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Федеральное государственное бюджетное образовательное учреждение высшего образования
«Новгородский государственный университет имени Ярослава Мудрого»
Политехнический институт

Кафедра технологии машиностроения

УТВЕРЖДАЮ
Директор ИПТ
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«23» 05 2017 г

ИНОСТРАННЫЙ ЯЗЫК В СФЕРЕ ПРОФЕССИОНАЛЬНОЙ КОММУНИКАЦИИ

Направление подготовки 07.03.03– Дизайн архитектурной среды (“Проектирование городской среды”, “Проектирование интерьера”)

ФОНД ОЦЕНОЧНЫХ СРЕДСТВ

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Принято на заседании Ученого совета ИПТ
Протокол № 15 от 23.05. 2017 г.

Принято на заседании кафедры ТМ
Протокол № 8 от 20.04 2017 г.

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Паспорт фонда оценочных средств
для направления подготовки 07.03.03 – Дизайн архитектурной среды (“Проектирование городской среды”, “Проектирование интерьера”)

Модуль, раздел (в соответствии с РП)	ФОС		Контролируемые компетенции (или их части)
	Вид оценочного средства	Количество вариантов заданий	
Модуль 1: Грамматические конструкции в переводе литературы по дизайну архитектурной следы			
1.1 Введение в грамматику английского языка. Времена, залоги, использование предлогов в текстах по дизайну архитектурной следы.	опрос	1	ОК-12, ПК-3
1.2 Перевод последовательности существительных, порядок слов предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.3 Перевод страдательного залога в архитектурно-строительной литературе. Перевод текстов, включающих пассивный залог предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.4 Перевод модальных глаголов в архитектурно-строительной литературе. Перевод в архитектурно-строительных текстов, включающих модальные глаголов предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.5 Перевод сослагательного наклонение. Особенности употребления и перевода сослагательного наклонения предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.6 Перевод герундия. Особенности употребления и перевода герундия предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.7 Перевод инфинитива. Особенности употребления и перевода инфинитива предлогов в текстах по дизайну архитектурной следы.	опрос	1	
1.8 Причастия, их употребление и перевод.			
1.9 Причастные обороты, их употребление и перевод предлогов в текстах по дизайну архитектурной следы.	опрос	1	
Рубежный контроль	опрос	1	
Модуль 2: Практика перевода литературы по дизайну архитектурной следы			

2.1 Способы перевода многофункциональных слов предлогов в текстах по дизайну архитектурной следы.	опрос	1	ОК-12, ПК-3
2.2 Перевод некоторых союзов, предлогов и наречий предлогов в текстах по дизайну архитектурной следы.	опрос	1	
2.3 Устойчивые фразеологические словосочетания предлогов в текстах по дизайну архитектурной следы.	опрос	1	
2.4 The public realm of cities and urban design.	опрос	1	
2.5 The elements of the physical public realm.	опрос	1	
2.6 The urban designing process.	опрос	1	
2.7 Types of urban design. The products of city planning and the nature of urban design.	опрос	1	
2.8 The design dimension of comprehensive planning for existing cities. Water supply and waste disposal.	опрос	1	
2.9 Тест словарного запаса.	опрос	1	
Аттестация ДЗ	опрос	1	

Характеристики оценочных средств

1 Опрос

Опрос состоит из переводов с русского языка на английский и с английского на русский типовых грамматический конструкций с учетом профессиональной тематики, а также контроля знания словарного запаса в профессиональной области. Опрос также включает проверку знания типовых разговорных фраз на английскиом языке. Описание содержания опроса представлено в источникае(1) и на Web странице http://www.novsu.ru/doc/study/dept/1132/?id=1073237

Таблица 1 – Параметры оценочного средства (опрос)

Источник (1)	Перевод литературы по дизайну архитектурной среды : учеб. пособие / авт.-сост. С. А. Попов; НовГУ им. Ярослава Мудрого. –Великий Новгород, 2014. - 95 с.
Источник (2)	Conversational English in Situational Patterns: учеб. метод. пособие / Авт.–сост. С. А. Попов, Е.Ф. Жукова, В.Б. Петрухин; НовГУ им. Ярослава Мудрого. – Великий Новгород, 2015. – 116 с.
Источник (3)	Попов С. А. Информационные технологии в лингвистике: учебное пособие / Попов С. А., Жукова Е.Ф.; НовГУ им. Ярослава Мудрого. – Великий Новгород, 2014. – 235 с.
Предел длительности контроля	не более 15 минут на один опрос
Предлагаемое количество вопросов из одного раздела	все
Критерии оценки:	
«5» (от 9 до 10 баллов), если	Перевод выполнен правильно, владеет осмысленным пониманием материала , умеет отстаивать и доказывать свою точку зрения, отвечает на вопросы по существу. Регламент выдерживает
«4» (от 6 до 8 баллов), если	Перевод выполнен в целом правильно, смысл раскрыт, есть неточности грамматических и/или лингвистических конструкций. Выдерживает регламент.
«3» (от 3 до 5 баллов), если	Перевод в целом отражает смысл, но есть ошибки грамматических и/или лингвистических конструкций, которые искажают смысл исходного текста. Не выдерживает регламент.

Приложение В

(обязательное)

Характеристика оценочного средства

Опрос

Модуль 1: Грамматические конструкции в переводе литературы по дизайну архитектурной следы

В.1 Тексты для перевода по разделу 1.1,1.2,1.3.

1. Раз в неделю архитектор проверяет строительство (Как часто)
2. Он работает в международной компании (Где)
3. Совещание начнется в три часа (Когда)
4. Она переехала в Москву в 2012 году (Когда)
5. Есть курсы по гражданскому, промышленному и сельскохозяйственному строительству (Есть ли)
6. Вероятно, что строительное оборудование скоро прибудет (Что)
7. Население имеет доступ к медицинскому обслуживанию и образованию (Имеет ли)
8. Наши товары хорошо продаются (Как)
9. Я буду работать пока я не закончу задание (Как долго)
10. В строительстве используются железобетонные изделия (Что)
11. В следующем году наша компания открывает новый завод (Что)
12. Я начертил план этажа (Что)
13. На каникулах летом я работаю в мастерской (Где)
14. Не мешайте, я говорю по телефону (Он говорит)
15. На следующей неделе мы едем в Гамбург (Куда)
16. Все работали, когда я пришел (Когда)
17. Что здесь строится? (Новое здание)
18. Я забыл взять книгу (Что)
19. Он уже извинился (Что)
20. Вы когда-нибудь использовали это оборудование? (Раньше)
21. Мы занимаемся уже два часа (Как долго)
22. Я ищу это слово в словаре (Что ты)
23. Наша компания использует компьютеры длительное время (Как долго)
24. Когда улетает первый самолет в Париж? (Вечером)
25. Техническое обслуживание не требуется (Что)
26. Люди часто не имеют профессии (Кто)
27. Имеется программное обеспечение для проектирования зданий (Для чего)
28. Многие дома в сельской местности не имеют водоснабжения (Где)
29. Вчера я купил интересную книгу (Что)
30. Когда я приду домой, я тебе позвоню (Когда)

