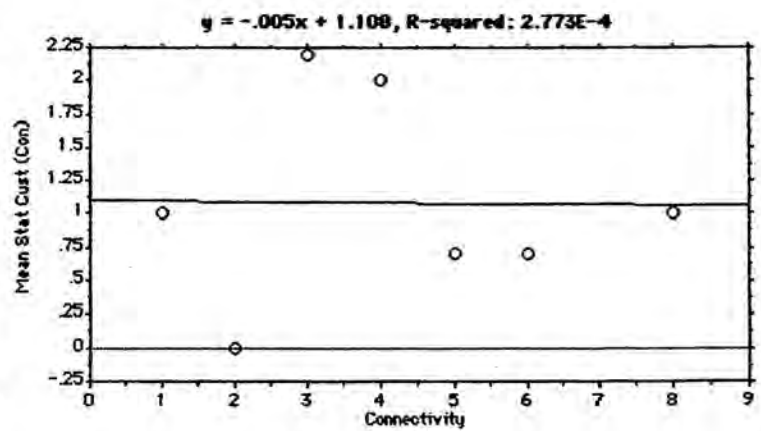
First Floor



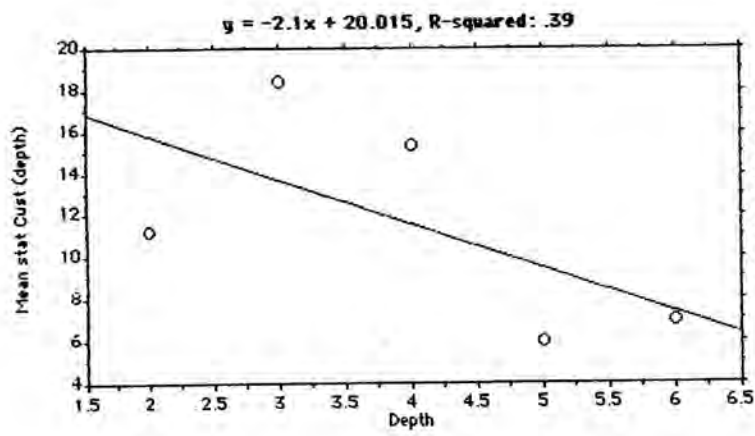
Second Floor



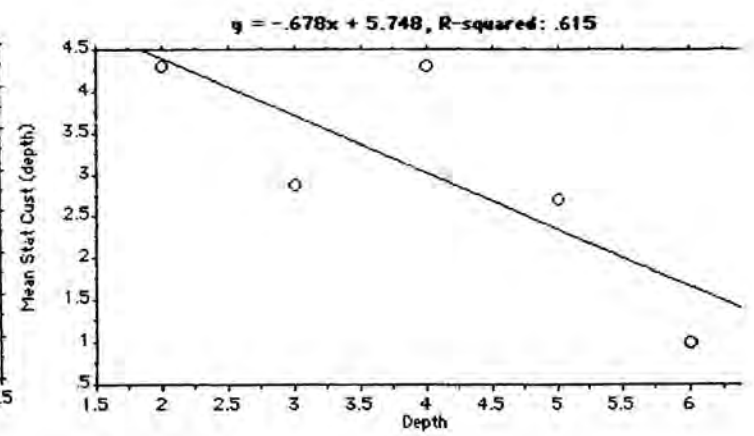
Third Floor



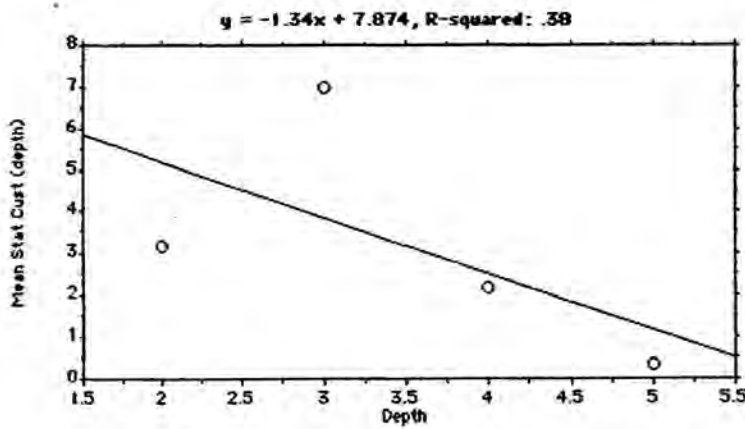
Fourth Floor



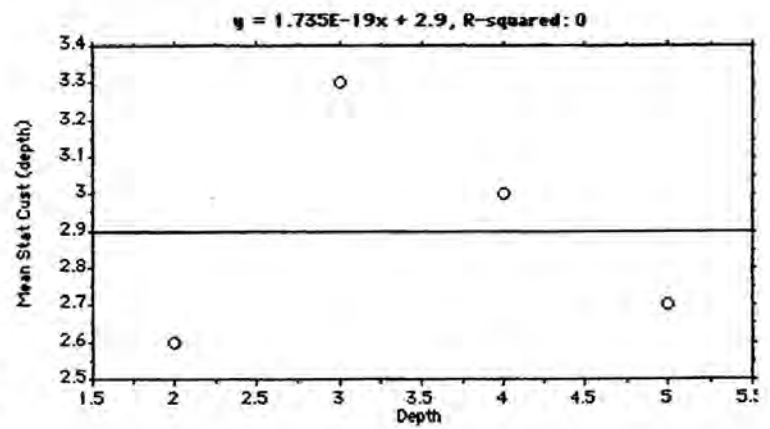
Ground Floor



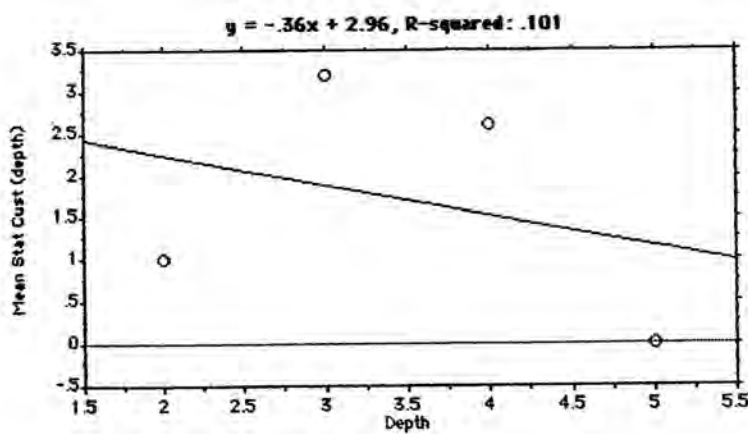
Basement Floor



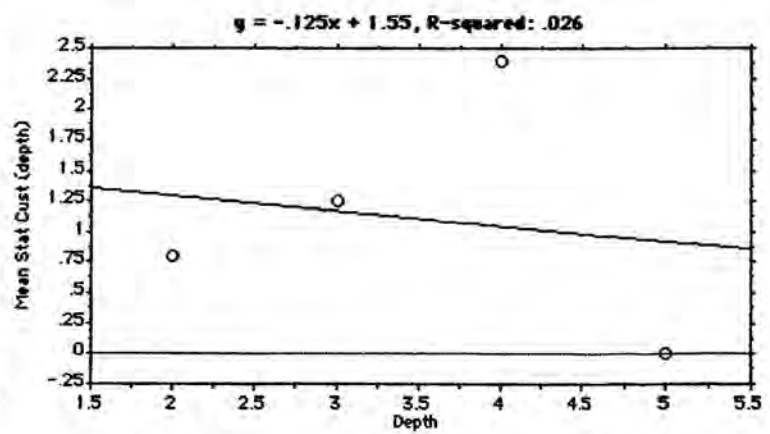
First Floor



Second Floor

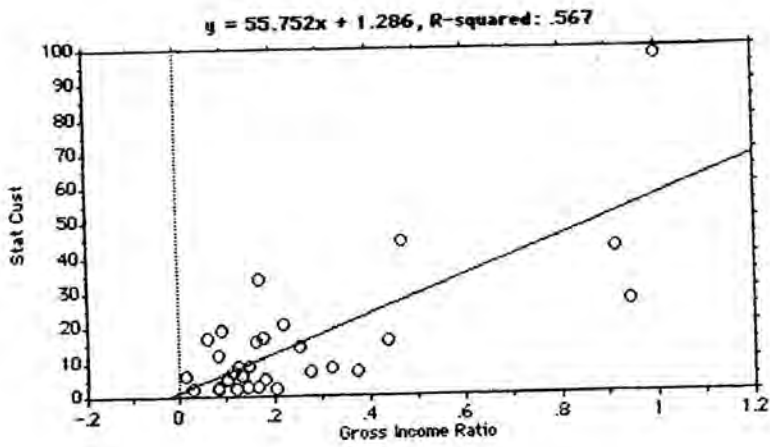


Third Floor

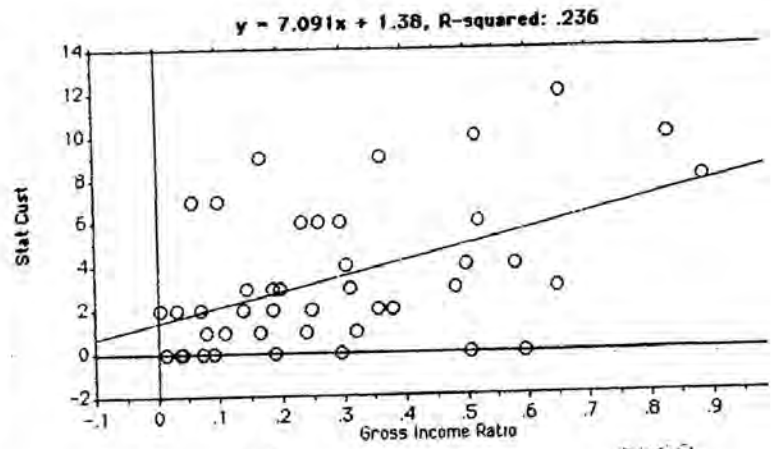


Fourth Floor

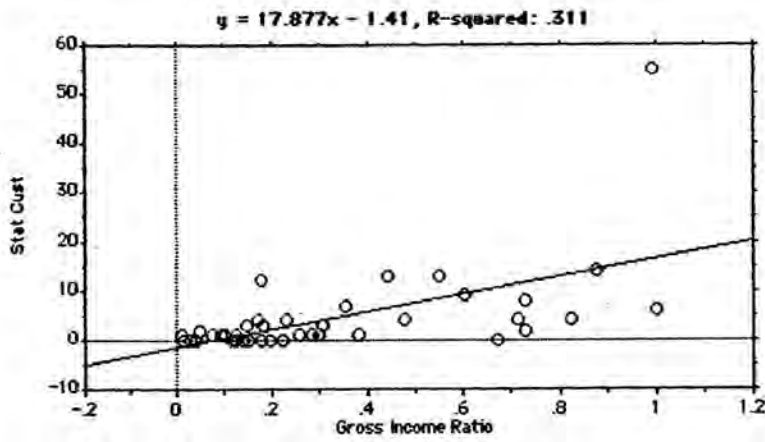
Figures 5.8 a-f



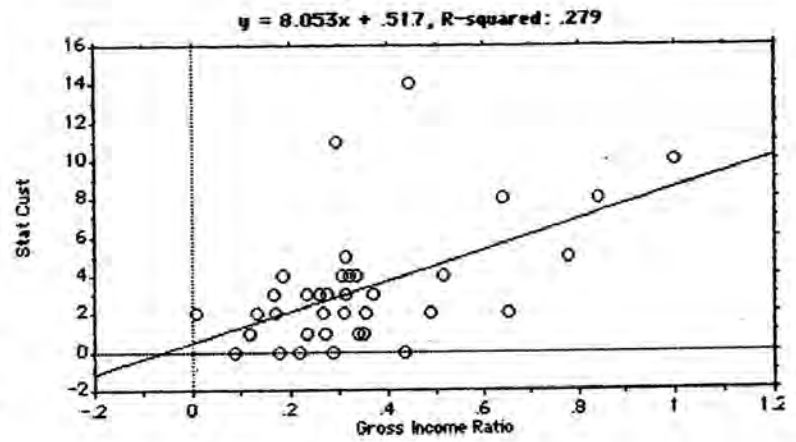
**Ground Floor**



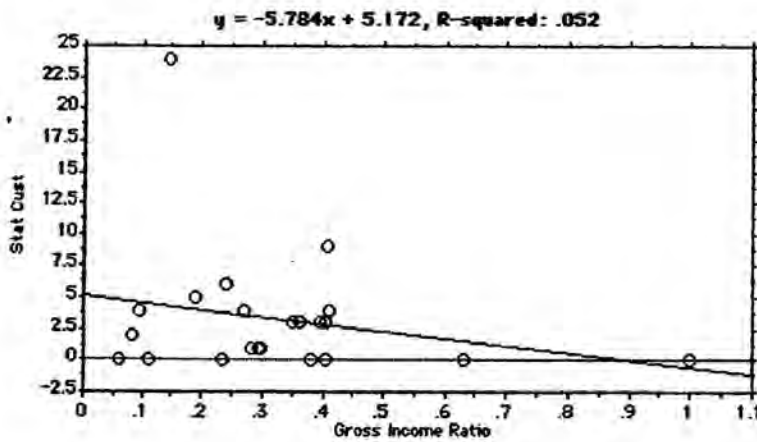
**Basement Floor**



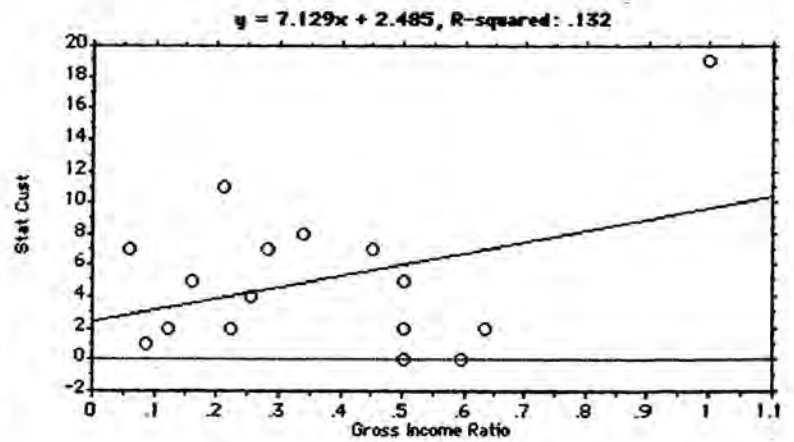
**First Floor**



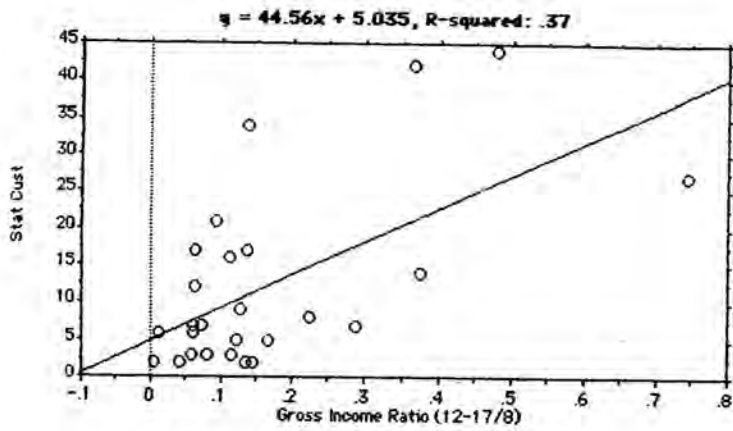
**Second Floor**



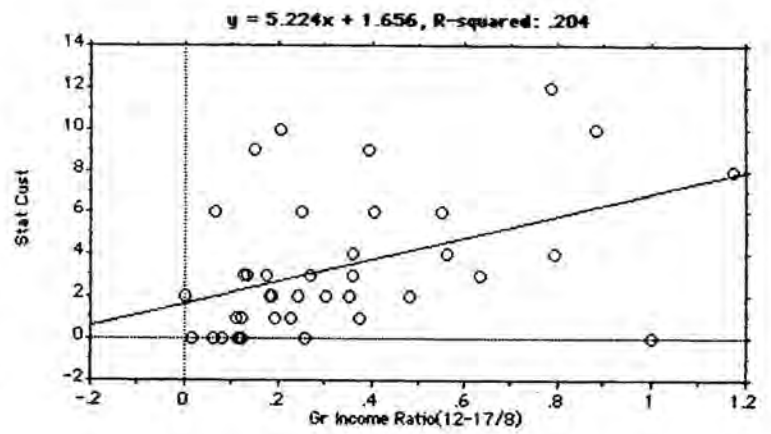
**Third Floor**



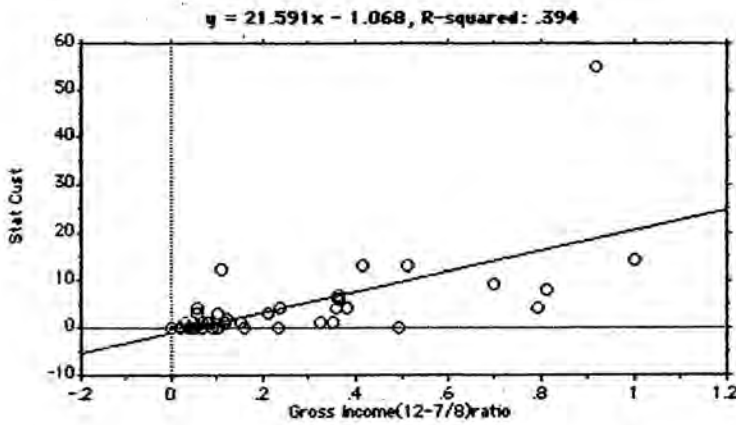
**Fourth Floor**



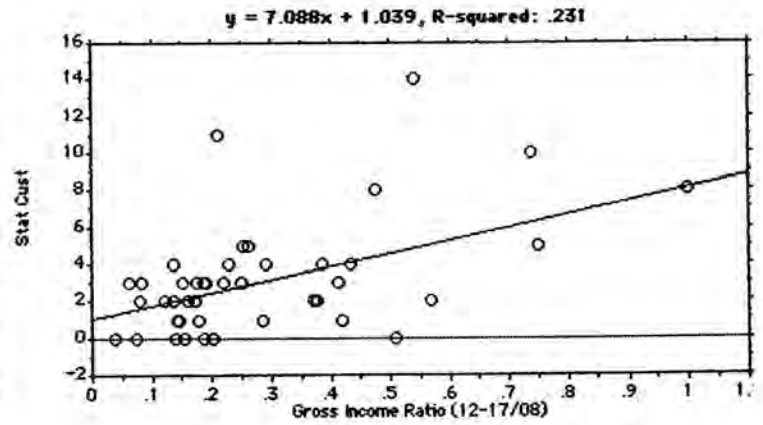
Ground Floor



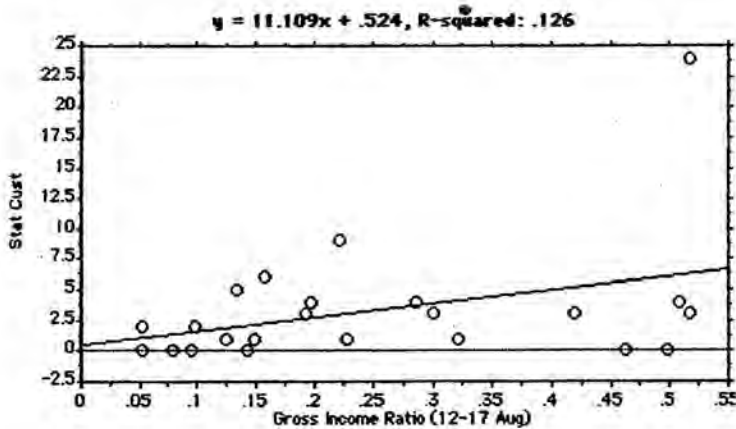
Basement Floor