31. Она уже принесла учебник (Что)
32. Он прожил в этом городе 10 лет (Как много)
33. Я жду тебя полчаса (Кого)
34. Ты когда-нибудь был в Нью-Йорке? (Где)

1. In Anglo-Saxon countries, particularly in the United Kingdom, Canada and the United States, the term “municipal engineering” has a similar meaning to "urban engineering".
2. Urban engineering can be described as the branch of engineering that covers all the civil and environmental engineering services related to the range of complex problems associated with infrastructure, services, buildings, environmental and land-use issues generally encountered in urban areas.
3. Don’t confuse indents with margins.
4. Characters are the letters, numbers, and symbols you enter from the keyboard.
5. There are many ways in which the Web can be used for education.
6. Consumers who have tried on-line shopping appreciate the ease of e-commerce.
7. If the fluid level in the container is allowed to recede, the level height *h* will change, which will have to be accommodated for in calculations.
8. The state of Rio de Janeiro consists of 92 communities.
9. It consists of a software directed to the technical drawing, with several computational tools.
10. University-level urban engineering teaching in Brazil has traditionally been carried out at graduate level.
11. Another problem is that the most part of the people that migrate to the big cities, do not have a profession.
12. The sustainable urban development needs planning.
13. Decision makers have two basic options with respect to maintenance: breakdown maintenance and preventive maintenance.
14. Computer system hardware components include devices that perform the functions of input, processing, data storage, and output.
15. A management information system (MIS) is useful to a production manager to help monitor and control inventory levels, labor and job costs.
16. At the bottom is a subsurface drainage system of pierced PVC pipe in a gravel bed.
17. The second step focuses on the identification and characterization of all the factors which, some how, limit the universe of ways in which the transport system can be structured.
18. Rubber-like synthetic polymer insulation is used in industrial cables and power cables installed underground because of its superior moisture resistance.
19. Cables insulated with compressed mica flakes are sometimes used.
20. Many houses in rural areas still use a cistern or a well where convenient water supply is not available; a pump and pressure tanks are used to create and maintain system pressure needed for operating the plumbing fixtures.
21. Heat transfer by natural convection is investigated experimentally.

22. One of the main features of this design concept was the layout of the road and street systems which generally followed existing topography, however hilly or winding, thereby creating a more "natural" environment.
23. A collection of pages on the World Wide Web is called a "website".
24. This question is referred to in his article.
25. The wires of the mains cord are colored in accordance with the following code: Blue – neutral, Brown – live.
26. During "de-malling" many streets are converted to pedestrian ways.
27. Those works were based on the paradigms of environmental quality that were inherited from the Modernists.
28. Links, as part of urban design projects, can take many forms depending on the mode of transport being used.
29. The definition of public realm has often been extended to include all publicly owned property, such as schools and libraries, whose location is determined by the public sector.
30. The first topographical survey of the city of Sao Paulo was completed in 1792.
31. Military engineers, cartographers and astronomers belonging to the Royal Corps of Engineers, were also engaged in overseeing a variety of public works such as the building of hospitals, the laying down of water facilities and paved streets, as well as constructing barracks and other military-type installations.

B.2 Вопросы по разделу 1.4

1. Он должен принять дополнительные меры
2. Ученым пришлось разрешить много задач
3. Мне нужно вам кое-что сказать
4. Новая программа должна быть внедрена
5. Ты болен, ты должен остаться дома
6. Ему предстоит встретить друга
7. Он должно быть опытный инженер.
8. Он должно быть был опытным инженером
9. Вред должен был быть прогнозируемым
10. Возможно, что решения не существует
11. Он, возможно, достал трубу
12. Не может быть, чтобы он это сделал
13. Вам не обязательно это делать
14. Завод давно следовало бы пустить в эксплуатацию
15. Я должен работать всю эту неделю
16. Мне следовало бы знать это
17. Я могу бегать
18. Они должно быть заметили меня
19. Вам следовало бы придти вчера
20. Она могла бы быть повышена в должности

1. We are to take into consideration all the advantages and disadvantages to decide what material is the best for the future work.
2. This arrangement must be perfectly reliable in operation.
3. He cannot have broken the tube while making this experiment.
4. The chief might have obliged him to do this if he wanted.
5. All the preparations must have been completed long ago.
6. According to Martinard (1986), urban engineering can be described as “the art of conceiving, undertaking, managing and coordinating the technical aspects of urban systems”.
7. The most powerful instrument of regional and local land use planning is called suitability area where specified land uses (e.g. wind mills) are to be concentrated.
8. Once the conceptual design devised by the master planner is accepted, a programme and set of guidelines is developed for each block that is to be built by a sub-developer.

B.3 Вопросы по разделу 1.5

1. Я бы хотел стать инженером-строителем
2. Он мог бы сделать это вчера
3. Она бы согласилась проверить стройку завтра.
4. Он возможно знает, как остановить машину.
5. Он мог бы закрыть клапан вчера
6. Мне нужно было послать ему письмо
7. Важно, чтобы он дал свои замечания
8. Если у меня будут деньги, я куплю машину.
9. Если бы у меня были деньги, я бы купил машину (реальное).
10. Если бы у меня были деньги, я бы купил машину (нереальное).
11. Он требовал, чтобы здание было проверено
12. Если бы я был там, я бы помог тебе.
13. Не нужно было открывать окно.
14. Тебе следовало бы придти раньше.
15. Жаль, что я сегодня не уезжаю в отпуск.
16. Он мог бы это сделать, если бы получил необходимое оборудование (реальное).
17. Он мог бы это сделать, если бы получил необходимое оборудование (нереальное).
18. Я помогу тебе с переводом, если мне не нужно будет работать завтра.
19. Я бы помог тебе с переводом, если бы мне не нужно было работать завтра.
20. Я бы помог тебе с переводом вчера, если бы мне не нужно было работать.