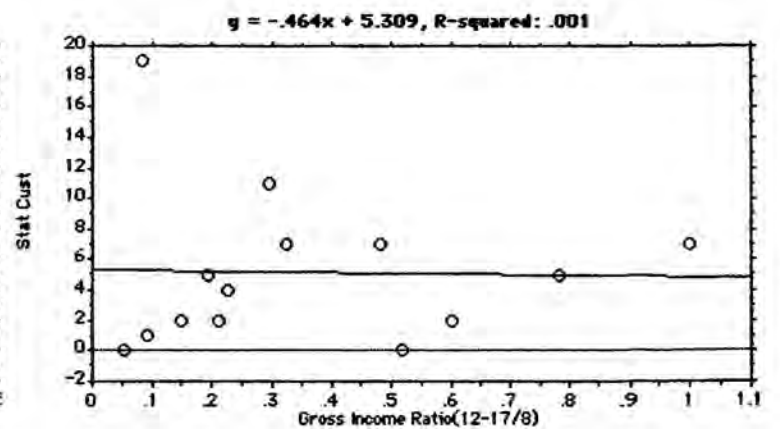
First Floor



Second Floor

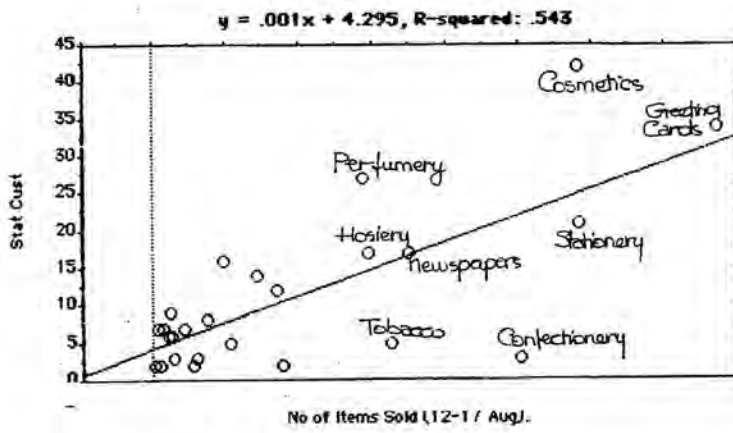


Third Floor

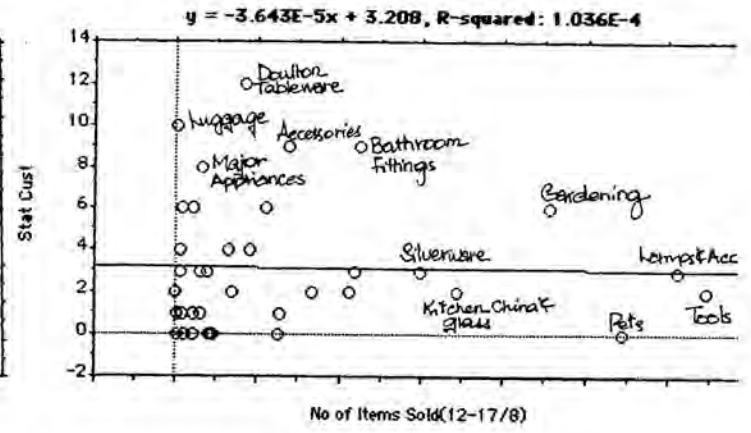


Fourth Floor

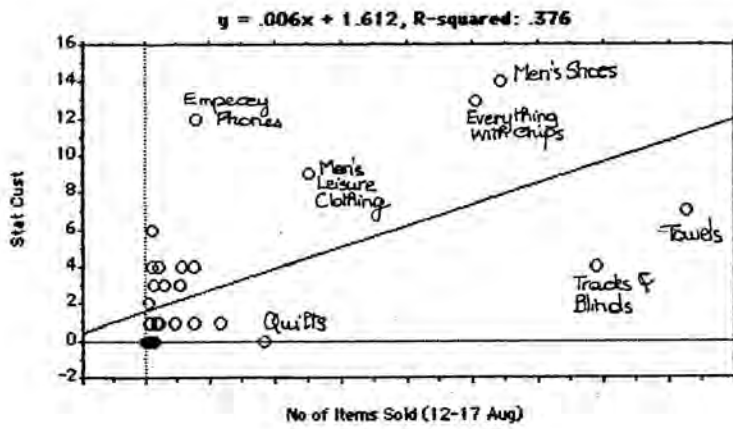
Figures 5.12 a-f



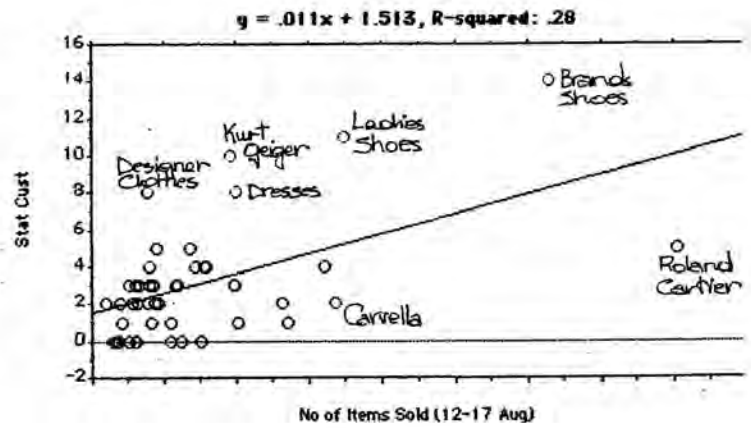
Ground Floor



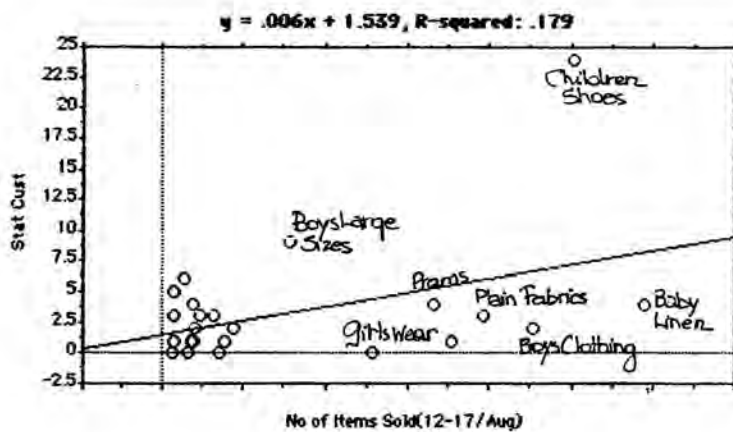
Basement Floor



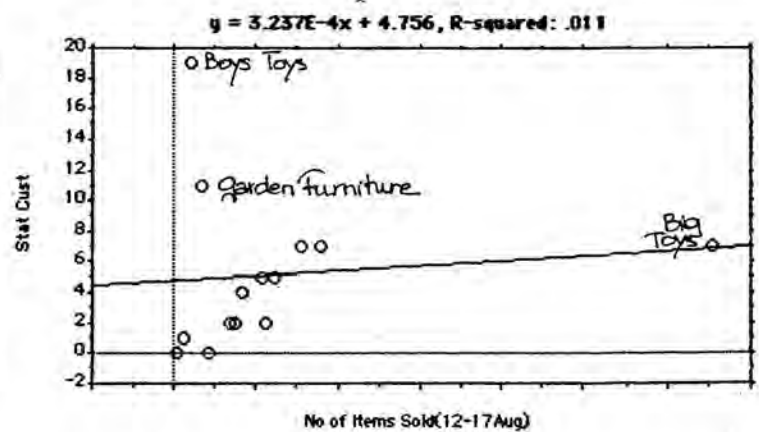
First Floor



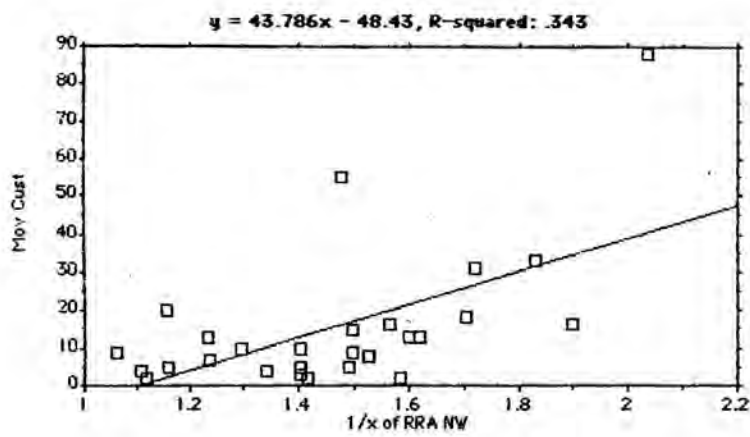
Second Floor



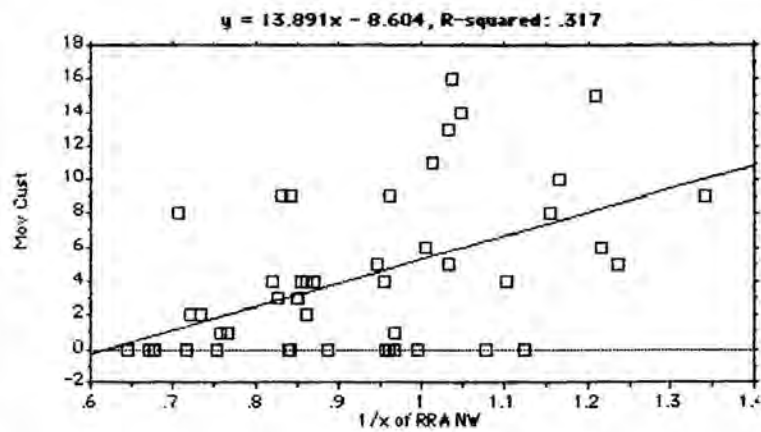
Third Floor



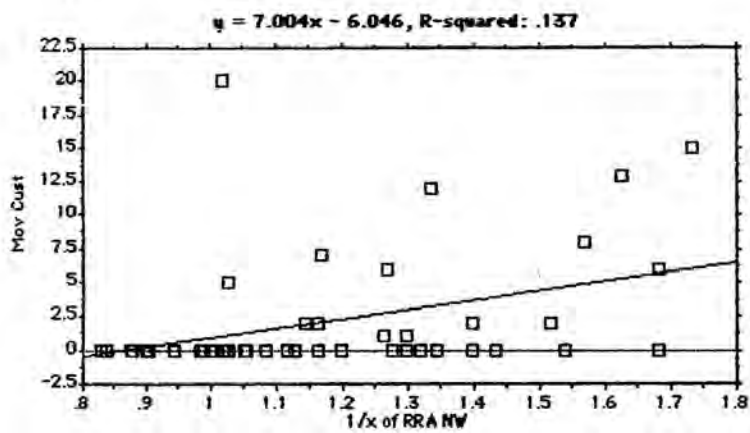
Fourth Floor



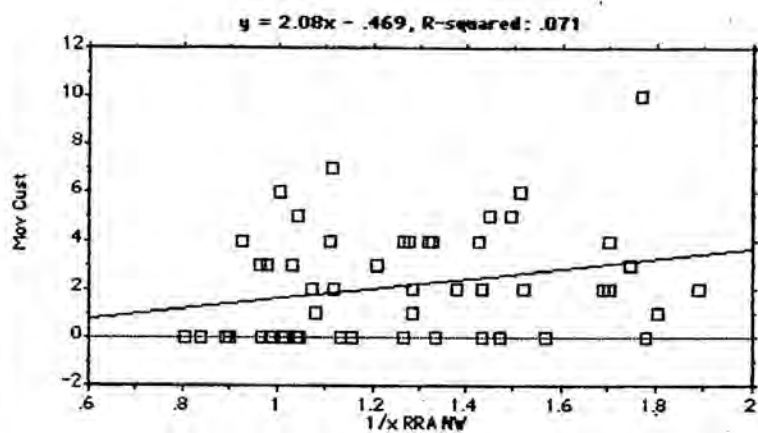
**Ground Floor**



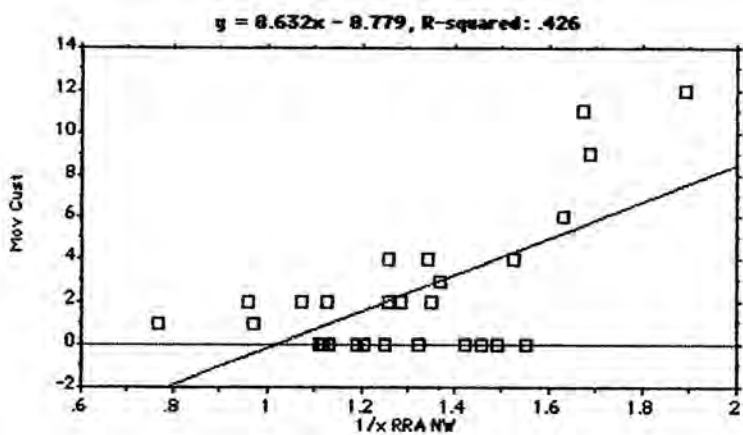
**Basement Floor**



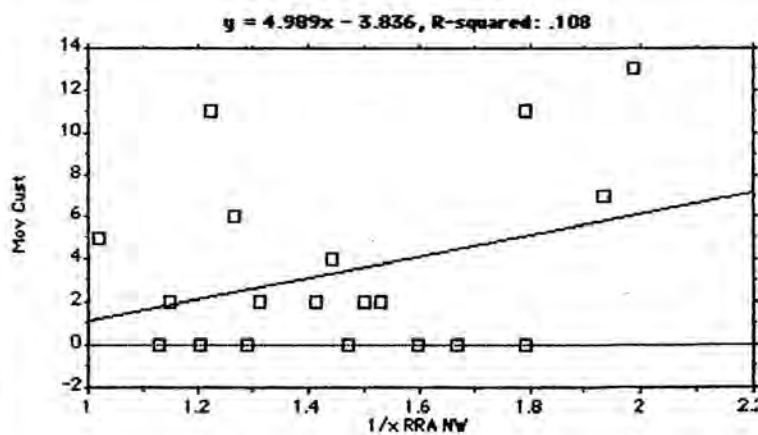
**First Floor**



**Second Floor**



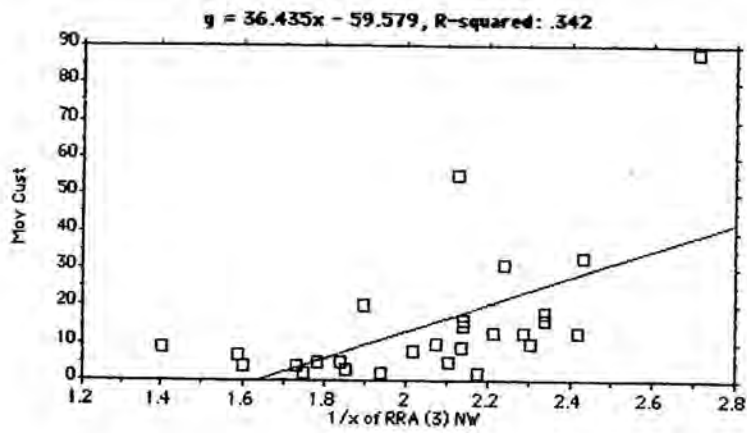
**Third Floor**



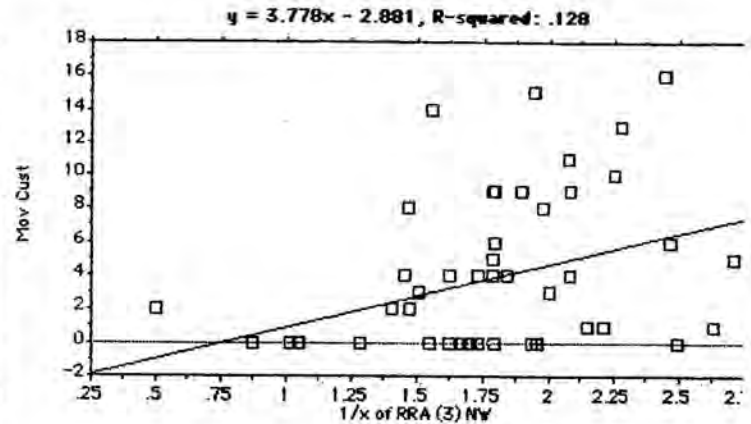
**Fourth Floor**

**Figures 5.17 a-f**

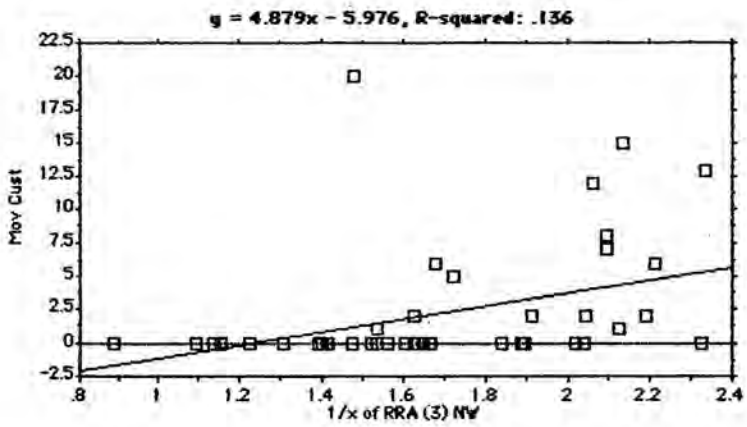




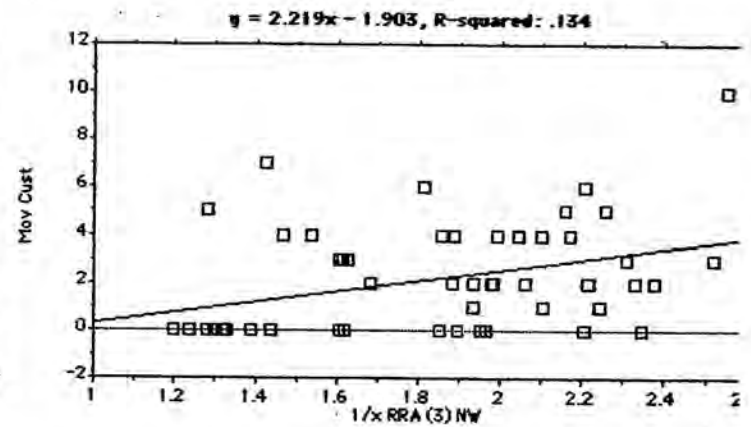
Ground Floor



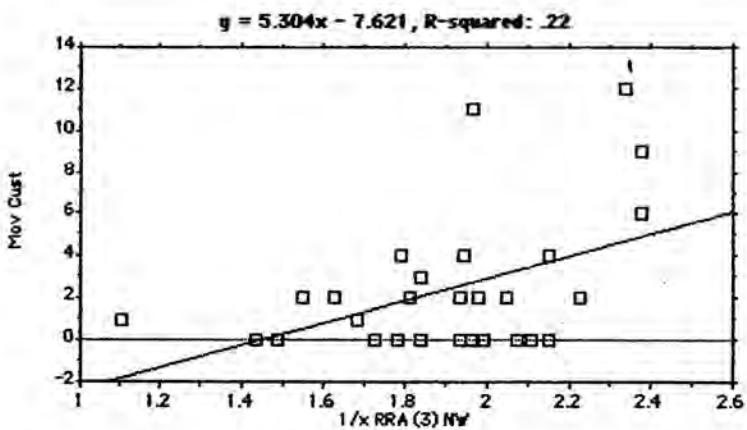