1. It would have been a good result had it not been for a little mistake.
2. We would not have made the progress we’ve made were it not for the support of the mayor, who has been personally monitoring the pace of the construction.
3. If Khanty-Mansiisk were a country, it would be the second-largest oil producer in the world after Saudi Arabia.

4. It could be argued that the responsibility for the purely technical aspects of water supply falls to civil engineers specializing in hydraulic and sanitation engineering – a speciality widely recognized as one of the most traditional branches of engineering.
5. On the tangible level, Ando's works may be characterized by their primary walls, constructed out of limited materials and composed of purely geometric forms.
6. I would like to thank the following persons who graciously and diligently served as the board of advisors on this project.
7. The design was already under construction when the mayor of Paris, Jacques Chirac, ordered that it be abandoned.
8. Given this observation it could be argued that what has been identfied as total urban design is often simply large-scale architecture.
9. The precincts in cities may be for commercial, residential, or for entertainment uses, but many are now mixed types.
10. The sustainability of the goals and achievements was to be ensured by community monitoring.

B.4 Вопросы по разделу 1.6

1. Сверление – это способ изготовления цилиндрических отверстий
2. Эта оборудование было разработано для улучшения качества.
3. Этот план был разработан так, чтобы его можно было улучшить на основании результатов проектирования
4. Охлаждение приводит к конденсации водяного пара
5. Использование надлежащей рабочей жидкости является важным элементом для нормальной работы тепловых труб.
6. Используя надлежащую рабочую жидкость, техник понизил температуру трубы
7. Проектирование требует особого внимания
8. Проектируя здание, он не сделал ошибок
9. В работе мы использовали водозащитную краску, покрывающую всю поверхность
10. После проверки хода строительства можно проверить документацию.
11. Разрабатывая архитектурный объект, архитектор должен понимать, как строить и обслуживать объект.
12. Для обеспечения высокого качества следует выбирать специальные легированные стали
13. Обнаружив, что строительные материалы не пришли, архитектурный надзор остановил работу
14. Путем сканирования образца были найдены трещины
15. Создав инфраструктуру, подрядчик может начинать строительство.
16. Они настаивали на том, чтобы им дали архитектурно-строительную документацию.

1. A high-quality product will satisfy customers by functioning correctly and reliably, meeting needs and expectations, and being delivered on time with courtesy and respect.
2. In addition to being a straightforward survey it also provided certain guidelines as to how the city should deal with its future expansion from small village to larger urban center.
3. Having this information may facilitate enhancement of existing knowledge.

4. This would require comparing the results with some established criteria.
5. The crucial challenge for successful siting of problematic land uses is consensus building.
6. Much like her early buildings, it is an exercise in structural thinking.
7. It was while growing up in Barcelona that he developed a great fascination for the architecture of Antoni Gaudi (1852–1926) and for traditional Catalan craftsmanship.
8. Public institutions now rely heavily on private sector investments in developing the public realm.

B.5 Вопросы к разделу 1.7

1. Обеспечить надлежащий контроль за строительством является задачей архитектурного надзора
2. Чтобы использовать достижения строительных технологий используются новое строительное оборудование
3. Трудно обеспечить безопасность и приемлемую стоимость
4. Работы, которые следует выполнить подрядчику, включают строительство жилого здания.
5. Устройства, которые энергию ветра в электрическую, называются ветряными машинами
6. Устройства, которые преобразуют энергию ветра в механическую энергию, называются ветряными машинами
7. Эти вентиляционные системы известны из-за их способности создавать потоки воздуха.
8. Он был первым, кто прочитал инструкцию.
9. Они имеют механизм для автоматического выключения оборудования.
10. Происходит реакция, воды и цемента, образуя камнеподобную массу.
11. Чтобы сделать это, требуются большие усилия
12. Река течет и заполняет озеро
13. Я открыл окно, чтобы проветрить помещение
14. Техник включил машину, чтобы начать работу
15. Моделирование процесса требует много времени.

1. When room air is dehumidified and recirculated, the system is said to operate in the recirculating mode.
2. To highlight results, a common approach is to construct a bar chart to represent the results graphically.
3. The overall idea is to describe how urban engineering relates to other areas of engineering expertise, particularly within the context of civil engineering.
4. The first School of Engineering in Brazil to provide exclusively a course in civil engineering was the Escola Politecnica of Rio de Janeiro, established in 1874.
5. He was also the first engineer to treat this as a science rather than as a straightforward technical approach to street planning (as had hitherto been the case).
6. In the United States, for example, an area is considered to be “urban” when it has a minimum of 2,500 inhabitants, with a minimum population density of 1,000 persons other per square mile (386 persons per km^2 (one square mile = approx. 2.59 km^2)).
7. One of them is the lack of a complex social housing program to manage the highly needed residential space for the new inhabitants.

8. To reach this objective, it is necessary to use the existing knowledge about planning with consideration of the environment, the social necessities and the necessary economical development.
9. City planners, architects and landscape architects promote the “malling” of streets in many countries, as a mechanism to help marginal retail activity along them thrive.
10. Buildings and their context also change from the moment a job is said to be have been completed.

B.6 Вопросы к разделу 1.8

1. Оператор выключил станок, чтобы дать возможность рабочему отремонтировать его.
2. Можно показать, что система находится в равновесном состоянии.
3. Алюминий считается хорошим проводником.
4. Известно, что этот метод эффективен.
5. Говорят, что они получили новый прибор.
6. Полагается, что городской дизайн означает взаимоотношение между различными зданиями.
7. Утверждается, что городской дизайн означает взаимоотношение между различными зданиями.
8. Цемент, как было показано, реагирует с водой.
9. Было найдено, что эти металлы обладают многими интересными свойствами.
10. Мы хотим, чтобы этот процесс продолжался.
11. В этом случае необходимо, чтобы температура была измерена.
12. Используемый метод оказался эффективным.
13. Клапан был закрыт, чтобы вода текла в контейнер.
14. Я включил компьютер, чтобы проект был проверен.
15. Мы попросили переводчика, чтобы статья была переведена сегодня.
16. По-видимому, результаты были проверены.
17. Мы хотим, чтобы этот станок был отремонтирован.