Basement Floor



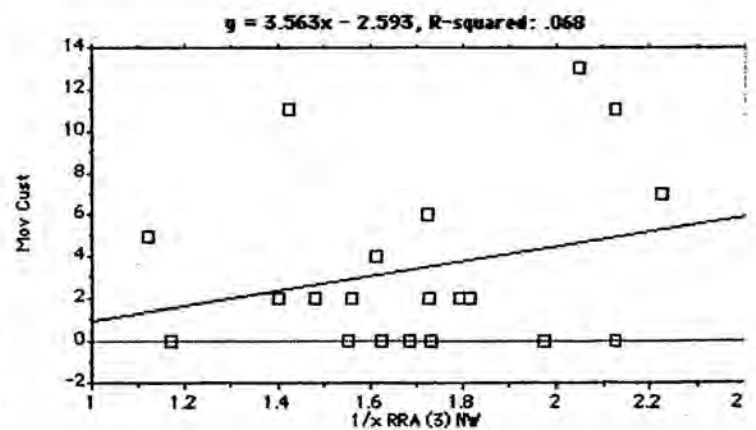
First Floor



Second Floor

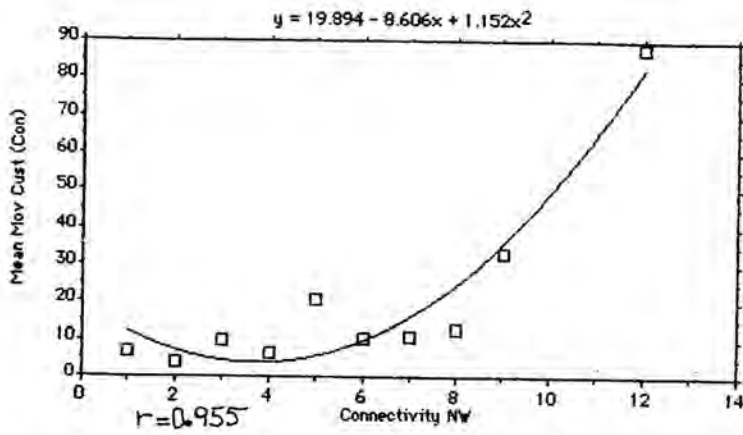


Third Floor

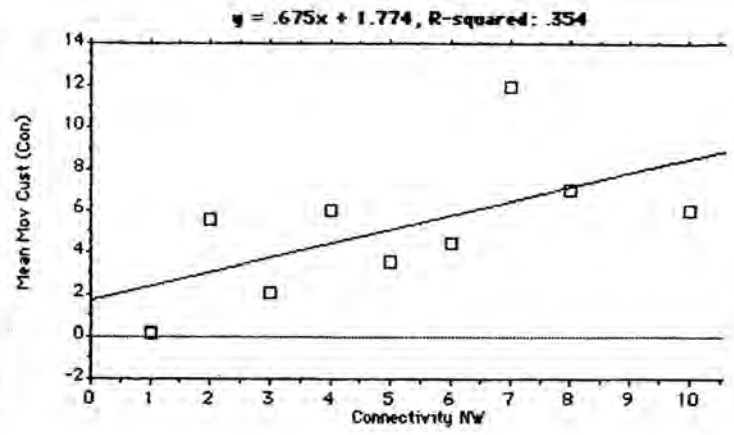


Fourth Floor

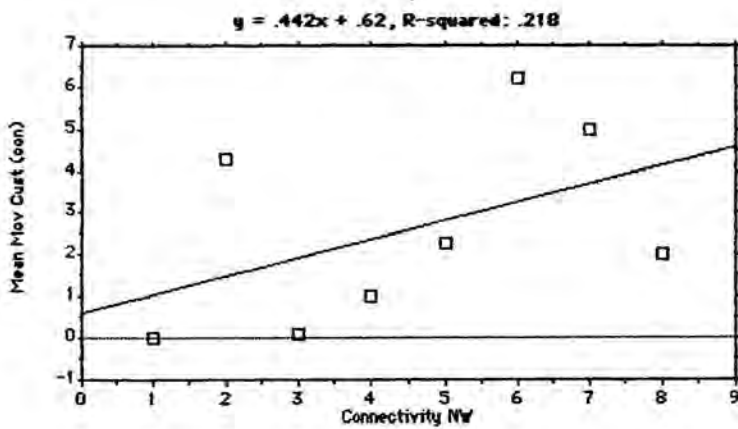
Figures 5.18 a-f



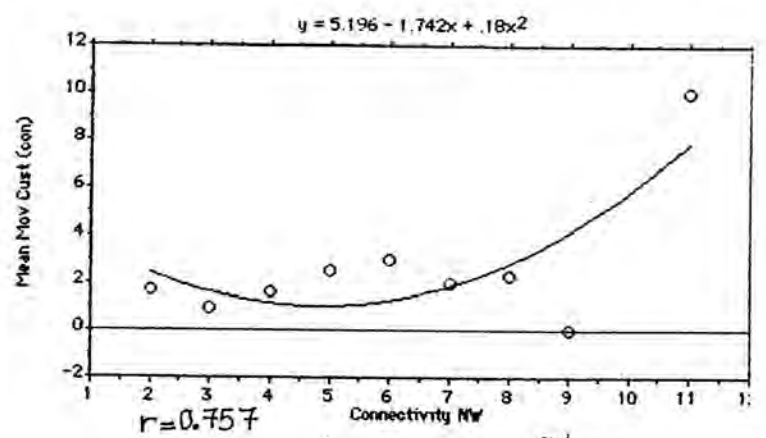
Ground Floor



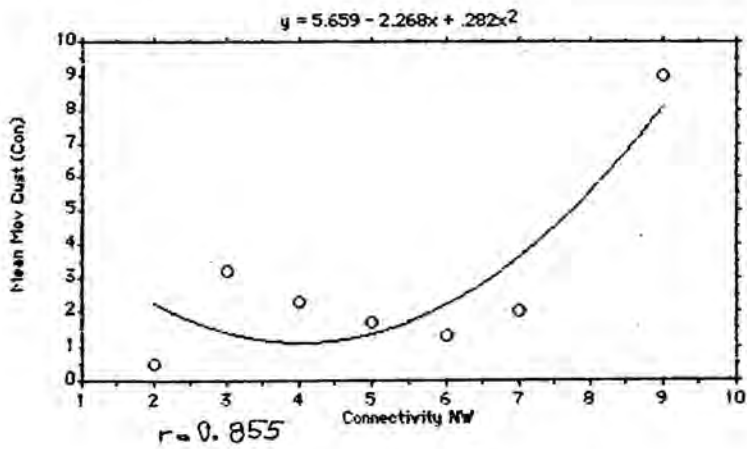
Basement Floor



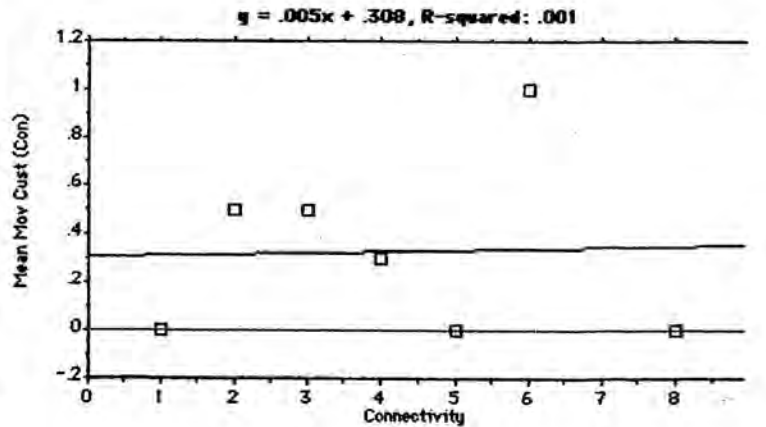
First Floor



Second Floor

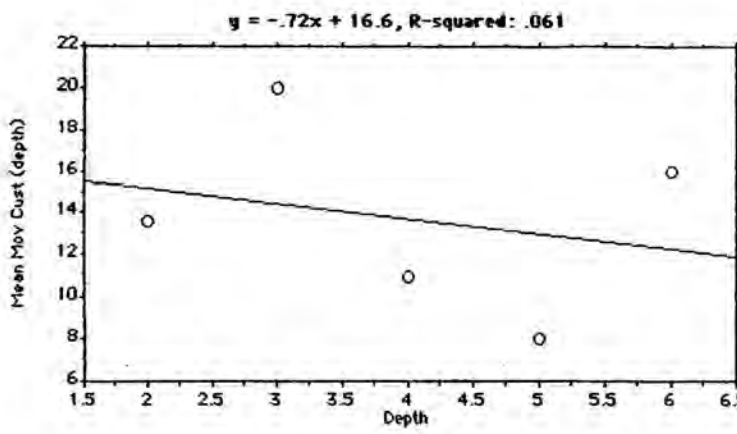


Third Floor

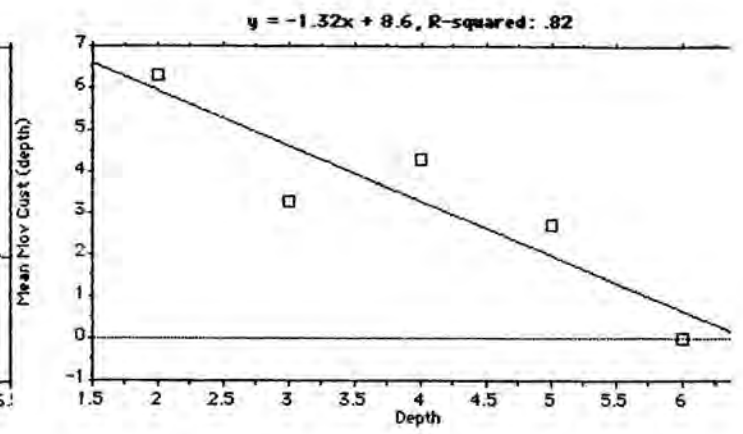


Fourth Floor

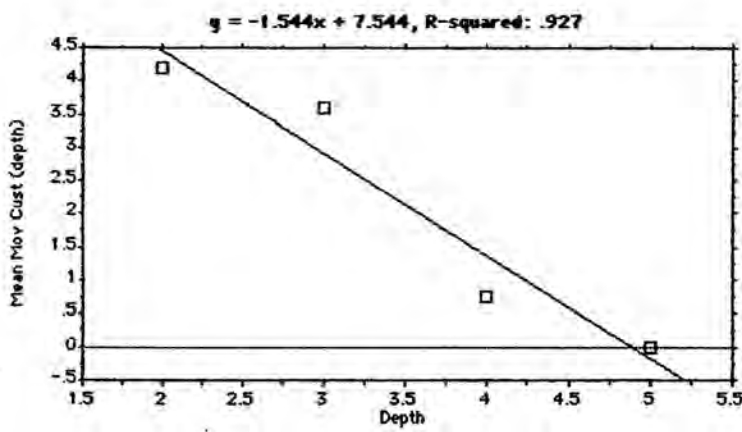
Figures 5.20 a-f



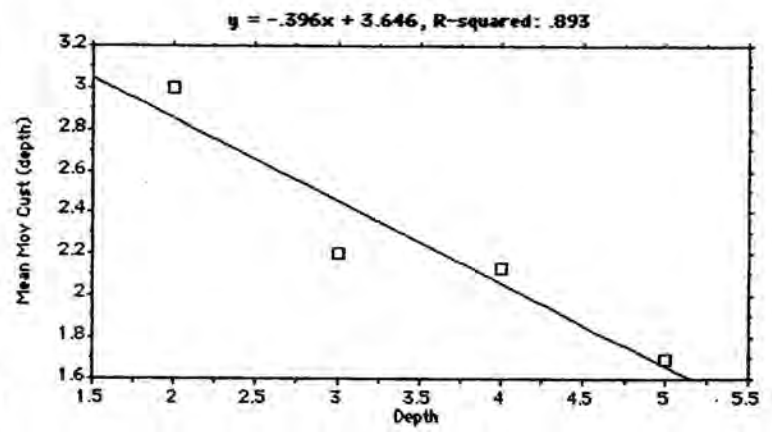
Ground Floor



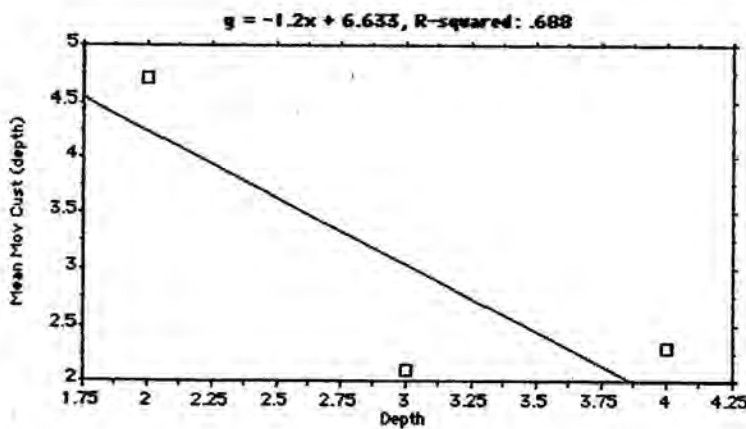
Basement Floor



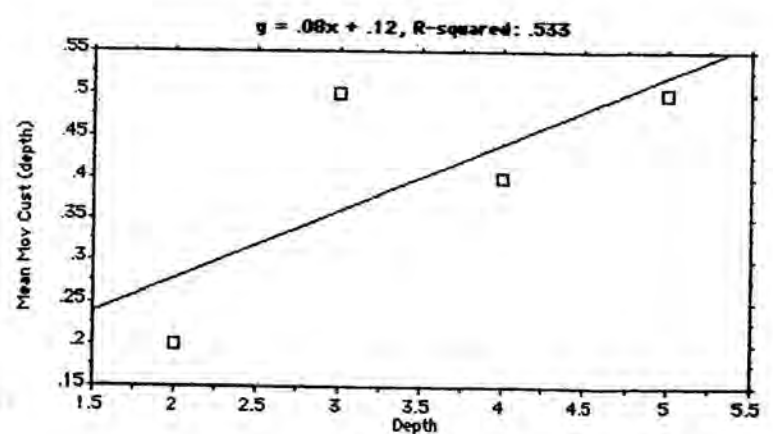
First Floor



Second Floor

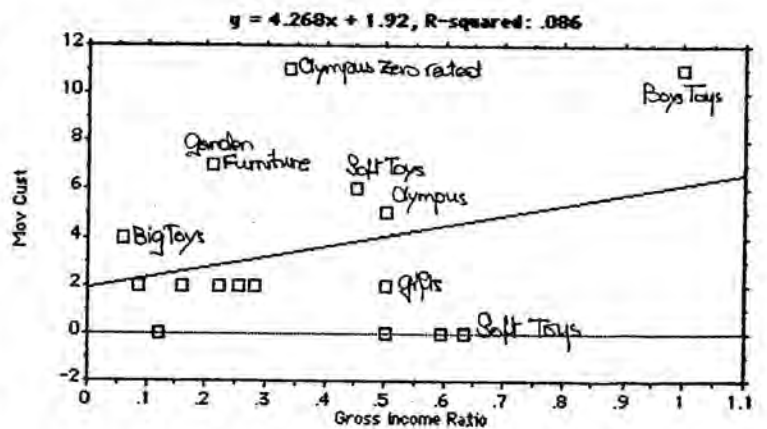
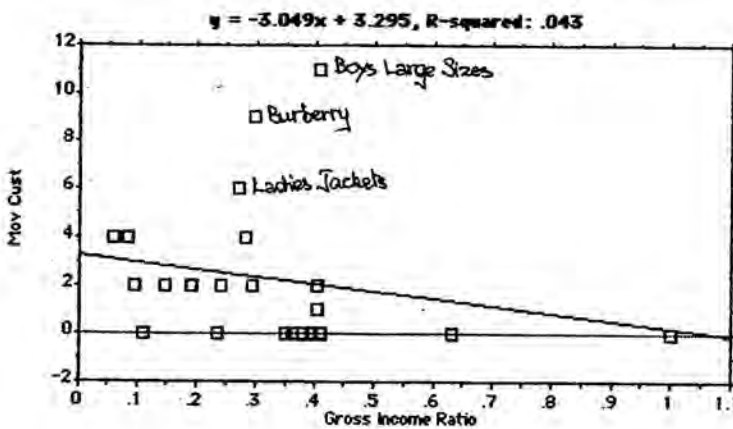
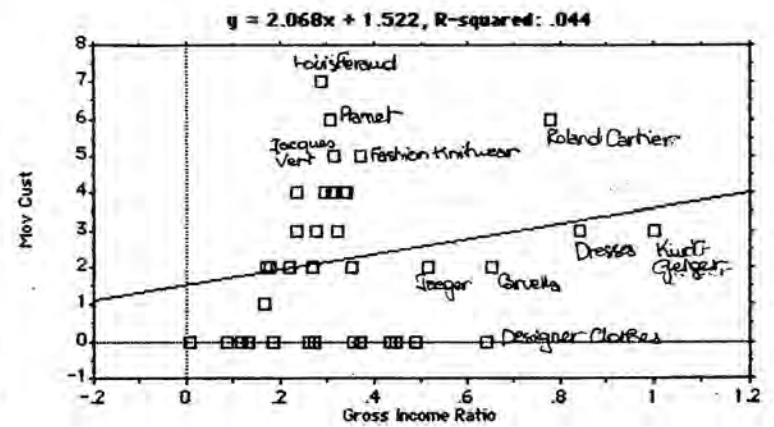
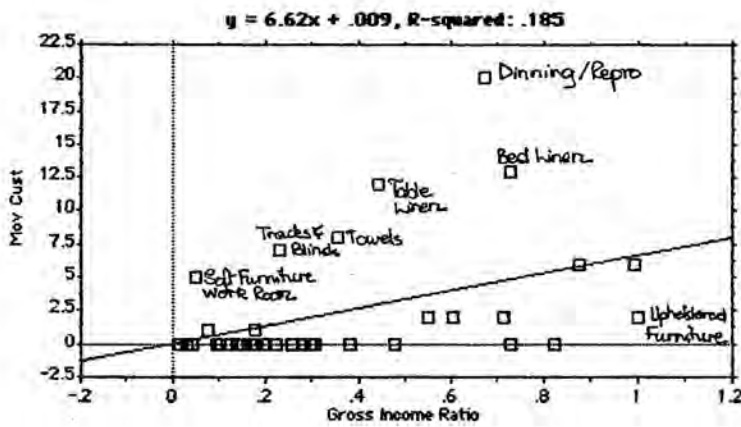
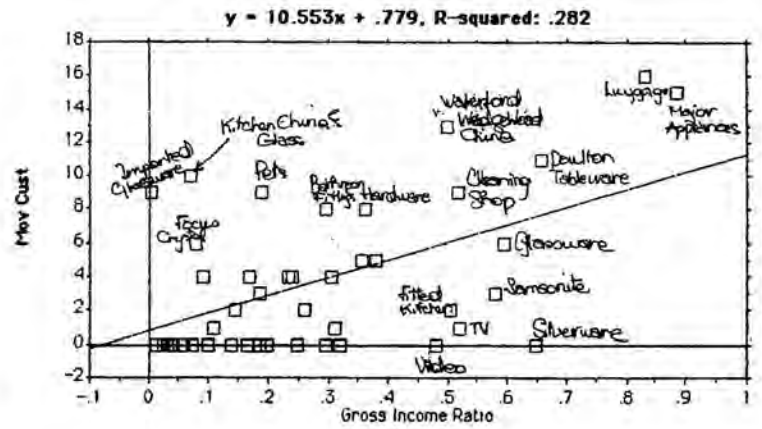
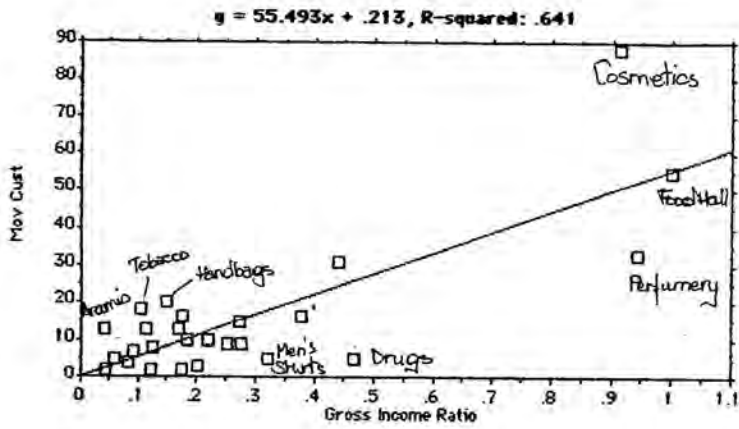