1. Having been the most common devices used for entry and input of data, a keyboard and a computer mouse allow entering characters, text, and basic commands.
2. In February 1911 Eng. Victor da Silva Freire gave a keynote address at the Guild of Escola Politecnica of Sao Paulo in which he advanced a theoretical justification for the proposal which formed part of a series of avant-garde town planning projects.
3. The first “urbanists” were civil and architectural engineers.
4. Through his work with the engineer Lothar Cremer, they achieved reverberation times in the auditorium ranging between 2 and 2.4 seconds.
5. A triple-shell roof system and doublewall design buffer the auditorium from outside noise, and the limestone walls surrounding the orchestra act as reflectors.
6. East were evacuated and their openings bricked up, effectively making the buildings themselves the Berlin Wall.
7. Despite its formidable weight, it achieves an effect of airy lightness using just seven slender columns that support the structure.
8. Some total developments have been vast in size, covering many square kilometres.

9. It is a twoway arterial boulevard, consisting of eight lanes and includes a road divider planted with grass and trees, and with a continuous water feature along it.
10. As can be seen in Table 2, “macro-regions” throughout the world have recorded continuing urban demographic growth in both absolute and percentage terms.

B.7 Вопросы к разделу 1.8

1. Текущая вода
2. Протекая через трубу, охлаждающая вода несет песок.
3. Используя новую технологию, строители построили жилой дом.
4. Тающий лед сохраняет постоянную температуру.
5. Когда я пришел, проектировщики работали над чертежами.
6. Он показал нам эксперименты, которые в настоящее время проводятся в его лаборатории.
7. Строящийся из железобетона дом будет прочным.
8. Используемые материалы позволяют повысить качество.
9. Материалы, используемые для строительства, современные.
10. При пользовании, измерительные приборы должны быть проверены.
11. Завершив дискуссию, мы теперь составим план.
12. После того как оператор наладил ее, бетономешалка начала работать.
13. Разработанные в мастерской чертежи могут быть использованы многими заказчиками.
14. Получив запасные части, рабочие начали ремонт.
15. Прочитав книгу, я порекомендовал ее моему другу.
16. Разработанный план был одобрен.

1. Prior to the late 18th century, so-called public works such as the construction of bridges and the paving of roads and streets tended to be undertaken by ordinary people using makeshift building techniques and perishable materials such as mud reinforced with straw (adobe).
2. The engineers introduced a series of new techniques, employing more durable materials such as stone and lime.
3. Having identified the adequate transport policy to be adopted, it will then be necessary to select a coherent set of basic strategies capable of guarantying its adequate implementation.
4. Dealing with this kind of problems, it is difficult for the small communities to plan the economical growth of the municipality.
5. Since 1961 the urban and sub-urban rail based systems have been jointly organized and managed, covering a network with over 600Km.
6. Having defined the problem – here, a suitable site for a specific land use has to be found within a given normative decision space – certain evaluation criteria are to be determined.

B.8 Вопросы к разделу 1.9

1. To calculate stresses in beams, one must first model the beam correctly in terms of its supports and loading, determine the appropriate unknown external reactions, and establish the corresponding shear and moment diagrams using a consistent sign convention.

2. A rigid body is defined as one in which the particles are rigidly connected.

3. The project was one in which plots were prepared and services provided by the IDA but the construction of houses was left to the owners of the plots.

1. Energy is defined as the ability to do work.

2. He was surprised as if he had never seen such a device.

3. As of today our company is debt free.

4. We need to be able to learn to survive as well as to make advances in life so learning is present in achieving all our basic needs.

5. Portland is a city with a lively street-life, yet the proposal turned life inwards as if it was a suburban shopping centre.

1. Every architect should be responsible for the good and long life of his projects.

2. Everything was ready for the research to begin.

3. I, for one, hope you get the job.

4. No man is so old but that he may learn.

5. The machine would have broken down but that the operator stopped it.

6. It is covered by a tented, glass canopy supported on steel beams rather like the spokes on a bicycle wheel and surrounded by five buildings, all but one of which have concave.

1. There remain only two cases to be considered.

2. As yet no practicable means of controlling this procedure has been found.

3. Yet occasionally such important operations are delegated to unskilled, inefficient workmen.

4. Buildings are either constructed of extensive amounts of glass, steel and expensive polished stones (even if slippery when underfoot), or they incorporate classical architectural elements of columns and pediments in a variety of ways.

5. Few landscape architects since the era of Olmsted have, however, engaged themselves in urban design.

B.9 Тексты к разделу 1.10

1. One of the debates in current urban design is whether to create images that refer to specific locales or to create international images favoured by the institutions of the global economy.
2. There are various ways of considering the infrastructure of cities but the most inclusive manner covers everything that is part of the public domain whether privately or publicly owned.
3. Once an employer has established the criteria, they must be applied equally to all and with no exceptions.
4. “Measure twice, cut once.”

5. Once basic physiological needs are at least partially met, people are motivated to seek a sense of safety and security.
6. In this view once decisions are made at the precinct level the problems of interrelationships amongst precincts can be addressed.
7. A statue of a man driving sheep – the area was once a livestock market – stands at one entrance to the square.
8. While some universities are merged into the surrounding city: the Sorbonne, Stellenbosch and the University of the District of Columbia, many others, especially recent ones, are separate entities.
9. While the population of the metropolitan Philadelphia continues to grow, the population of the core city itself declined from over two million in 1950 to a little over a million in 2000.
10. The portland cement and water form a paste that hardens as a result of a chemical reaction between the cement and water.
11. The distinction between landscape architecture and the core of urban design work depends on whether the enclosing elements form part of the design or whether it is simply the ground surface between buildings that is of concern.
12. The purpose is to understand the resources, intellectual and financial upon which specific projects have drawn.
13. However, their flat surfaces were at right angles to each other.
14. Whereas upon examination the goods were found to be defective, we are now claiming damages.
15. Wherever loading or unloading the goods takes place it is necessary to comply with the marks showing the way the goods are to be handled.
16. Russia and the United States, account for 90 percent of the world's nuclear arsenal between them.
17. Smaller firms do not have sufficient resources of their own to properly dispose of their wastes at reasonable cost.
18. The line was sufficiently complete to be opened in late 2013 although work on it continues.
19. If they are large enough such buildings are called "megastructures".
20. The world is too complex for every function of built form to be considered simultaneously.
21. The broader the knowledge available the sooner are difficulties explained.
22. There are important differences between the two materials, both in their technology and in their physical properties.
23. The members were very conscious of their individual identities and of houses as financial investments and wanted the designs to be non-controversial and less obviously communal.
24. The master plan of 1958 had statutory authority and accordingly was amended (and has been every 5 years since) within the specifications of the concept plan.

B.9 Тексты к разделу 1.11

1. A new approach has to take the climatic factors into account to find out if a double-skin facade can help to reduce the energy consumption in buildings in a hot and humid climate.
2. In spite of the severe difficulties that the economy had to face, the intensification of building construction was necessary.
3. According to Freitag (2006), only with the advent of Le Corbusier (1887-1965) considered to be the founding father of modern town planning, could "urbanism" be considered to have become a

universally accepted science, capable of providing practical solutions to the urban problems emerging in the context of 20th century industrial society.

4. This approach is of crucial importance if we wish to understand our cities and find ways of tackling the problems incurred in and by these cities.
5. The pedestrian mode has all the potential to be the main mode in city centers, in residential ones or, in any sensitive locations in general.
6. Due to massive public funding, Germany experienced a tremendous growth in wind energy production in recent years.
7. Many cities around the world have over the last few decades assumed a coherent strategy of systematic promotion of the bike and pedestrian modes as real alternatives to the use of the private car.

Модуль 2: Практика перевода литературы по дизайну городской среды

B.9 Тексты к разделу 2

2.1The public realm of cities and urban design

Almost all definitions of urban design state that it has something to do with the public realm (or the public domain or with public space) and the elements that define it. One of the best is: Urban design draws together the many strands of place-making, environmental responsibility, social equity and economic viability; for example – into the creation of places of beauty and identity. Urban design is derived from but transcends related matters such as planning and transportation policy, architectural design, development economics, landscape and engineering. It draws these and other strands together. In summary, urban design is about creating a vision for an area and the deploying of the skills and resources to realise that vision. The last sentence is particularly important. Here is another statement: Urban design should be taken to mean the relationship between different buildings; the relationship between buildings and streets, squares, parks and waterways and other spaces which make up the public domain . . . and the patterns of movement and activity which are thereby established; in short, the complex relationships between the elements of built and unbuilt space . Urban design consists of multi-building projects that vary in size from building complexes to precincts of cities to whole cities. Sometimes urban design includes the design of the buildings themselves, but often it impinges on the architecture of buildings only to the extent that their uses and facades, particularly on the ground .oor, de.ne the public domain. But what then is the public domain? Human organizations consist of public and private components. The distinction is not always clear because there are also semi-public and semi-private behaviours and places. In addition, what is considered to be private and what is considered to be public varies from culture to culture and within cultures over time. For professionals involved in any of the environmental design .elds the public realm is comprised of two parts. The .rst deals with the public components of the physical environment (arti.cial and natural) in which behaviour occurs and the second speci.es how communal decisions are made by governments and in the marketplace as de.ned by a country’s constitution (or in the case of the United Kingdom by precedent). The .rst affects perceptions of the elements of urban design and the second, the process of urban designing.

Does the physical public realm simply consist of all the open spaces outside the private domain of building interiors, secluded courtyards, and gardens? Is it everything that can be perceived (seen, smelled, heard or touched) from places to which everybody has right of access? Does it consist of all those

elements that have an impact on the quality of publicly owned open space and/or space to which the public has freedom of access? All answers to these questions are politically charged. The physical public realm is not necessarily conterminous with publicly owned property. In a society where property rights are sacrosanct and where individuals have the right and freedom to build what they desire, the public realm and public open space – spaces to which the public has right of entry – may refer to the same thing. The de.nition has, however, often been extended to include all publicly owned property, such as schools and libraries, whose location is determined by the public sector. In an editorial, the French newspaper, *Le Monde*, took the position that anything visible *in situ* should be part of the public realm in terms of photography work. The position taken here is that the public realm consists of those places to which everybody has access, although this access may be controlled at times. It consists of both outdoor and indoor spaces. The outdoor spaces include streets, squares and parks, while the indoor may include arcades, and the halls of railway stations and public buildings, and other spaces to which the public has general access such as the interiors of shopping malls. The problem is that the nature of many 'public' places is ambiguous because although the public has relative freedom of access to them they are under private ownership. As the common domain of cities is increasingly privatized (or rather, the private domain is providing public spaces), this ambiguity is likely to continue. If past history is any guide, attitudes towards what is private and what is public will follow a cyclical pattern in the future. The scope of what is regarded as public will wax and wane. The perceived need to control or not control in the name of the public interest what is designed will follow as political attitudes vary.

2.2 The elements of the physical public realm

Any statement of what constitute the elements of the public realm of built forms is likely to evolve over time. It will depend on a political stance and help to de.ne that stance. In the 1930s, Le Corbusier wrote that the basic elements of urban design are: 'the sun, sky, trees, steel, cement, in that order of importance' (Le Corbusier, 1934). Certainly the sun and sky are of importance everywhere and have been commodities with which to bargain in recent urban design work. Nevertheless, Le Corbusier's list is not a particularly helpful one in thinking about the nature of the public realm. A fruitful way of looking at the public realm is to consider it as a set of behaviour settings – a term coined by ecological psychologists in the 1960s (see Lang, 1987). A behaviour setting consists of a standing (or recurring) behaviour pattern, a milieu (pattern of built form) and a time period. The milieu must have the *affordances* for the behaviour to occur, but because the affordances are there does not mean that a speci.c behaviour will take place there. What actually occurs depends on the predispositions, motivations, knowledge and competencies of the people involved. Thus the same pattern of built form may afford different patterns of behaviour for different people at different times of the day, week or year. Some of the patterns may be occurring frequently on a daily basis or even throughout the day or year, while others may occur only on special occasions (e.g. the celebration of national days). The milieu consists of the .oor of the ground, the surfaces of buildings and other physical elements, and the objects that both bound it and structure it internally. The variables are diverse and their attributes even more so. Of particular importance in urban design are such concerns as the sequential experiencing of the environment as one moves through it, the ground .oor activities, or lack of them, that are housed in the milieu, and the attributes of the enclosing elements of spaces. In the urban scenes shown in Figures 1.1 and 1.2, the physical public realm consists of the elements of the arti.cial environment around a person. In the former it consists of the square, the trees, the facades of buildings, the ground .oor uses, and the entrances onto the open spaces. On a more typical street (Figure 1.2) the elements are essentially the same but take on a different form. If, however, urban design is concerned with the whole nature of human experience it has to address the nature of the

activities and the people who engage in themas well. It is the set of behaviour settings and how the milieu affords activities and simultaneously acts as an aesthetic display that is important.