Third Floor

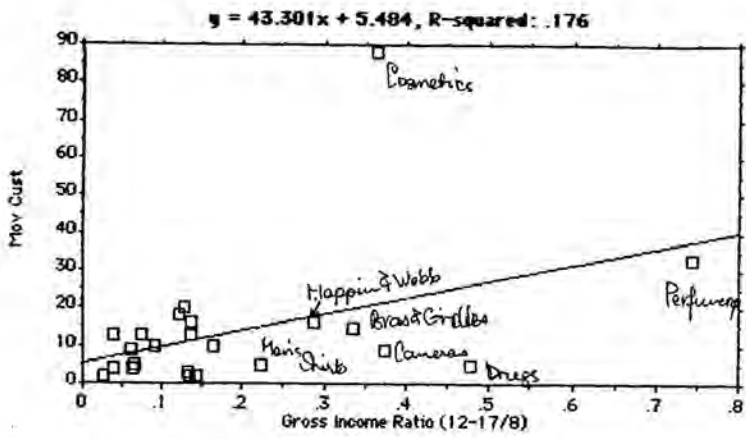


Fourth Floor

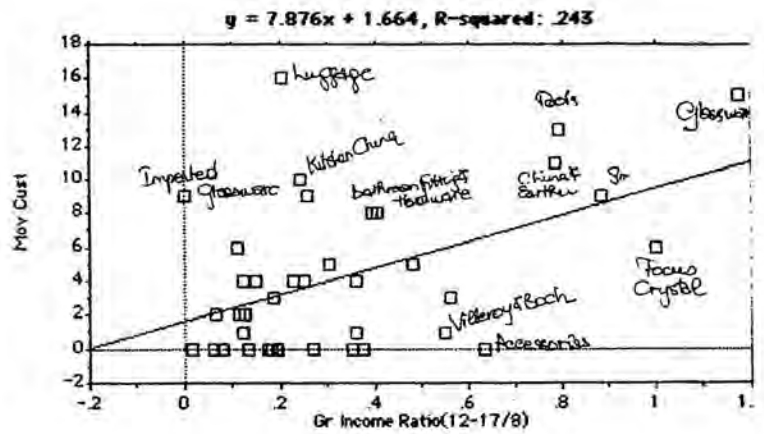
Figures 5.22 a-f



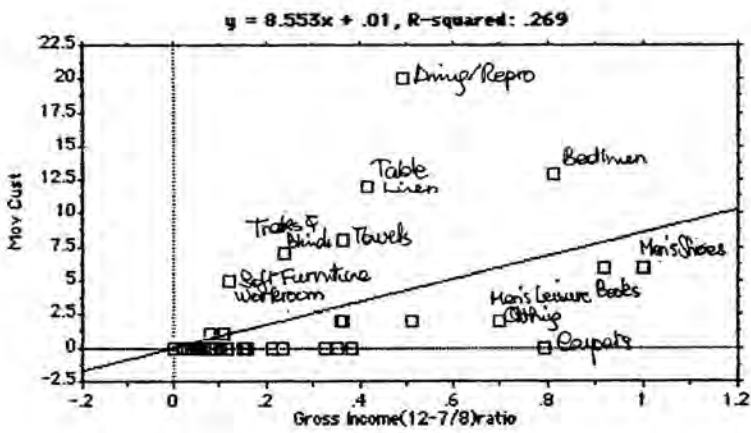
Figures 5.24 a-f



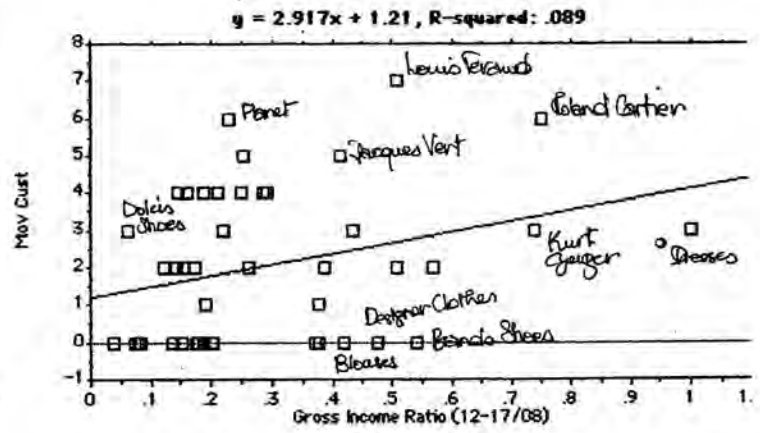
Ground Floor



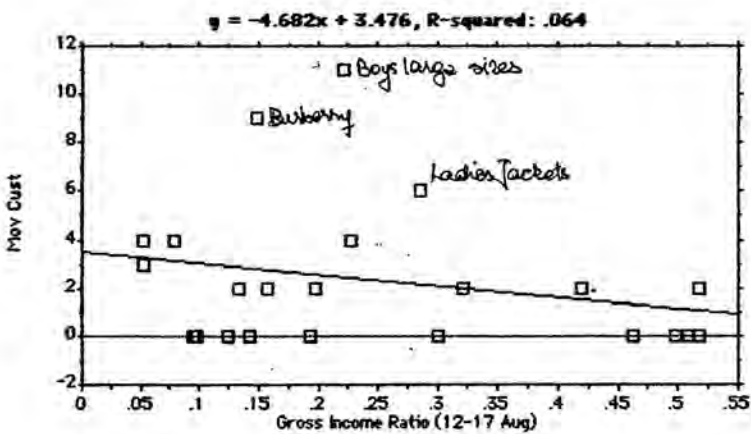
Basement Floor



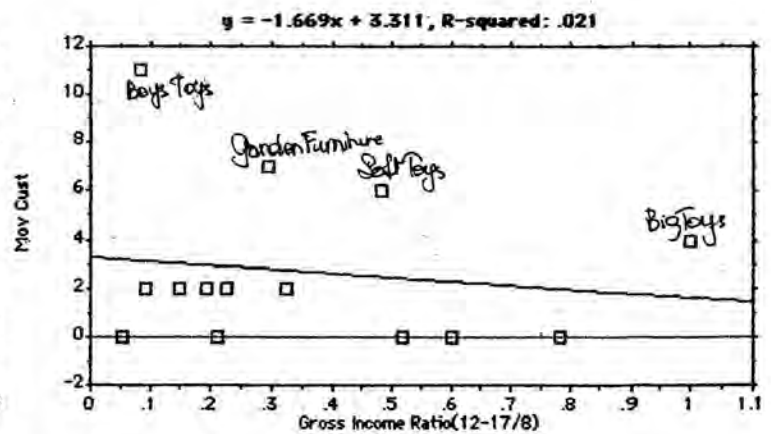
First Floor



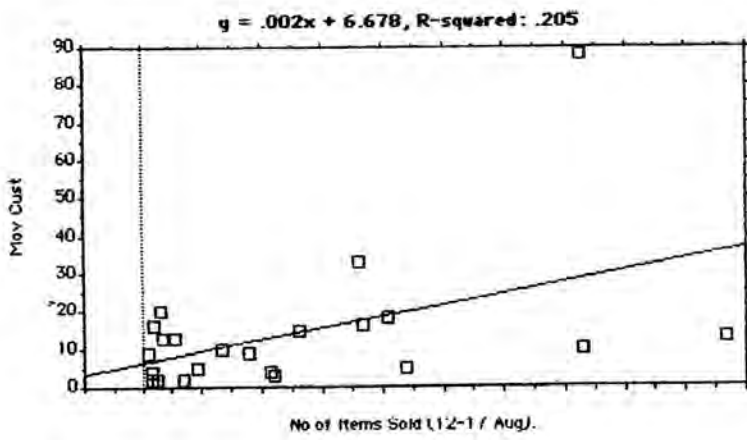
Second Floor



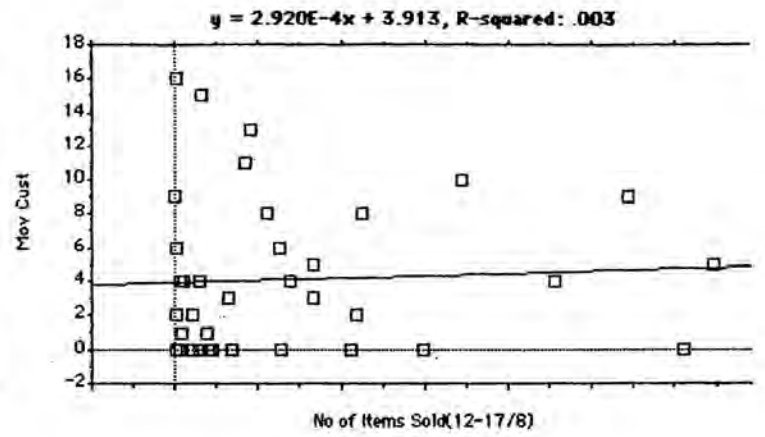
Third Floor



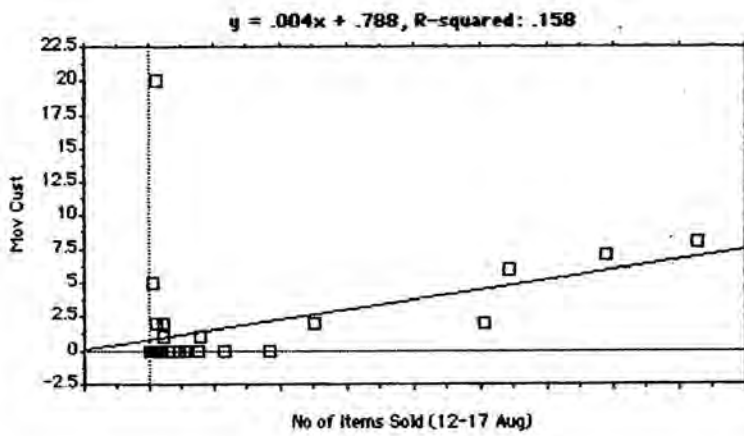
Fourth Floor



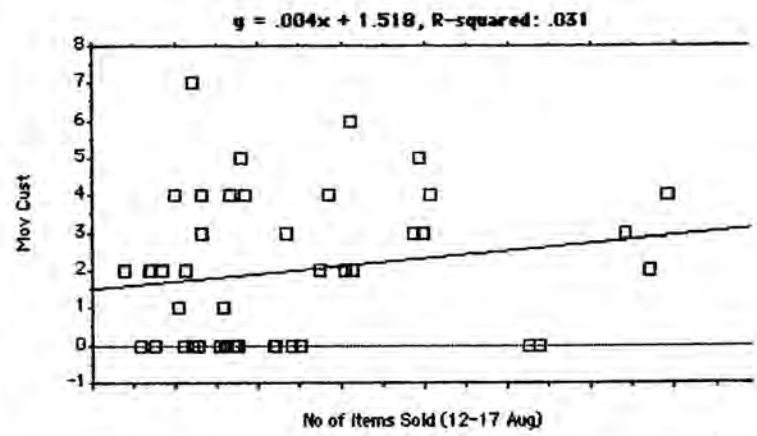
Ground Floor



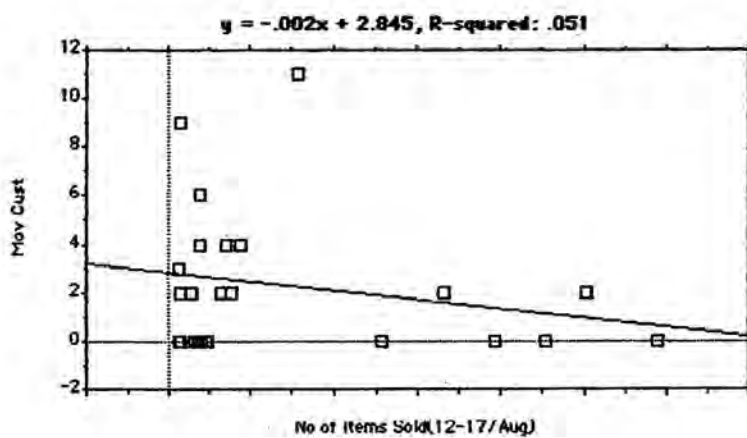
Basement Floor



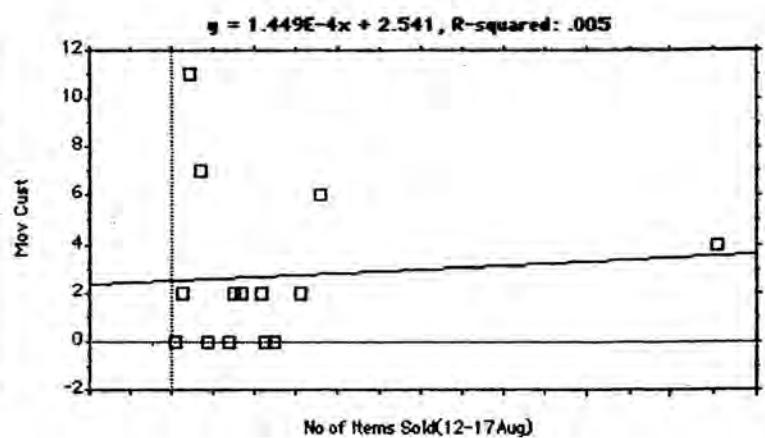
First Floor



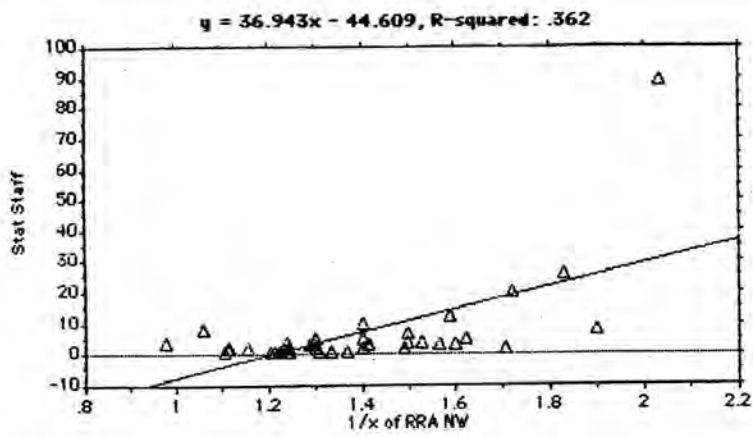
Second Floor



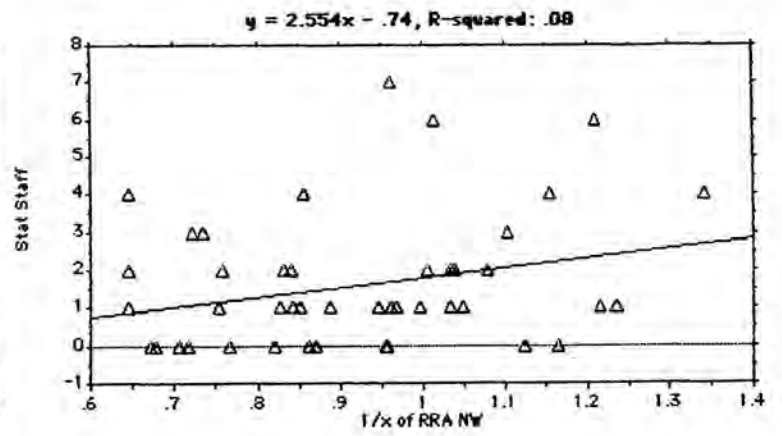
Third Floor



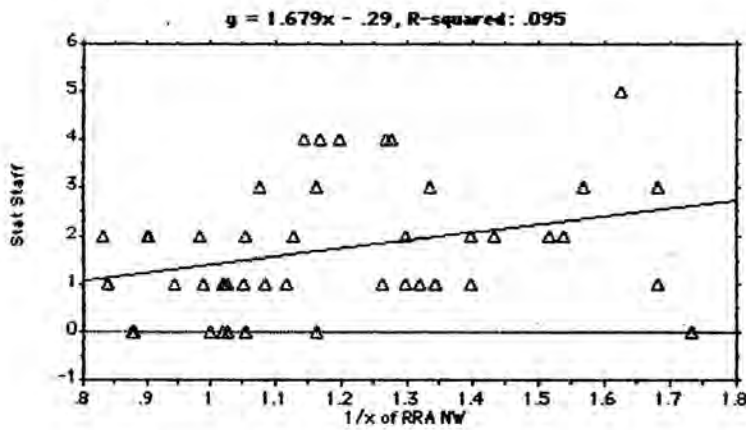
Fourth Floor



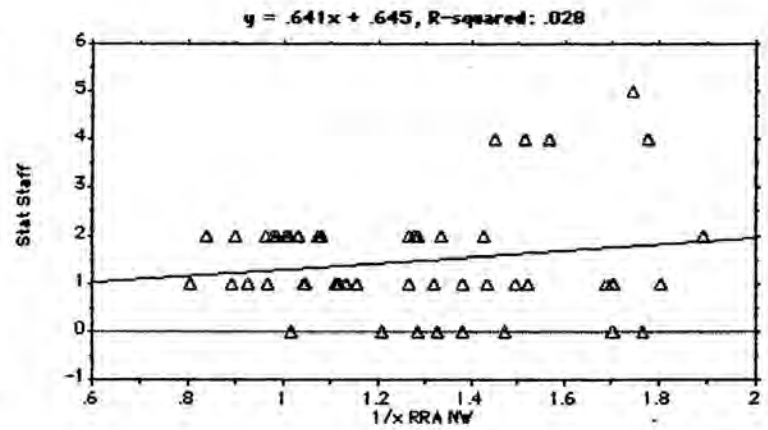
Ground Floor



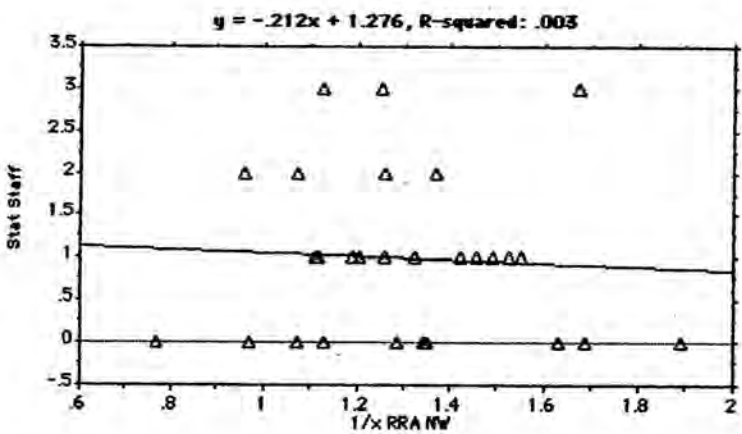
Basement Floor



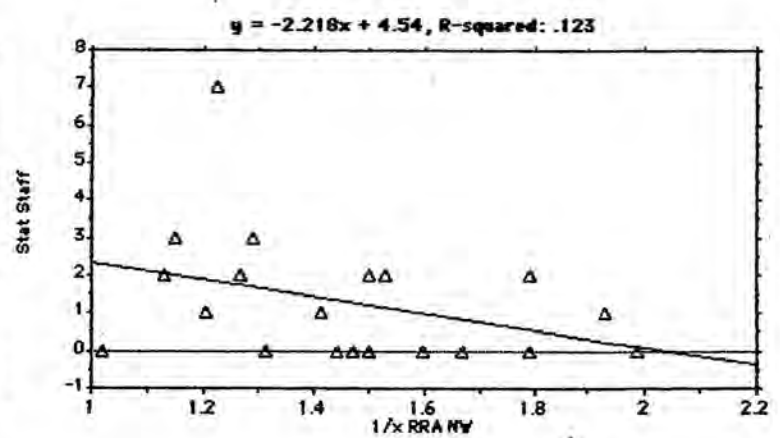
First Floor



Second Floor

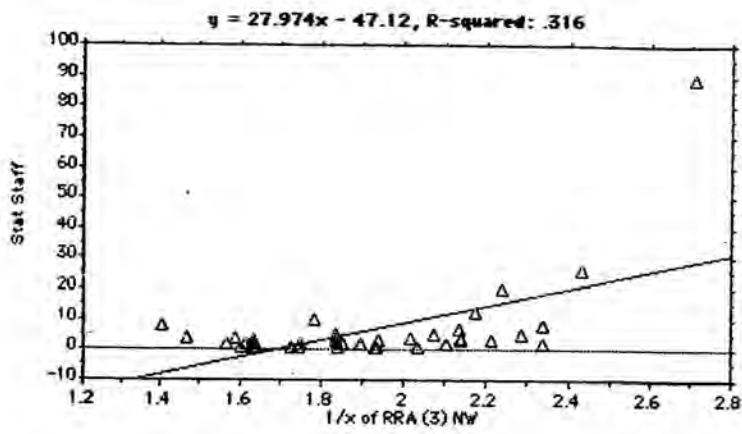


Third Floor

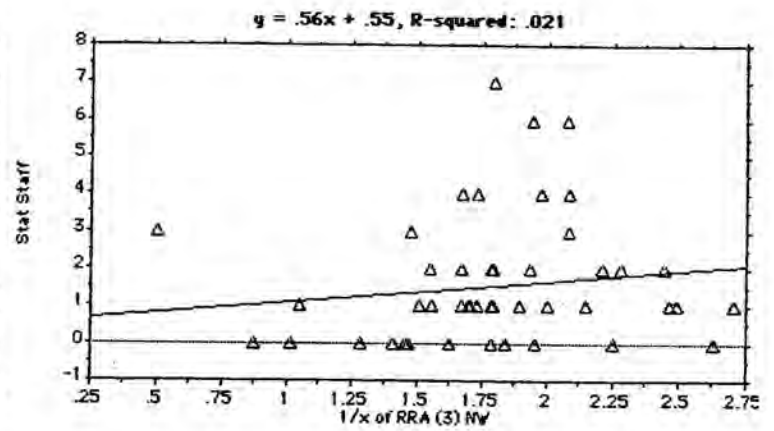


Fourth Floor

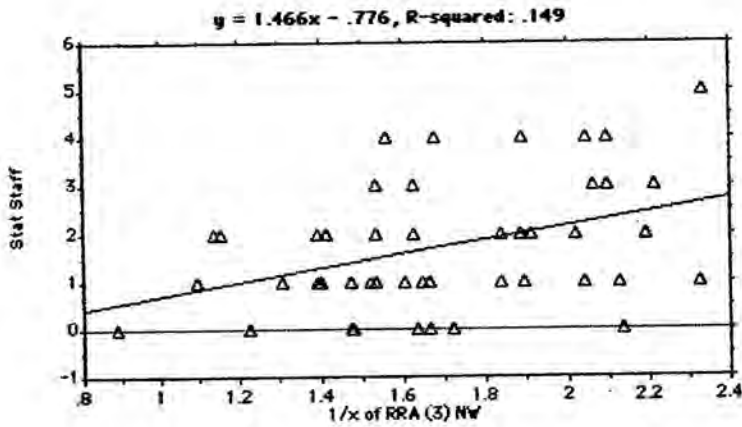
Figures 5.31 a-f



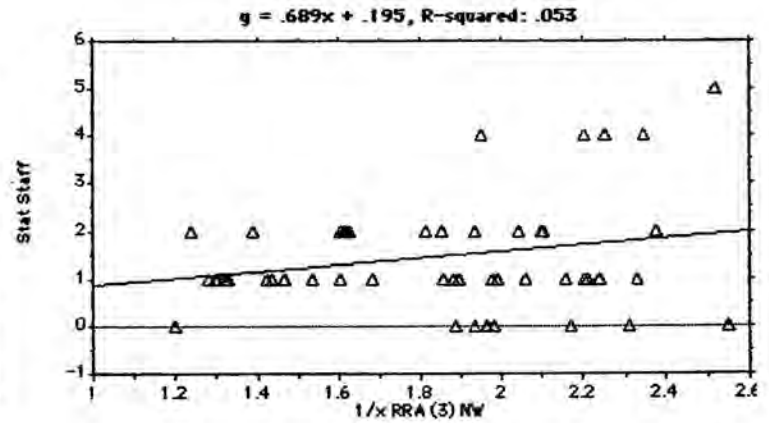
Ground Floor



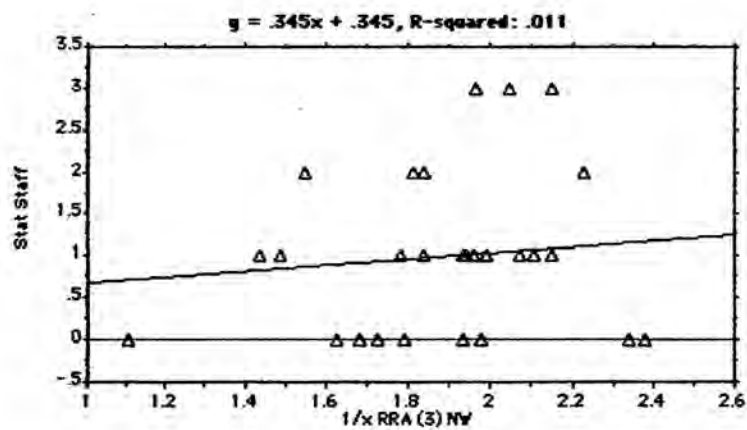
Basement Floor



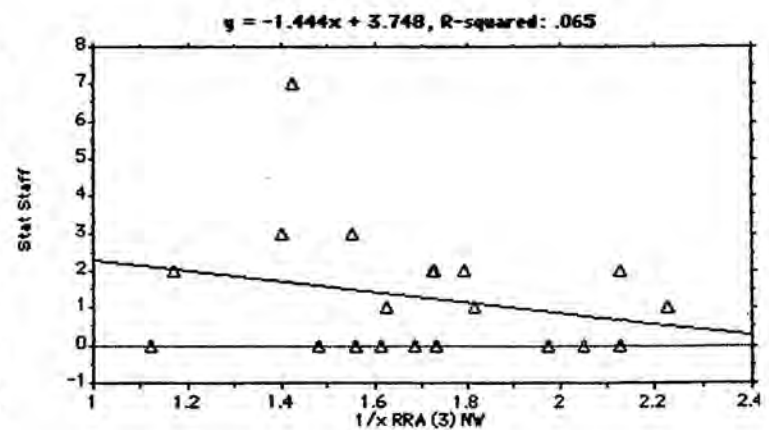
First Floor



Second Floor



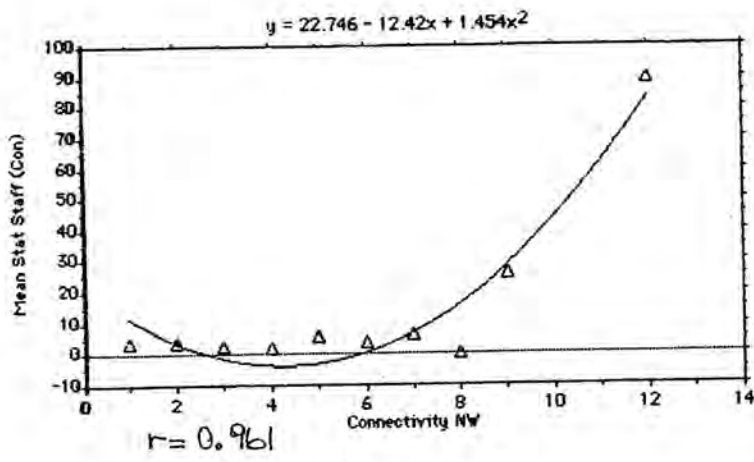
Third Floor



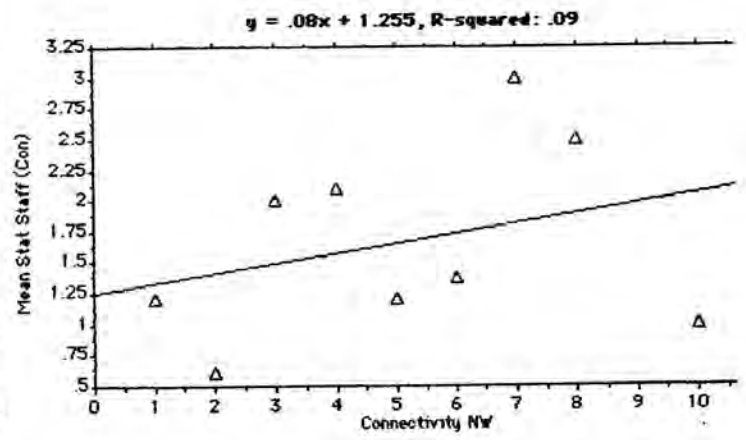
Fourth Floor

Figures 5.32 a-f

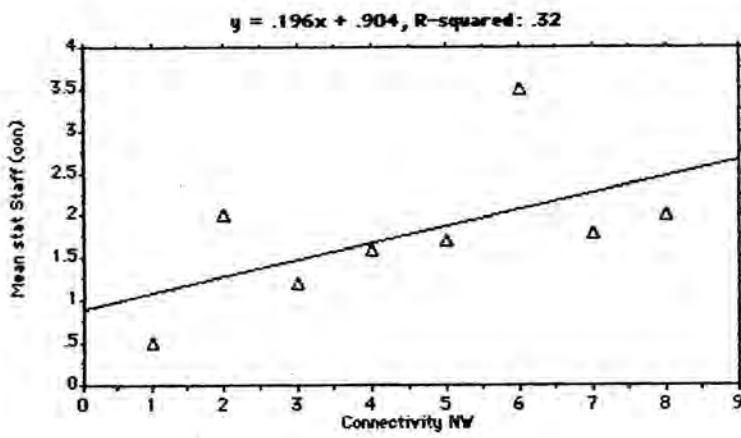




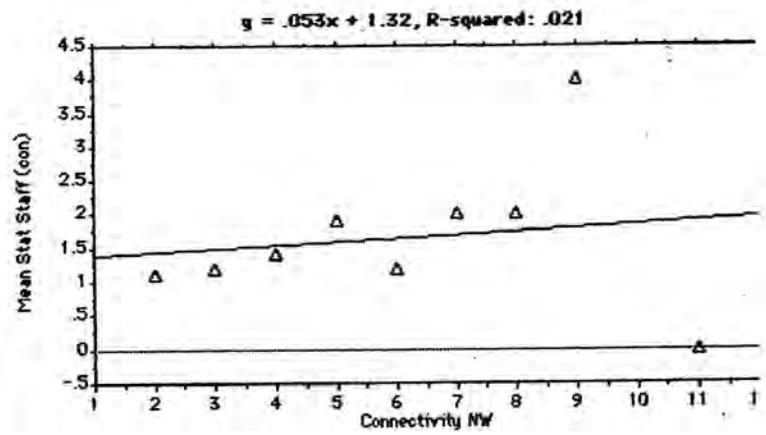
Ground Floor



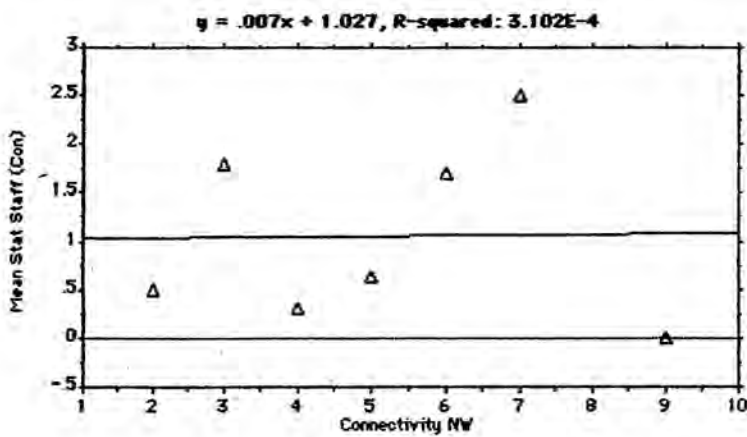
Basement Floor



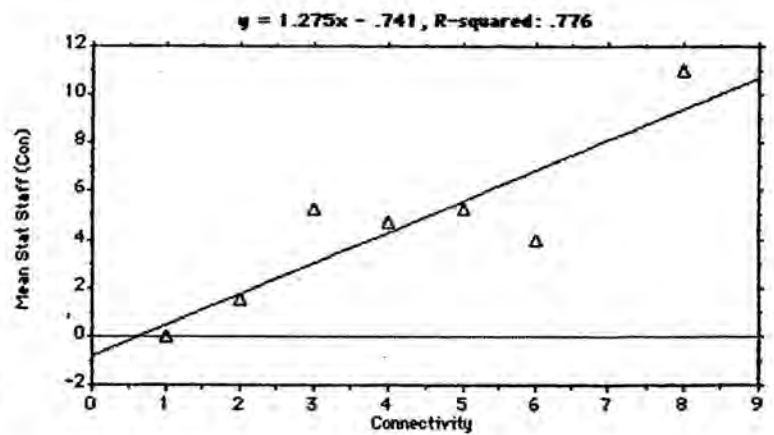
First Floor



Second Floor

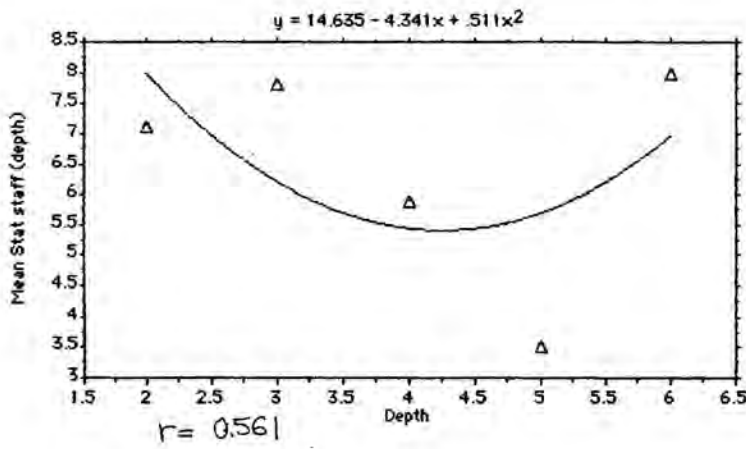


Third Floor

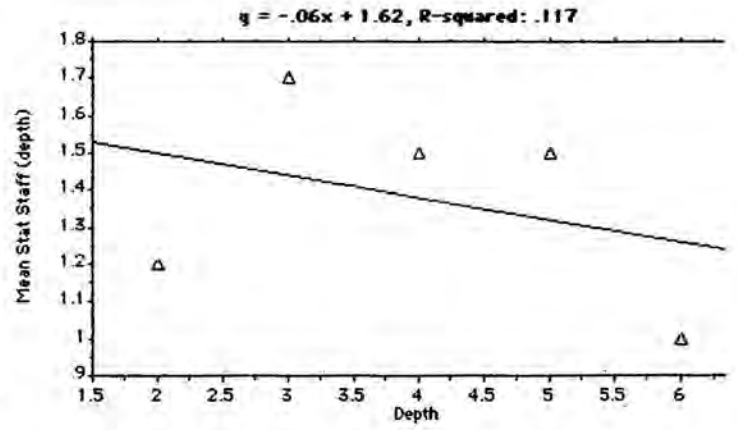


Fourth Floor

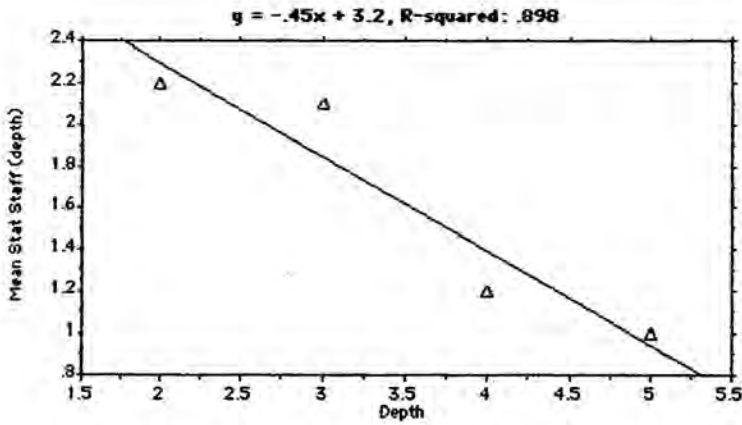
Figure 5.34 a-f



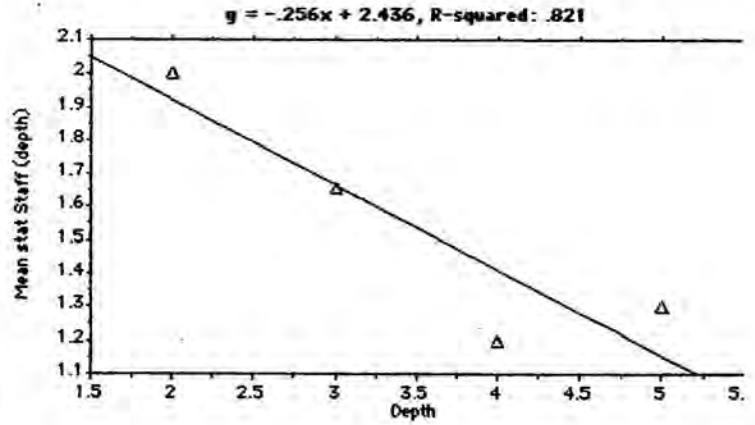
Ground Floor



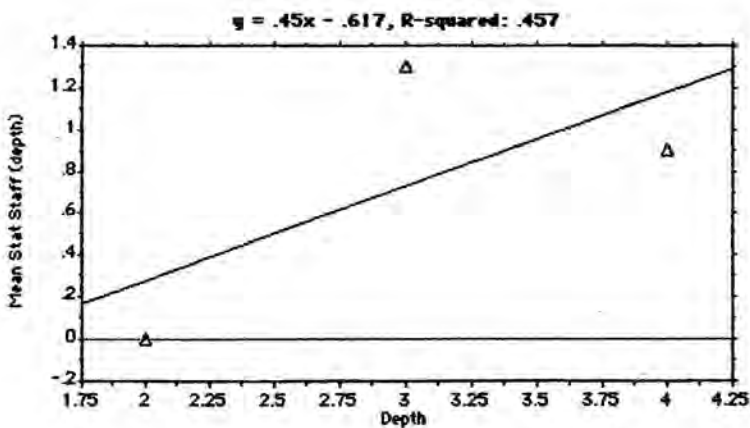
Basement Floor



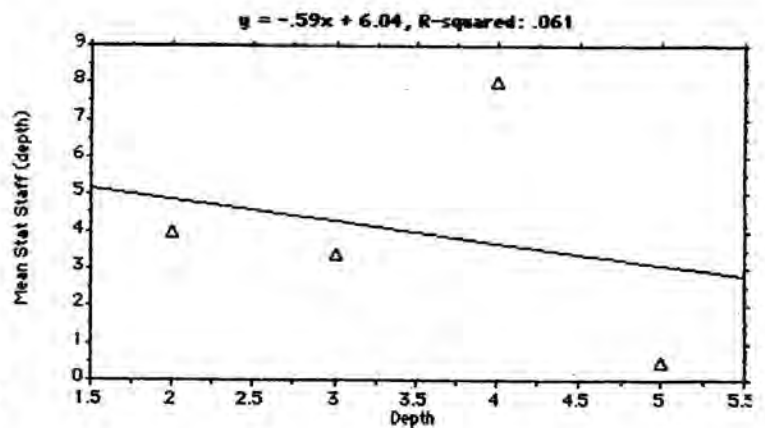
First Floor



Second Floor