Conceptually, the functions afforded by the built environment have not changed over the millennia. What has changed is what its users, policy-makers and designers consider important. Designers seldom consciously include more than a limited set of the potential functions that the built environment can serve in their analyses and designs. The world is too complex for every function of built form to be considered simultaneously. The same patterns of the physical public realm, either as surroundings or as objects, will, almost certainly, serve different functions for different people. One of the major functions of the components of the built environment is as a .nancial investment. All designers know this but it is seldom clearly articulated as a function of buildings in architectural theory. Architectural critics seldom write about it. Many urban development decisions are made on .scal grounds. For banks and other lending institutions, and for their owners, buildings represent an investment on which they hope to make a pro.t. The public realm, in this case, is only important to the extent that it affects investment decisions. Property developers may, however, voluntarily or under public coercion use their own funds to improve those aspects of the public realm that their developments affect or that affect their developments. Public agencies may use tax income to improve the public realm created by buildings in order to increase the value of properties and increase the in.ow of tax revenues. These revenues are then used to support other governmental activities. For architects, landscape architects and sculptors

2.3 The urban designing process

There have been a number of efforts to model the process and procedures of urban designing. Most generic models suggest a rational step-by-step procedure that moves from perceptions of a problem to post-implementation evaluation of a completed work. While the models give some structure to our thinking and to our design of the decision-making process appropriate to a job at hand, urban design does not take place in the neat sequential manner that the models suggest. It is a highly argumentative process of conjecturing – putting out ideas – and testing them in an iterative fashion. The participants in the development of any urban design project will be arguing with each other and with themselves as they speculate about what the issues are and how best to deal with them. Urban designing is an argumentative process in which participants in it learn as they go along. They learn about goals and means as perceived by different stakeholders, they learn from the evidence that each provides for its views. They take stands on what they believe the public realm should be to be in the public interest. They argue about the variables that should be taken into consideration and what good design entails. Conjectures are tested by individuals using their own logics based on their predictions of the consequences of different design actions. It is easy to be cynical about who wins the arguments (i.e. those holding the purse strings) but good information based on empirical knowledge is a powerful tool that designers can employ. So are their reputations (except when facing cross-examination in court). In his design for the DG Bank building on Pariser Platz in Berlin, Frank Gehry showed that reputations allow for concessions that less-renowned architects might not get. The rational model of design suggests that the urban designing process begins with the perception of an opportunity worth exploiting or a problem worth overcoming. According to the model a designer should start with an open mind. We all, however, have heads full of generic solutions, examples and anecdotal knowledge that guide us. It is likely that all designers begin designing with some vague image of a possible solution in mind. This design gets shaped though a series of approximations as designing progresses and new information becomes available. Most, if not all, of the case studies included in this book have antecedents or a mixture of antecedents. How much should designers rely on precedents? (see Rowe, 1983). Case studies and sound generic solutions are certainly helpful both in

understanding the problems that require attention in speci.c situations and in creating solutions. The world is, however, changing. Inventing new generic solutions is thus a worthwhile task. Whose responsibility is it to do so? In the past they have been the products of visionaries and practitioners, professionals and lay-people, social scientists and artists. Future models need to be culture and climate speci.c. Much can be learnt from the generic qualities of case studies. There are great similarities amongst the decision-making processes used in all the case studies included in this book. All urban designing involves the basic steps of deciding to engage in a situation, developing a brief and building programme, .nding the .nances, and seeing that programme through to completion. What differs is how the overall process is handled and the way each step is carried out. Who controls? Who does what? There are four generic types of urban design work that vary in the procedure that is followed and/or the degree of control that a designer, as an individual or as a team, has over the creation of a product. They are as follows:

1 Total urban design, where the urban designer is part of the development team that carries a scheme through from inception to completion.

2 All-of-a-piece urban design, where the urban design team devises a master plan and sets the parameters within which a number of developers work on components of the overall project.

3 Piece-by-piece urban design, in which general policies and procedures are applied to a precinct of a city in order to steer development in speci.c directions.

4 Plug-in urban design, where the design goal is to create the infrastructure so that subsequent developments can ‘plug in’ to it or, alternatively, a new element of infrastructure is plugged into the existing urban fabric to enhance a location’s amenity level as a catalyst for development.

The borderline between categories is fuzzy. The .rst two types, total and all-of-apiece urban design have historically been the core of urban design work but all four are considered as such in this book because they focus on the four-dimensional built environment and require the collaborative actions of all the design disciplines.

2.4 Types of urban design

Many urban redevelopment projects and suburban developments are so large in size that single developers and their backers are incapable of .nancing them single-handedly. In other cases land holding patterns are so fragmented that having a single developer tackling all the sites in a coordinated manner is legally or administratively impossible. In these cases, a consulting team develops one illustrative three-dimensional design (or master plan or concept plan) of the whole development. The pieces of the scheme are then parcelled out to different developers and their design professionals to .nance and design. The scheme illustrated in Figure 2.5 has potentially over 30 sub-developments within it. Dif.culties in .nancing so many projects often mean that the construction period can extend into three or four decades. Devised in 1989, by the year 2000 only the projects designated as 20 and 22 of the example had been built. In such projects the major developer, public or private, may build the overall infrastructure, or alternatively all the sub-developers may have to provide those components that relate to their own schemes or contribute to the cost of having them built. Once the conceptual design devised by the master planner is accepted, a programme and set of guidelines is developed for each block that is to be built by a sub-developer. Some design review and overall development and construction management procedures then have to be created to administer the whole development along with the process for managing the project when it has been completed. In some cases a single review committee presides over all the developments in a city; in other cases the review committee is appointed to oversee a single project. The

problems in implementation, either in .nancing projects or in meeting the goals of a project as assessed by its clients or a review board, often lead to the redesign of the master plan. The end result may be vastly different from that originally envisaged . A prime developer, public or private, initiates the project through the acquisition of land and then decides on what to build (or vice versa) given either a local market demand and/or some assumption as to what is in the public interest. Some private developers may forgo pro.t to pursue public interest goals but, in general, it is a public agency that sets the public interest agenda for a project. It is the property developer, public or private, who hires the urban designer, an individual or a team, to produce a conceptual design and to develop the design brief. In democratic societies this process bene.ts from and is buffeted by a whole set of public and private interests. To ensure that the intention of the master plan is not lost, each sub-development has to be built in accordance with a set of guidelines.