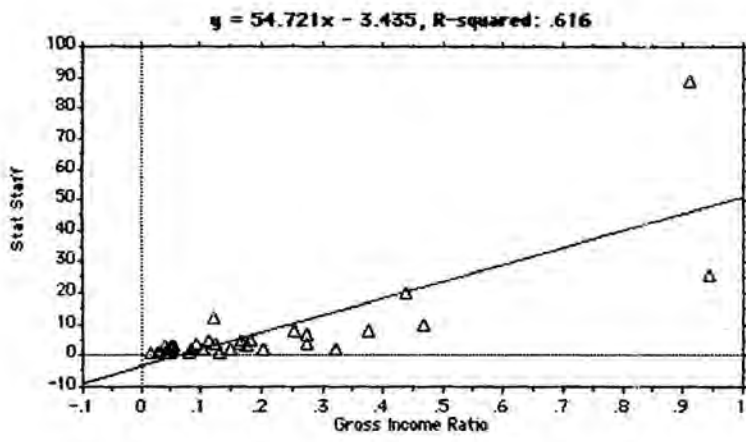


Third Floor

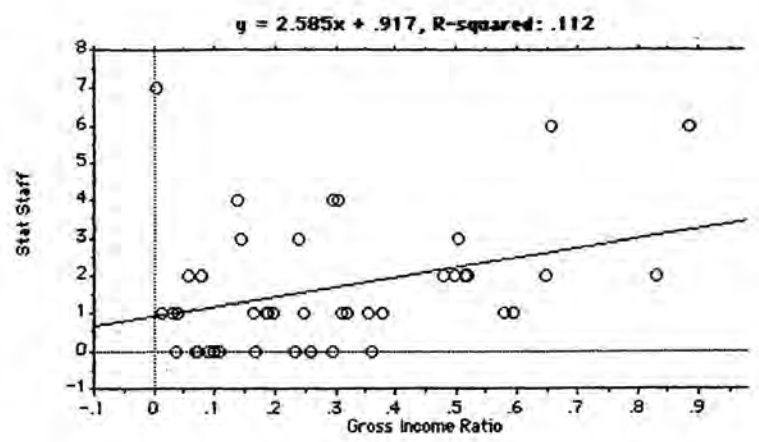


Fourth Floor

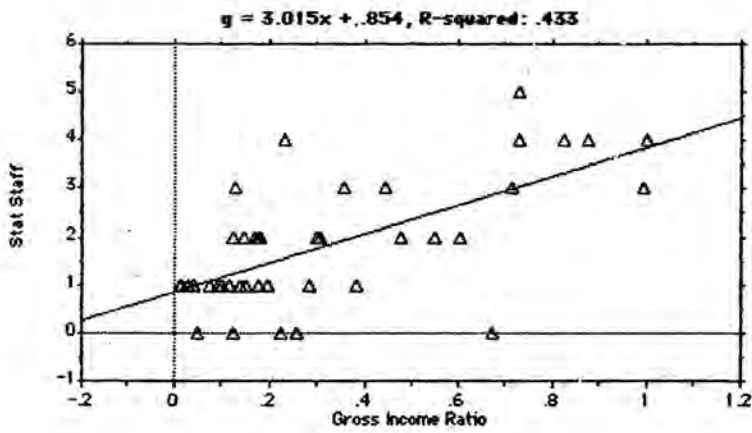
Figures 5.36 a-f



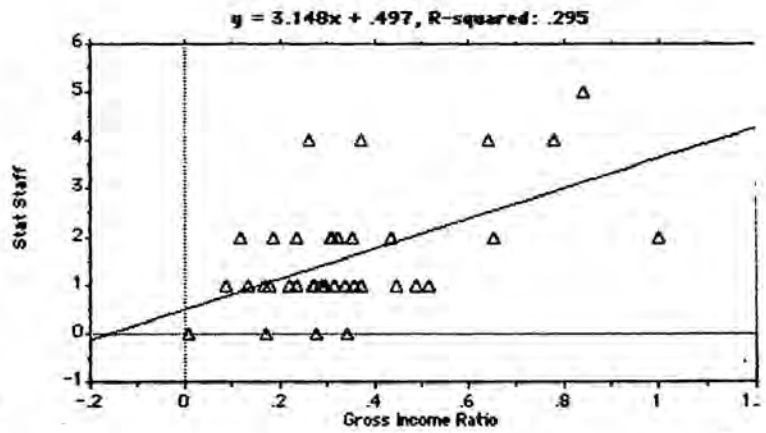
**Ground Floor**



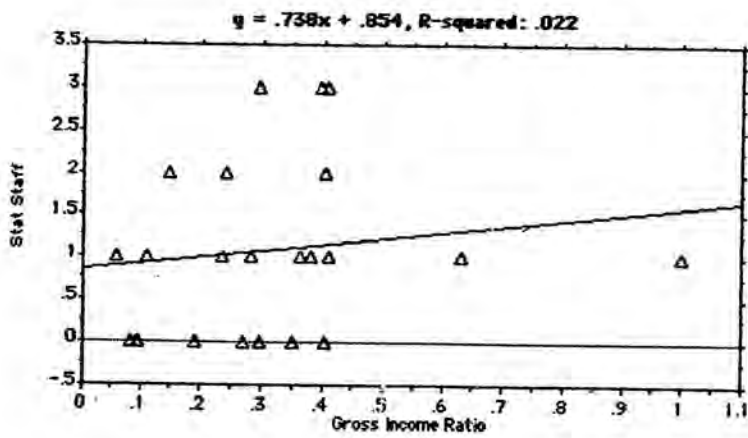
**Basement Floor**



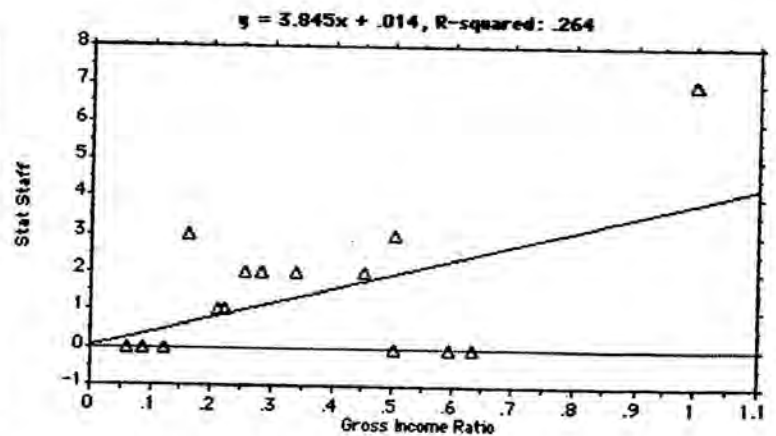
**First Floor**



**Second Floor**

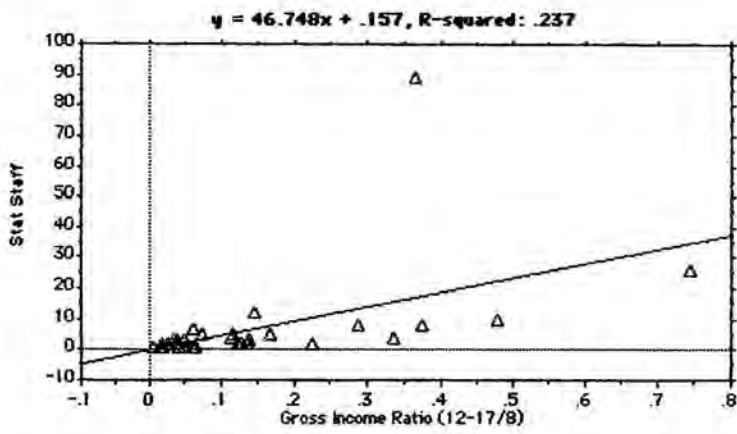


**Third Floor**

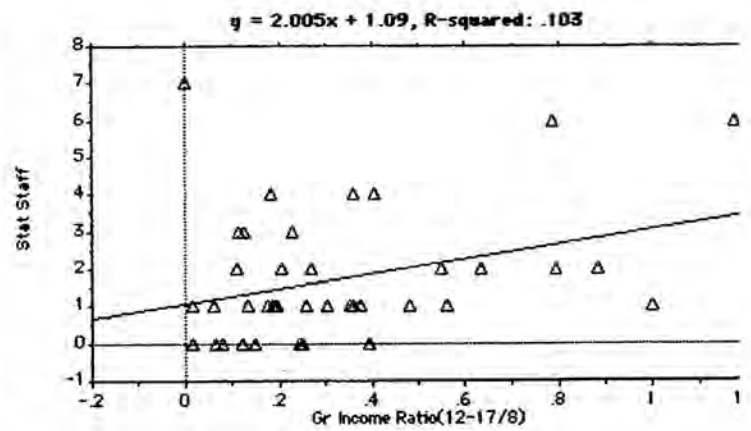


**Fourth Floor**

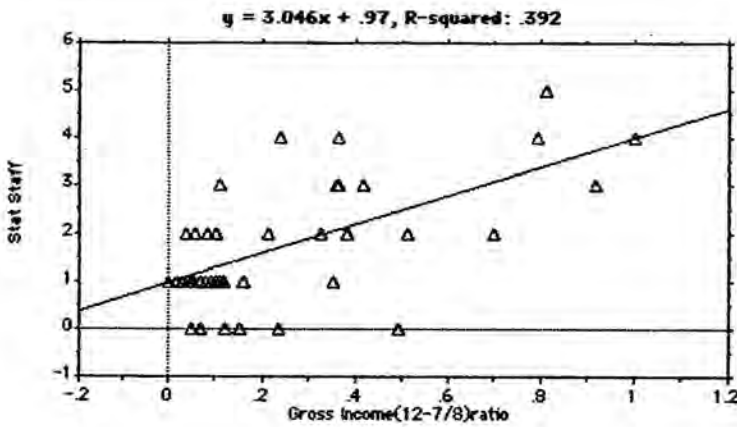
**Figures 5.38 a-f**



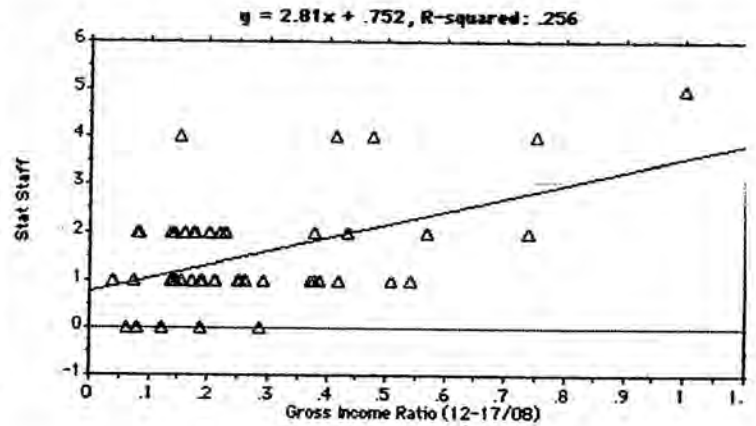
Ground Floor



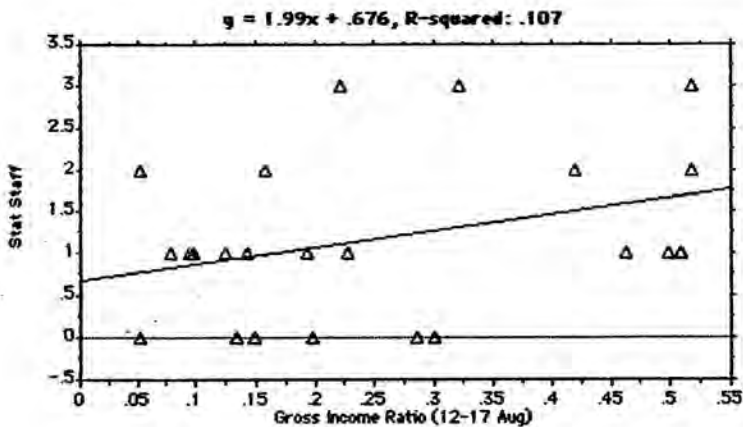
Basement Floor



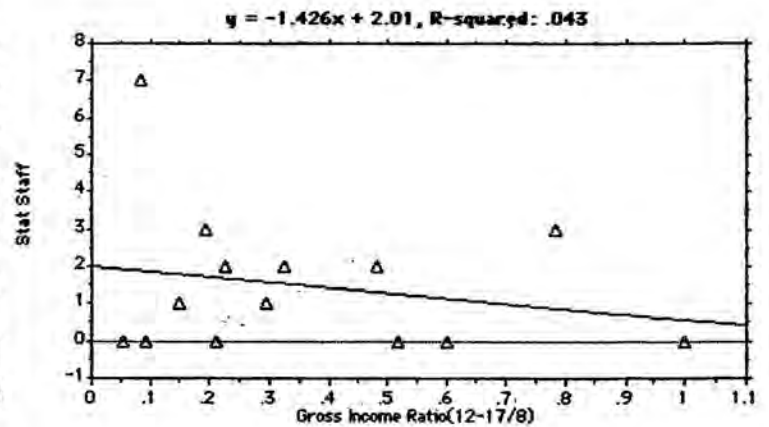
First Floor



Second Floor

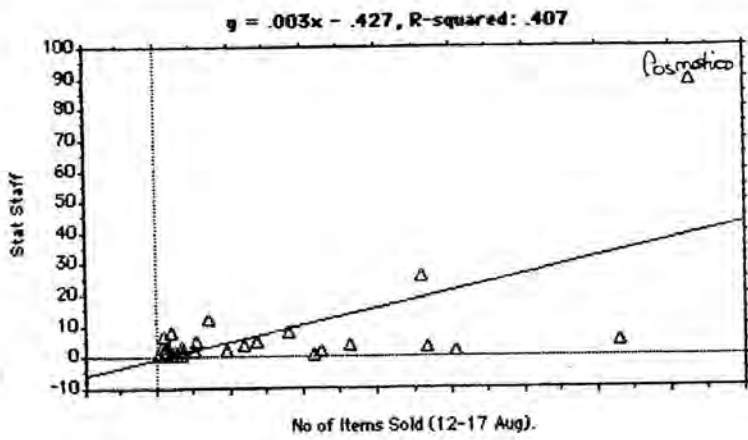


Third Floor

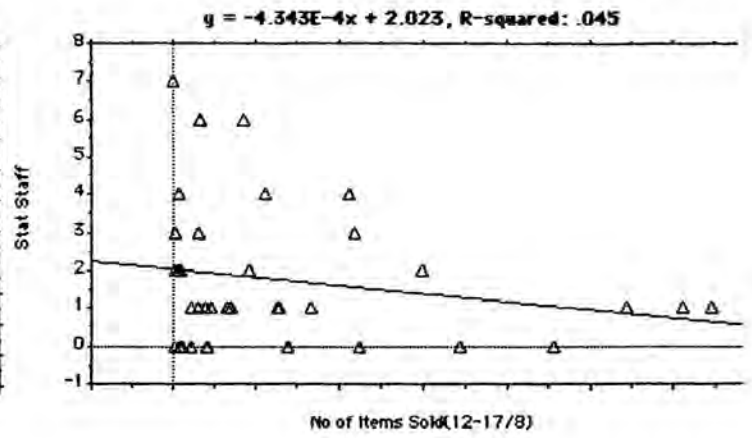


Fourth Floor

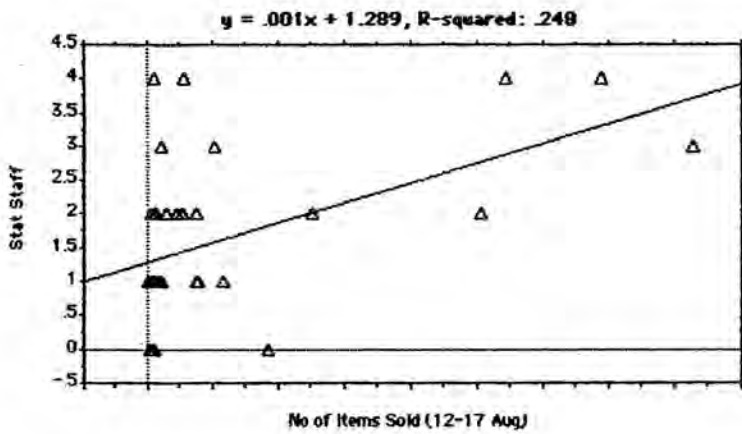
Figures 5.41 a-f



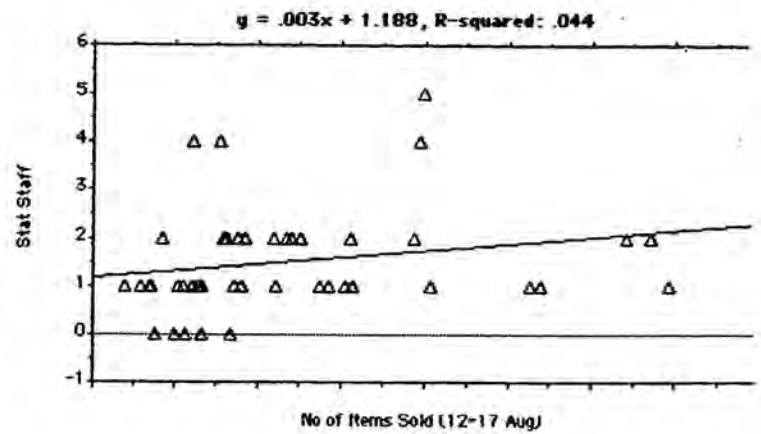
Ground Floor



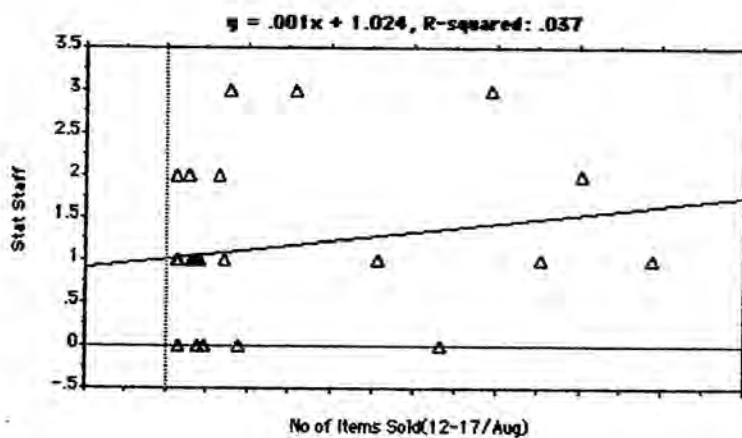
Basement Floor



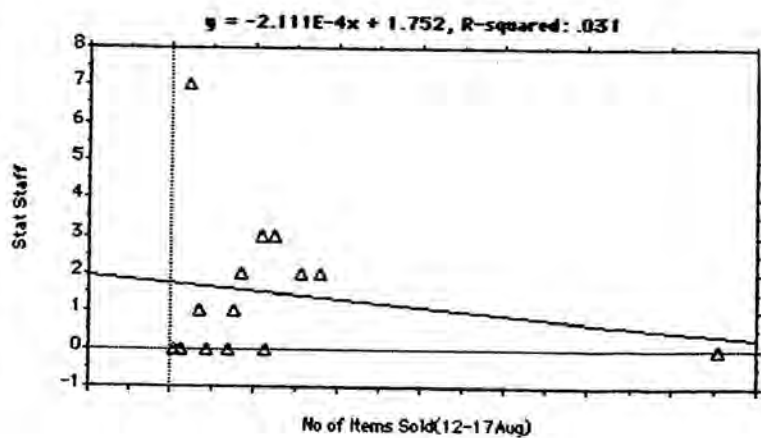
First Floor



Second Floor

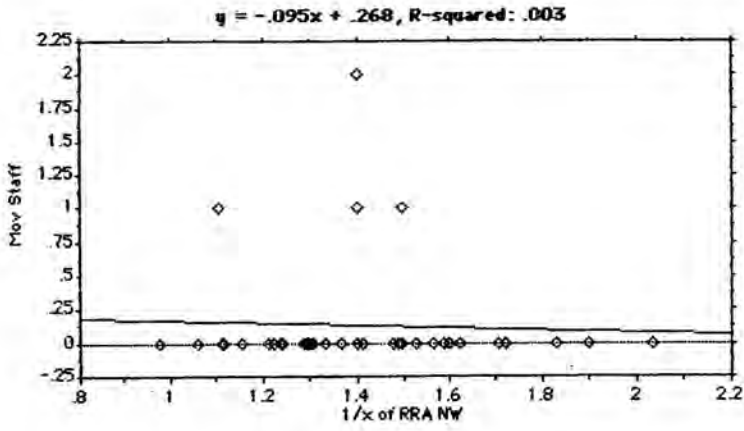


Third Floor

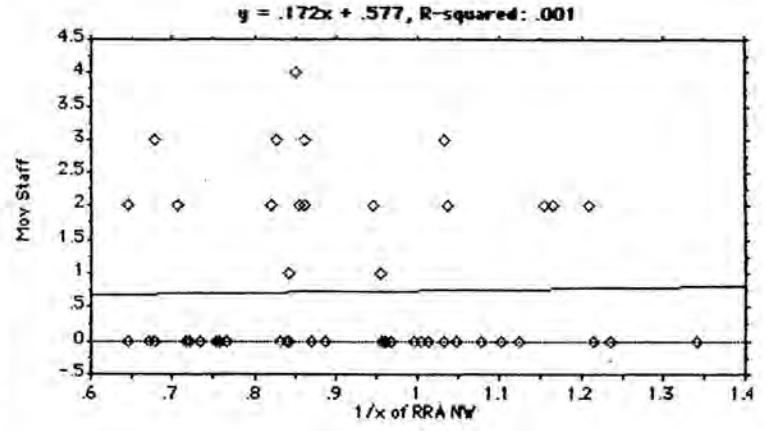


Fourth Floor

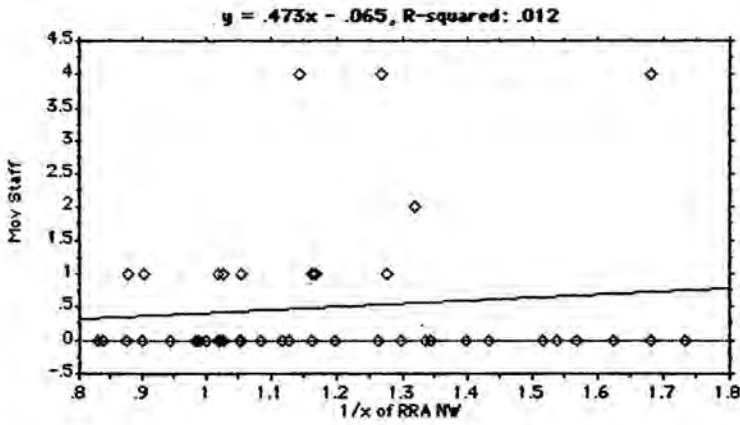
Figures 5.42 a-f



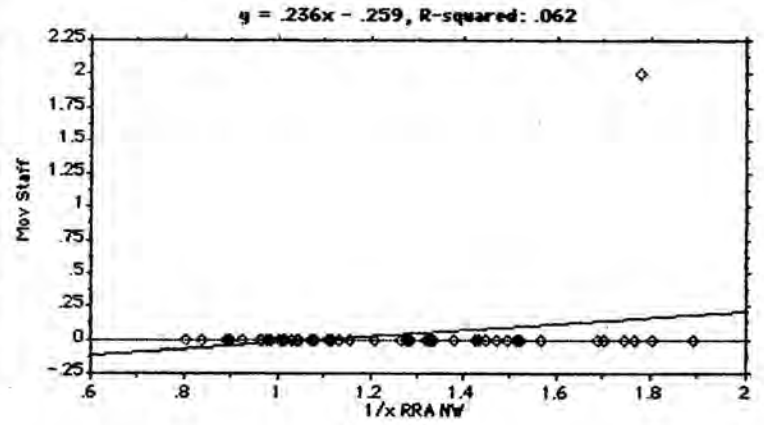
Ground Floor



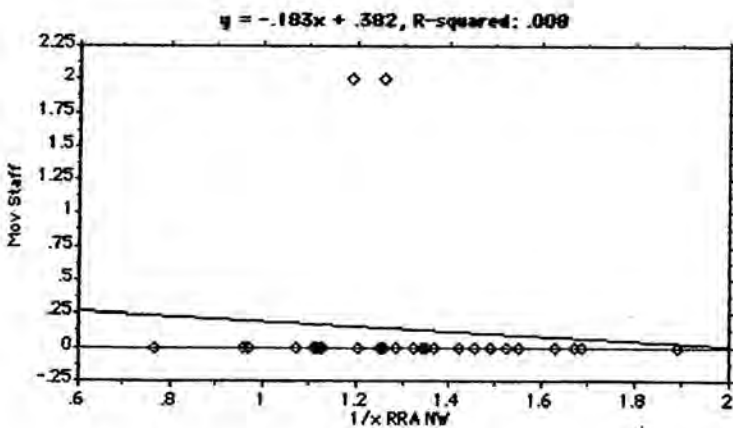
Basement-Floor



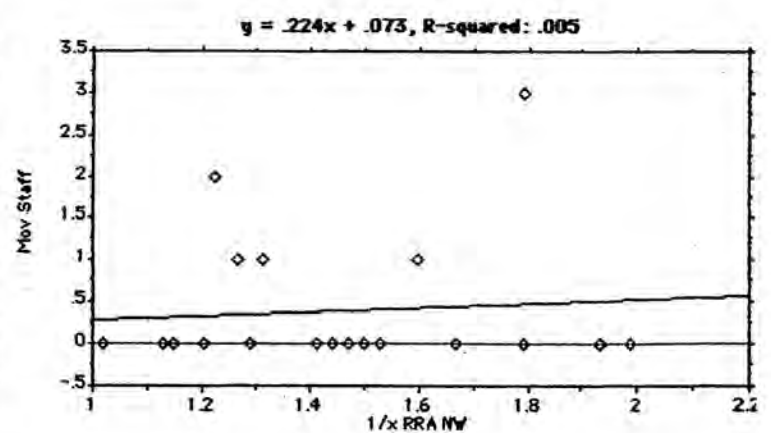
First Floor



Second Floor

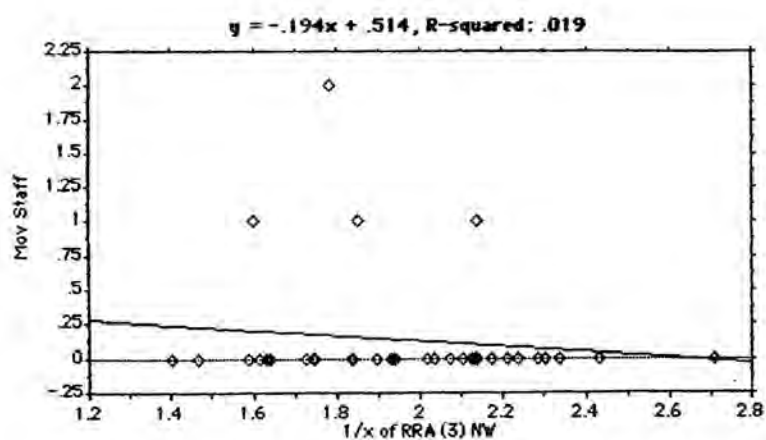


Third Floor

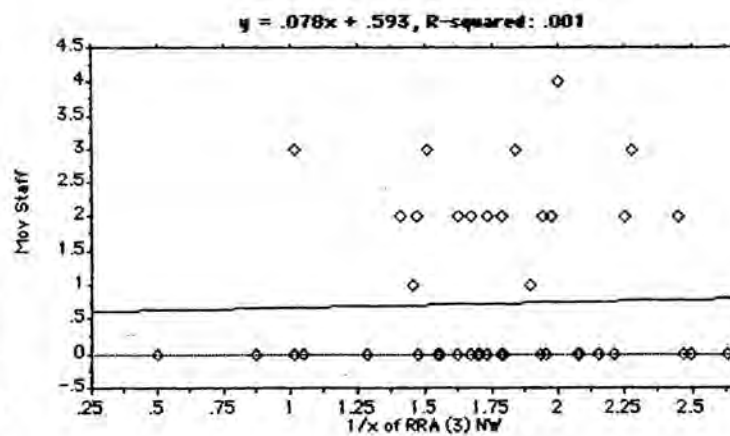


Fourth Floor

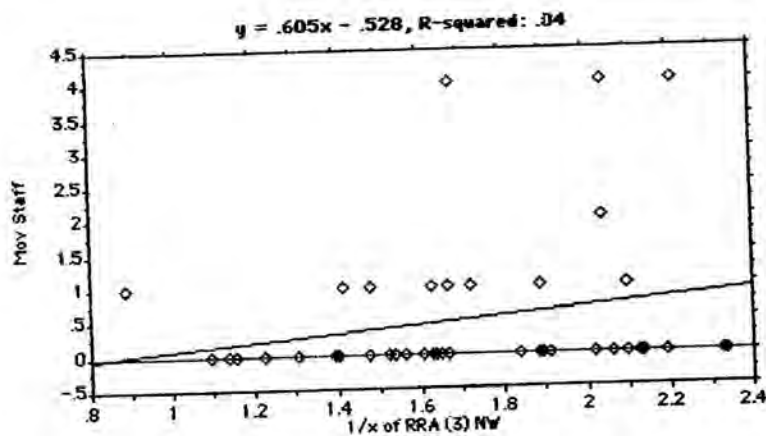
Figure 5.45 a-f



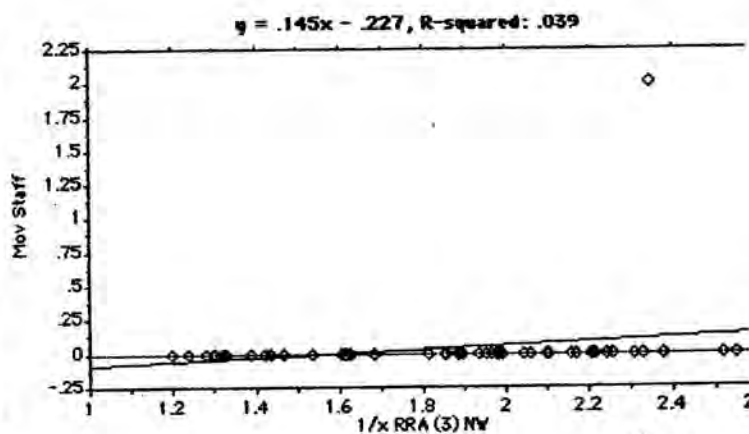
Ground Floor



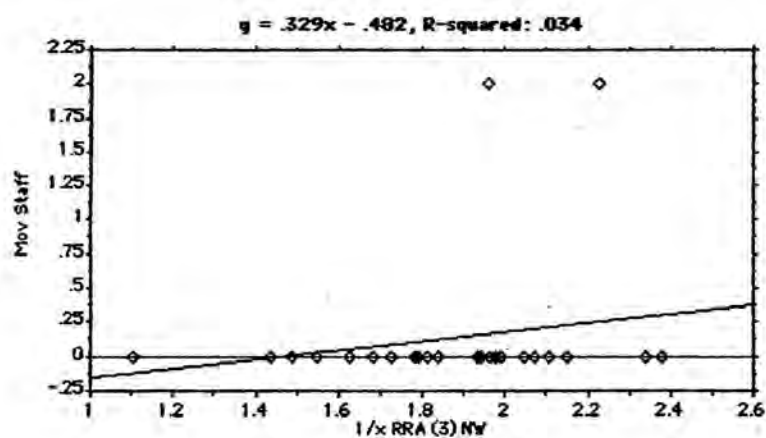
Basement Floor



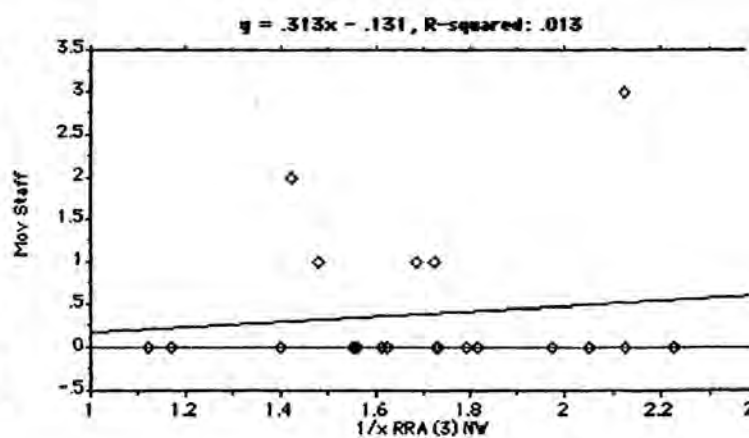
First Floor



Second Floor

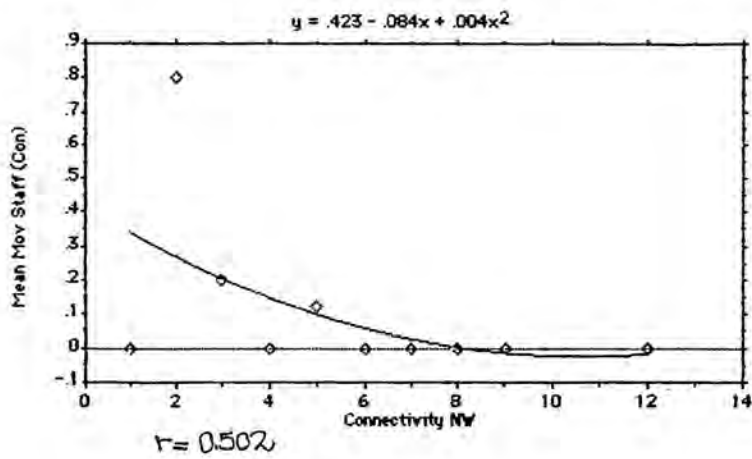


Third Floor

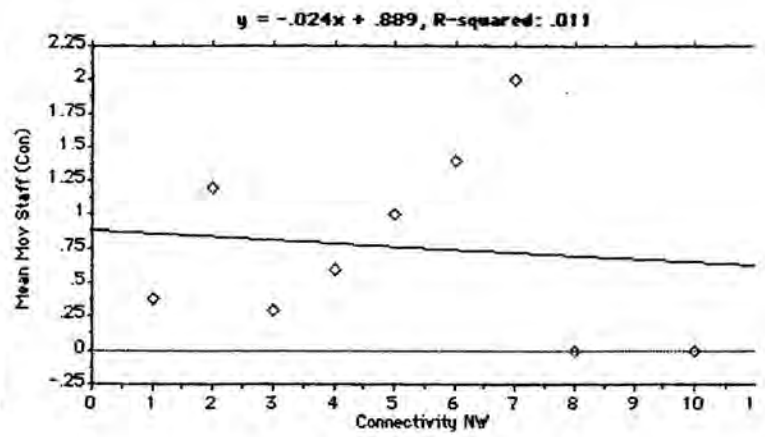


Fourth Floor

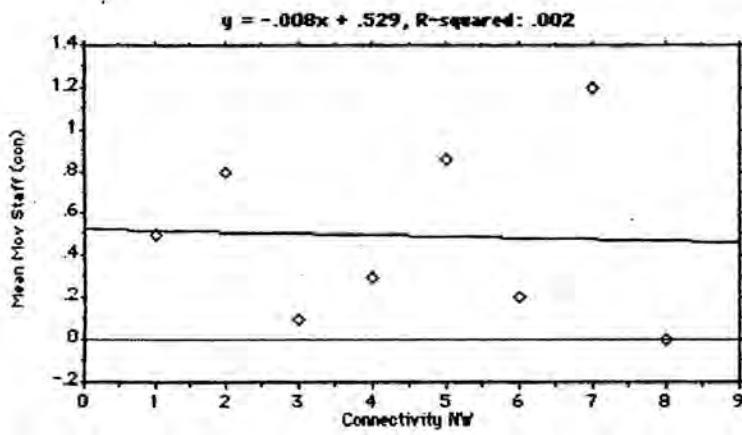
Figures 5.46 a-f



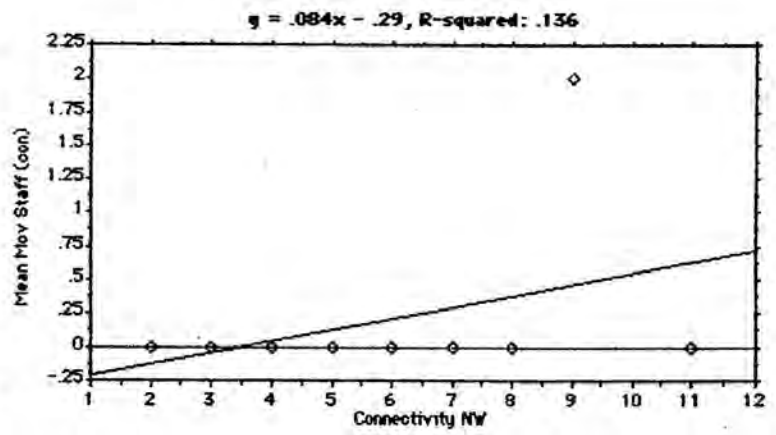
Ground Floor



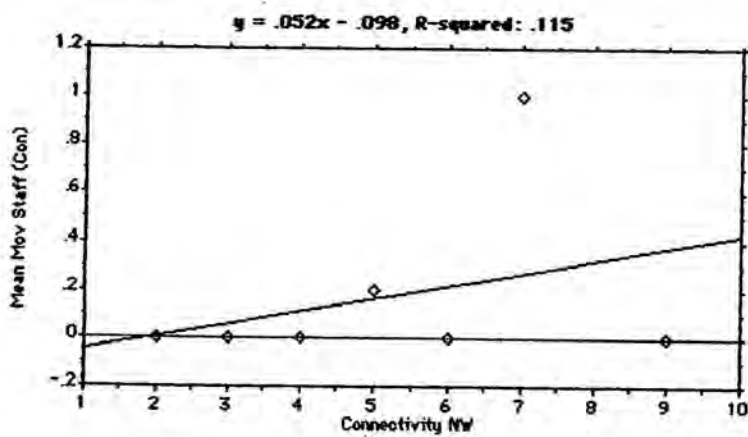
Basement Floor