All cities have a design. It is created by thousands of individual design decisions within a framework of capital investment decisions and within a legal code. If total urban designs tend to be comprised of large-scale architecture projects, piece-bypiece urban design tends to be city planning. While piece-by-piece urban design is precinct, or neighbourhood, based, it is in contrast to all-of-a-piece design not site-by-site, building-by-building, based. The process involves .rst setting the objectives for an area and then the development/design policies for achieving them. The creation of the objectives is a highly political act ideally, but often only reputedly, based on perceptions of the public interest. Once the objectives are accepted, the next step is to design incentives and controls, carrots and sticks, to achieve them. Possibly the best-known examples of piece-by-piece urban design are those from New York in the 1960s and 1970s (Barnett, 1974, 2003). Developers were given incentives in speci.c areas to build speci.c facilities (see Chapter 9). In the Theater District, the objective was to include new theatres around Broadway at a time when the existence of theatres was imperilled by opportunities for developers to erect more lucrative types of buildings. They were allowed to build more than the total .oor area permitted by existing zoning ordinances in order to obtain the perceived public good of more theatres. Many cities have applied similar procedures to obtain a wide variety of building and/or facility types from creches to housing for people on low incomes in precincts where property developers see no .nancial reward in building them.

Plug-in urban design refers to the design and implementation of an infrastructure project in order to obtain some catalytic reaction. There are two types of plug-in urban design projects. The .rst type involves the provision of the infrastructure of, usually, a precinct of a city or suburb, and the selling of sites into which individual developers can plug buildings. The second type involves plugging the infrastructure into an existing urban fabric to enhance its amenity value. Sometimes the process of building the infrastructure and then the fabric of a city or suburb is heavily controlled. Building uses are speci.ed and design guidelines are created for each developer to follow. In this case, the process is really a variant of all-of-a-piece urban design. In other cases those property developers plugging their projects into the provided infrastructure are free to respond to the marketplace, as they will. The assumption in this case is that the market knows best what is in demand and thus appropriate to build. The second type of plug-in urban design refers to the situation where elements of infrastructure are plugged into an existing city in the hope of spurring new developments or providing some public amenity. The elements of infrastructure may be links, places or buildings providing for special uses that will, it is hoped, have a catalytic effect on surrounding property development (Attoe and Logan, 1989). The skyway system in Minneapolis began in this way but, as is described in Chapter 10, it has become an integral part of almost any development in that city’s centre.

2.5 The products of city planning and the nature of urban design

Urban design is often considered to simply be city planning. Is it? To many architects any scheme containing more than one building is city planning. To other observers, city planning is land-use planning and to yet others it involves the formulation of economic and social policies. All city plans deal, explicitly or implicitly, with urban design in one form or another. This statement does not mean that city planning is focused on urban design, but that many planning policies that are not seen to have design implications do shape the architectural and urban landscape of cities and rural areas alike . City, or town, planning is seen differently in much of Europe, Latin America and Asia than in the English-speaking world. In addition, the concerns of the .eld have not been stable. In the United States, for instance, emphases have varied from city to city and have changed over time. For much of the period covered in this book, the focus of attention has been on social and economic planning. In continental Europe, planning and architecture are generally more closely allied in a single .eld that focuses heavily on the physical qualities of cities. As a result city planning is often urban designing. A number of city-planning leaders such as Edmund Bacon, once head of the City Planning Commission in Philadelphia, were very much concerned with urban design in the 1960s and 1970s (see Bacon, 1974). The economic state of American cities in that era and the following decade was, however, so precarious that urban design concerns were often thrust aside. Planners began to regard the built environment as only marginally important in establishing the quality of life of people. The lesson of having done so has been learnt from those cities that strove for development at any cost as well as those that successfully maintained an interest in urban design. The latter have tended to do well. The quality of the built city and its behaviour settings has proven to be economically important. From the early 1990s onwards many planning agencies have established sections on urban design and have been employing professionals knowledgeable either through education or practice about urban design. In many places this heightened awareness of the importance of the cityscape represents a dramatic turn around in the perceptions of what makes a good city amongst mainstream city planners. It also represents an effort by the planning profession to recapture an area of concern that they turned their backs on.

Most city-planning deals with existing cities. If its purpose is to shape the future of a city, the products will be in the form of written policies. These policies have to be accepted as binding by some legislative body – at the city level it is the municipal council – if they are to lead to any action. The task of creating speci.c programmes then has to be assigned to speci.c agencies and a budget has to be established to fund the programmes. If the goal of planning is to create a landuse pattern for the future city, the product will be in the form of a two-dimensional master plan coloured according to a code designating the type of activities (industrial, commercial, residential, etc.) that a block of land should house. Almost always the streets have been regarded as borders between land uses not asseams linking their two sides into a uni.ed precinct. To implement such plans, zoning codes are developed, and the site coverage and, in the United States, the Floor Area Ratio (FAR) (the ratio of total usable .oor area to the site known as Floor Space Ratio (FSR) elsewhere) are speci.ed. The zoning code will assign permissible land uses but may also specify the allowable height of buildings and the number of parking places required. The goal has been to avoid con.icts between the activities that take place in each area of a city. The design implications of these ordinances on what the resulting built environments will offer are seldom fully considered. One of the reasons for the development of urban design as a specialized professional activity is that environmental quality has been poorly considered in city planning. Urban design and city planning overlap when city planning involves the actual physical design of cities or their precincts. It overlaps when these plans deal with visions for the three-dimensional city and with methods to achieve that vision.

Thus the design of Brasilia or Seaside can be seen as both city planning and urban design. The prime product of city planning has, however, been the comprehensive plan. It is clearly a city-planning product.

2.6 The design dimension of comprehensive planning for existing cities

Comprehensive planning attempts to deal simultaneously with economic, social, and physical development and design policies. Sometimes the quality of the built environment is a concern but at other times, particularly in eras or localities of slow economic growth, it is peripheral. What becomes important then is development at any cost, provided it brings in jobs and/or increases in the tax base of the cash-strapped municipality. In such circumstances even the most basic of environmental concerns – pollution, traf.c problems and the degradation of the natural world – are shelved in the name of progress. Design quality is seen as a minor issue; it is perceived to be concerned only with urban cosmetics and not with life – not with behaviour settings. Physical planning has very much focused on the distribution of land uses and transportation concerns (ideally in an interrelated manner) and, until recently, certainly with the segregation of activities so that polluting and annoying uses are kept out of residential areas. Much planning legislation began with concerns for public health and safety by insisting that buildings and neighbourhoods be designed to provide at least a minimum standard of public open space and sunlight and ventilation to habitable rooms. These concerns together with ef.ciency in transportation and the elimination of air and water pollution remain important in city planning and in urban design, but they are not the only matters that require attention in making good cities. Urban design concerns within city planning re.ect the state of public policies towards planned intervention in the development process. At times there are calls for more control over what is being built and how it is built and at others there are calls for less control and greater freedom for private actions. Economic conservatives see design controls as a deterrent to economic growth while socialist politicians see design quality as an elitist concern. Interestingly enough many large-scale property developers recognize both the .nancial bene.ts derived from rich, high-quality design and that purchasers are making increasingly discerning choices. Sometimes developers form their own private regulations to control the quality of the public realm created by sub-developers. In many places the public is demanding a greater role in deciding the future directions in which their cities should go. The diversity of its views has led to many architects, in particular, taking the position that all design concerns are arbitrary and subjective and that their personal beliefs are as good as those of anybody else. The development of the theoretical body of knowledge about the interaction of people and the environment has, however, led to the recognition that serious questions about goals and means can be discussed intelligently within public forums.