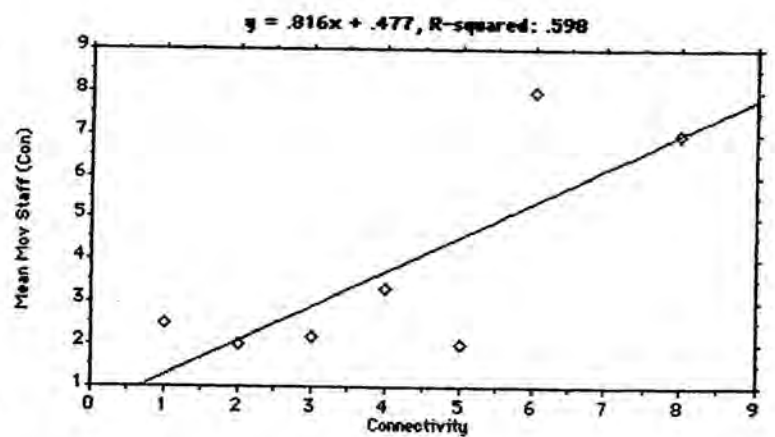
First Floor



Second Floor



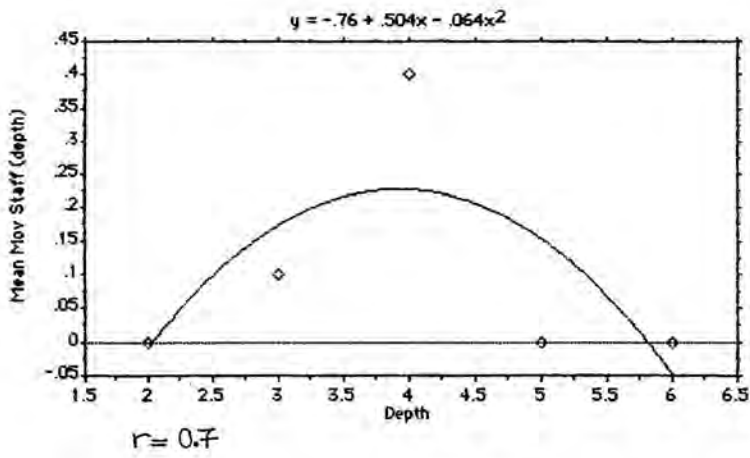
Third Floor



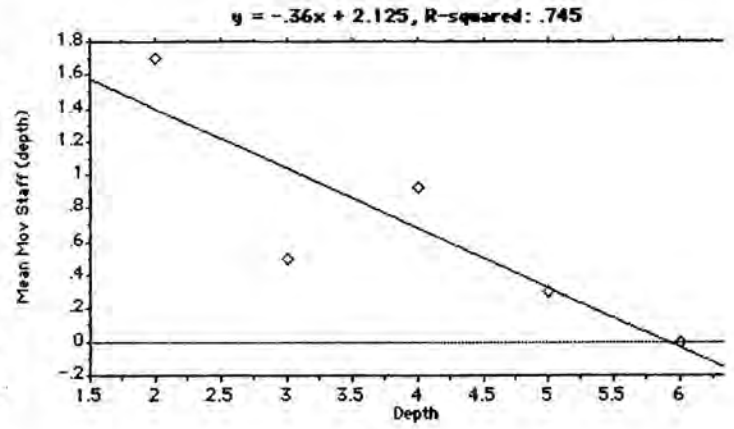
Fourth Floor

Figures 5.48 a-f

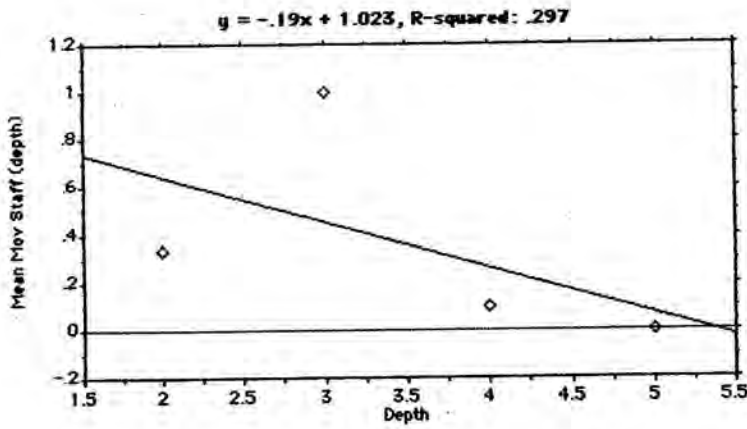




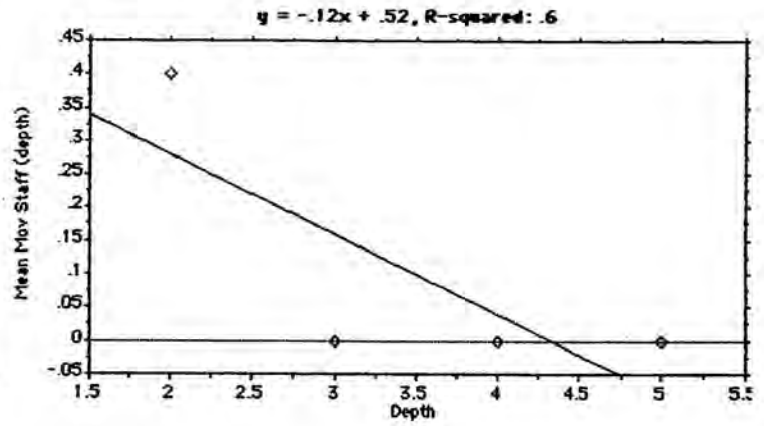
Ground Floor



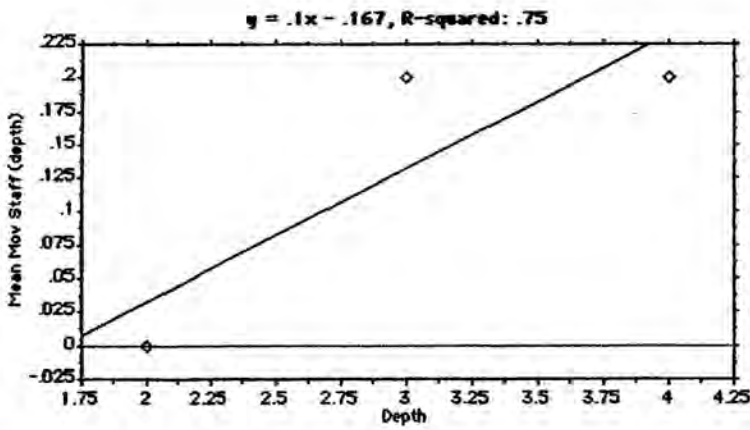
Basement Floor



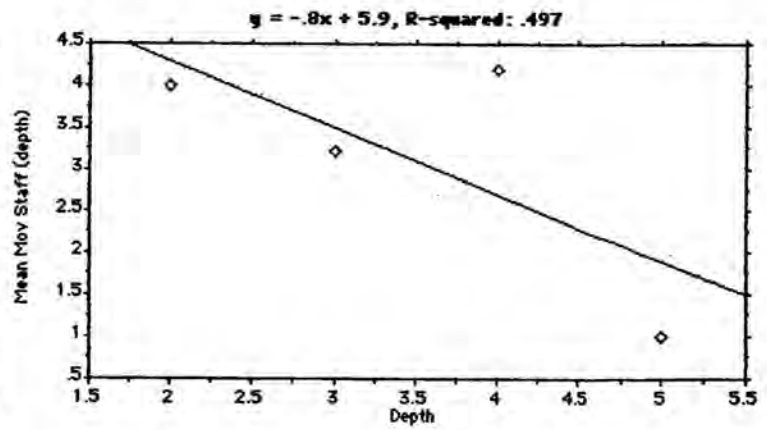
First Floor



Second Floor



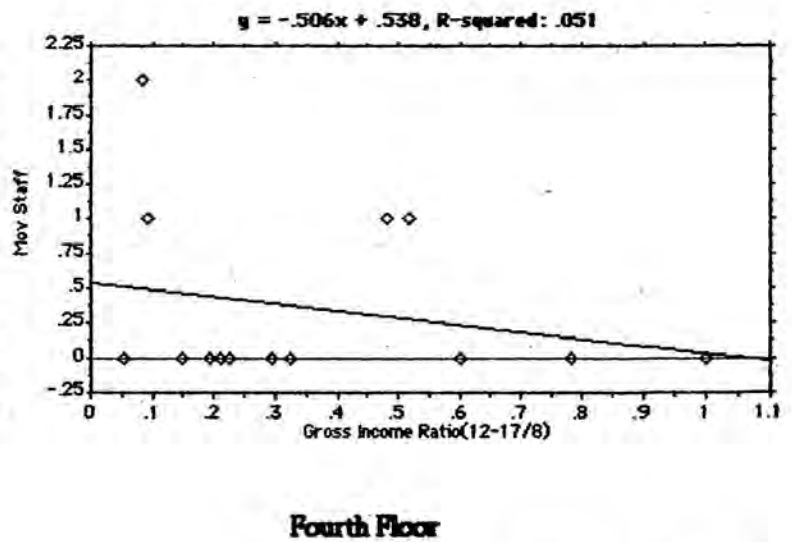
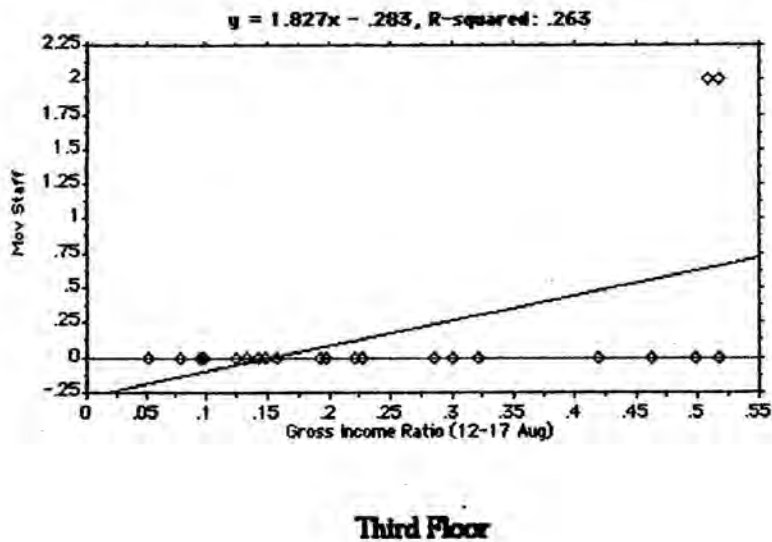
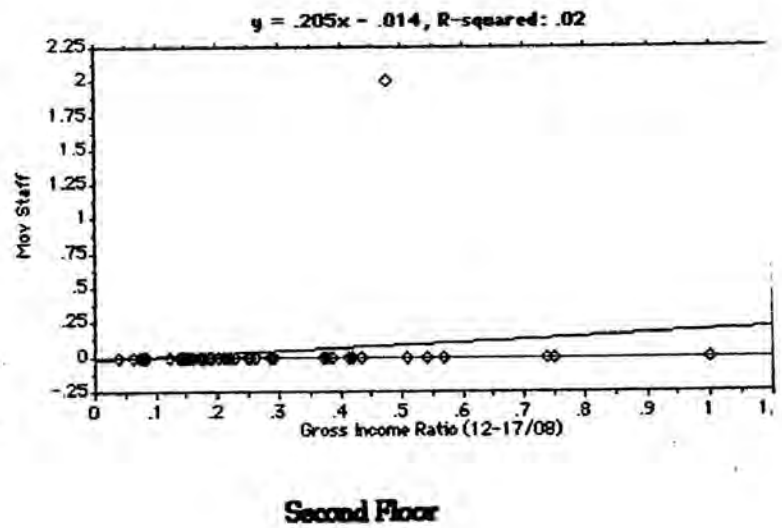
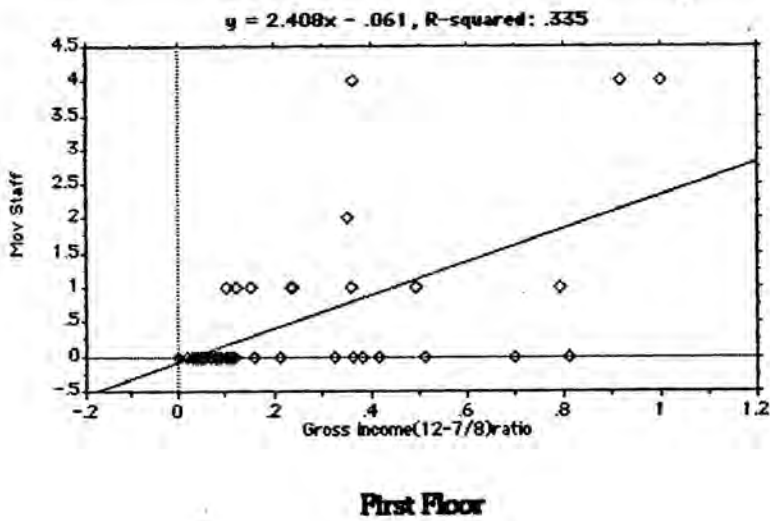
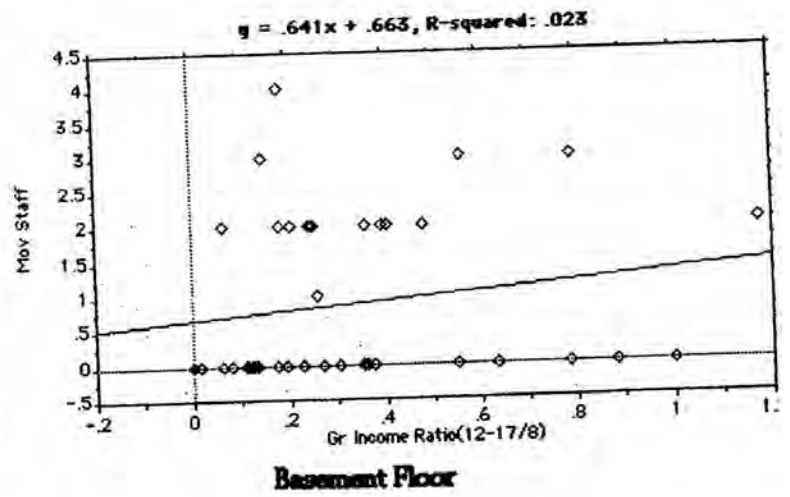
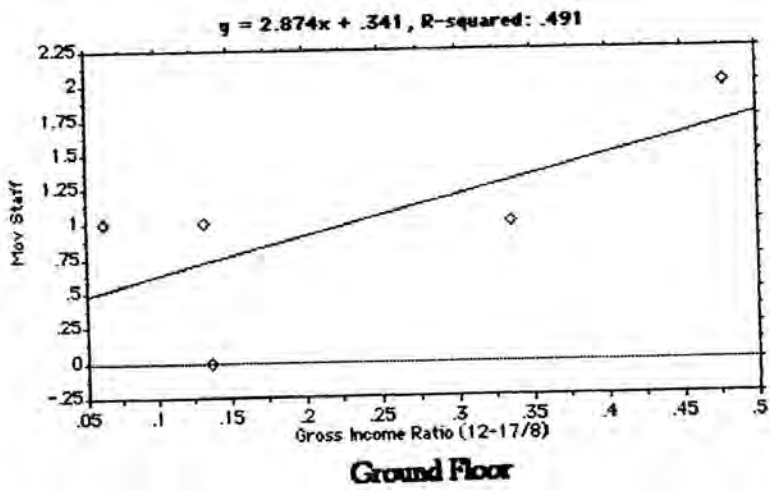
Third Floor



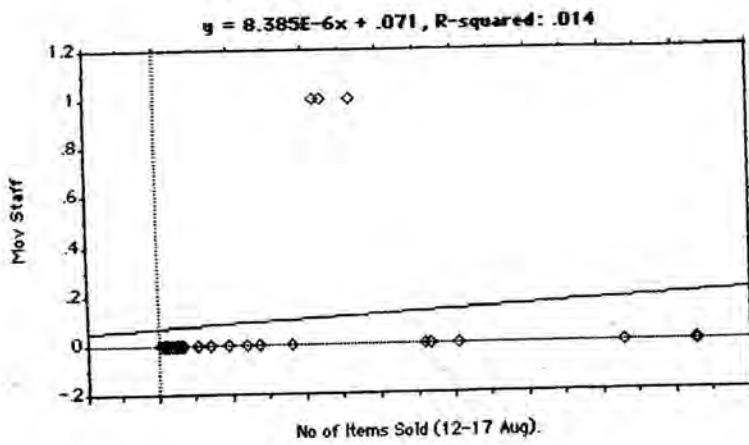
Fourth Floor

Figures 5.50 a-f

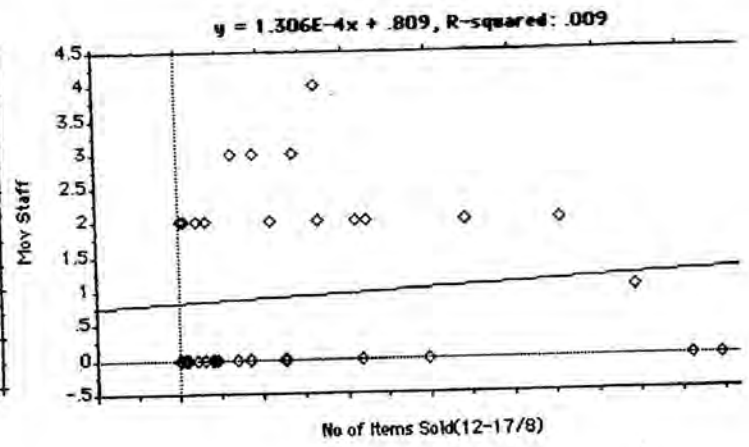




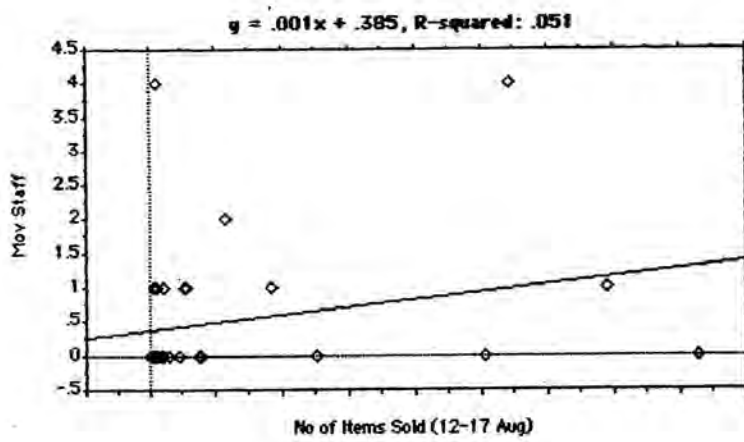
Figures 5.54 a-f



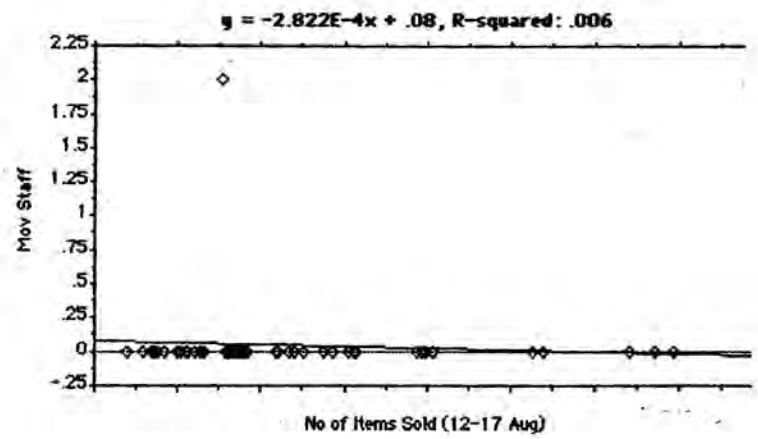
Ground Floor



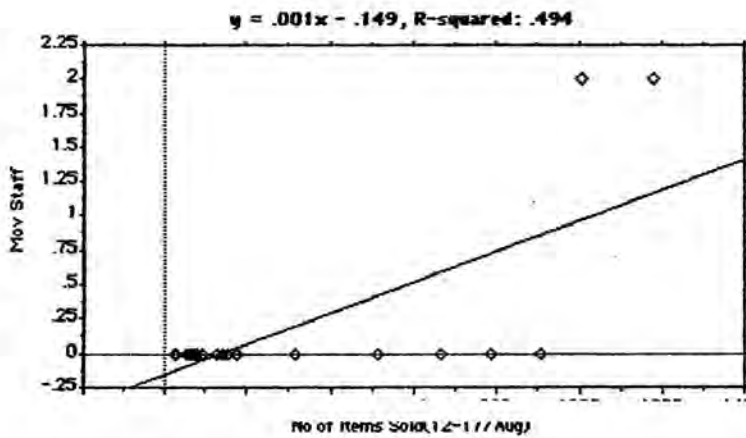
Basement Floor



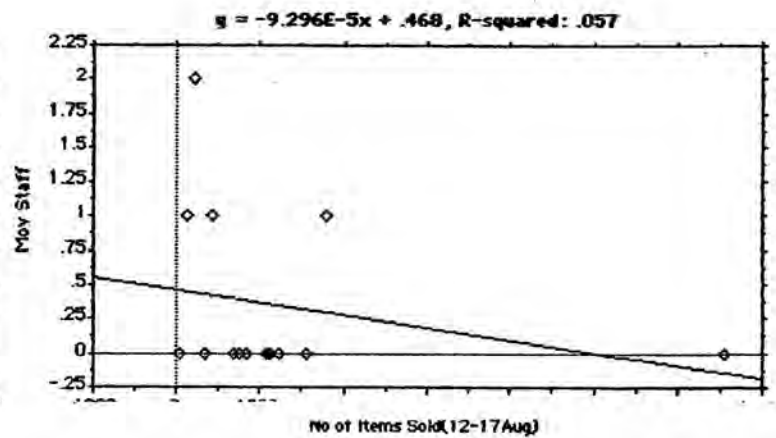
First Floor



Second Floor



Third Floor



Fourth Floor