2.7 City planning public realm policies and urban design

It is the public realm policies within city planning that are often closely related to the urban design endeavour. Most such policies do not deal directly with the geometrical qualities of built form but they, nevertheless, have a direct impact on the form, liveliness or quietness, and general ambience of the places and links of a city. They deal with such matters as eliminating antisocial behaviour and providing a high-amenity level for the inhabitants and users of public spaces. These general policies may be urban-wide or targeted at speci.c precincts of cities. The urban design guidelines for the central area of Glendale in California, for instance, form the public realm policies for the downtown area of the city. Much can be learnt about the interrelationships of city planning and urban design from such examples. Public realm policies deal almost universally with accessibility, the servicing of buildings and the ways traf.c is to be handled. Strong lobbying has led to the almost universal development of policies specifying accessibility for people in wheelchairs to places open to the general public. As the public's fear of crime increases so are public policies being more speci.c in formulating design principles that deal with the natural

surveillance, territorial control and the lighting of public spaces. These concerns are related to the accessibility and safety needs of people shown in Figure 1.6. The more general concerns of urban design are, however, poorly considered. ‘Broader considerations of the network of public streets and public spaces, the permeability of blocks and . . . questions of the quality of the public realm are largely neglected’ in city planning in Britain. Design issues come to the forefront only when citizens and planners are discussing the physical and symbolic character of an existing place and the desire to retain it. Questions of the character of places are seldom addressed with any speci.city. When they are, the formulation is poor. For example, at a community meeting the inhabitants of a town decided it wanted to retain its ‘rural character’. What was meant by this objective was not articulated with precision verbally or in drawings. The town planning board developed a land-use regulation for two zones in the locale: one a rural/agricultural zone and the other a commercial zone. The former was aimed at retaining the rural character of the area by specifying 1-acre (0.40-hectare) lots. Where an extensive amount of road frontage was required, the lots were to be 3 acres (1.21 hectares) in size. In the commercial zone the lot size was to be at least 1 acre. The goal was to have houses scattered in a dotted pattern around the countryside. Instead what was achieved were the sites with short street frontages and thus buildings lining the roads. The rural character that citizens sought was lost. Many planning policies conceal such hidden urban design processes. One of the major areas in which hidden urban design occurs is in the design of roads. The prime criterion may be designing for public safety and accessibility. The de.nition of safety is, however, often established only by the size of the equipment – ambulances and .re engines – that have to be able to manoeuvre through a street. Such space requirements are often grossly overstated. Accessibility is also narrowly de.ned in terms of the speed of traf.c .ow. Streets have other functions and if simple criteria alone are selected as the basis for their design, their amenity level for pedestrians and their overall character may well be lost. Street width becomes the sole design speci.cation. Visualizing dimensions and their consequences is not easy for lay-people on planning boards. Many of the design ideas developed by well meaning architects during the first half of the twentieth century have been found to be counter-productive when translated into zoning regulations. The idea that sunlight should penetrate all habitable rooms in housing area design is a sound one but when applied as the sole criterion in the design of residential precincts of high-rise apartments it creates dull boring environments with few opportunities for exploratory behaviour by children. At least the space between buildings needs to be well considered and a greater range of behavioural opportunities provided.

A recent review of the impact of land-use regulations in Houston, Texas shows their unintended impact on the quality of urban places. Decrees about lot size for single-family homes, parking requirements (1.33 cars per bedroom in apartment buildings) street widths and block sizes (600 feet/185 metres between intersections) makes life hard for pedestrians and encourages driving for even the most local of necessities. The density of development that results from such codes makes all kinds of housing developments and public transit .nancially unfeasible. At the same time the codes have not alleviated the problems of trafic congestion that they were legislated to address. What is needed in developing item-by-item planning and building regulations is to fully understand their three-dimensional implications and how they work as a system of controls. Current zoning regulations throughout the world make it impossible to build new precincts that have the characteristics of the well-loved areas of existing cities. They would make the design of today’s Paris, London, Boston and San Diego impossible. The codes were designed to avoid obnoxious facilities such as smoke-belching factories being located in residential areas and not much more. The world has changed and much needs to be rethought.

2.8 Water supply and waste disposal

The residents and/or users of all the developments described in this book, directly and indirectly, consume much water and generate much waste. If the entire world consumed as much water per capita as in the United States, there would now be a major supply crisis. The United States and Singapore are amongst the nations that import water. How do we deal with the design of cities so that less water is needed? Few designers seem to be considering the issue directly. All the case studies presented in this book deal with water supply and waste disposal in conventional ways. There is some concern for how we use trees and other vegetation in landscaping cities in terms of their consumption of water (and the effect of their perspiration on local climates). The broader issues of water consumption have, however, yet to be addressed. No generic urban form or design solutions aimed at reducing water consumption as yet exist. When water becomes critically in short supply as a result of drought or political threats to cut it off, restrictions on its use for washing cars and watering lawns are put in place. When the drought is over consumption returns to normal. Are there other potential solutions?

At the other end of the cycle of acquisition, processing and consumption is expulsion. ‘What should we do with our wastes?’ ‘Do we continue to use water to .ush them into rivers and the sea?’ ‘Or do we try to incinerate them all?’ And on a very different topic, ‘How do we deal with the disposal of our dead?’ Cemeteries are important places to many people but land is in short supply. In places such as Hong Kong traditional ways have had to give way to new, often creating considerable heartache. Hindus cremate their dead and scatter the ashes. Is this a worldwide solution? Adopting it would involve many cultural changes. The same questions about consumption and disposal can be extended to the use of all natural resources. Do we have to wait until societies really feel the pinch – until the marketplace perceives that there is a crisis before we do anything? Do we design cities and their precincts to be easily recyclable? How do we deal with change? Did the Archigram group have the right idea?