



OPEN HOUSE

Benchmarking and mainstreaming building sustainability in the UE based on transparency and openness from model to implementation



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Best practice on green or sustainable public procurement and new guidelines

Author(s):

Eider Alejandro. VISESA.

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Summary

*The "Best practice on green or sustainable public procurement and new guidelines" is a confidential document delivered in the context of WP1, Task 1.4: Analysis and selection of Best Practices on green or sustainable public procurement using the recommended performance levels in tendering procedures with regard to incorporate the methodology of the Open House project in the procurement procedures of several buildings in different countries; to help policy makers to set realistic targets for GPP of buildings in Europe and to participate in the creation of a European GPP knowledge base. As a result of this, a **new guideline** introducing the most suitable practices and recommendations for doing GPP will be elaborated.*

This document is about the existing ways to implement GPP in Public Administration procedures, current situation in Europe and tries to set the basis to begin a growing catalogue about best practices of green public procurement and products' sheets.

Contents

ABBREVIATIONS	6
1. INTRODUCTION	7
2. INTRODUCTION TO GREEN PUBLIC PROCUREMENT (GPP).....	8
3. INTRODUCTION TO GREEN PUBLIC PROCUREMENT (GPP).....	10
4. LEGAL FRAMEWORK.....	12
5. GPP SITUATION PER COUNTRIES	14
6. INTRODUCING GREEN CRITERIA IN TENDER DOCUMENTS	38
7. EXISTING GUIDELINES AT EUROPEAN AND INTERNATIONAL LEVEL .	40
8. GPP IN CONSTRUCTION SECTOR	42
8.1 EUROPEAN COMMISSION GPP TRAINING TOOLKIT	42
8.2 RELIEF PROJECT.....	46
8.3. THE PROCURA+ MANUAL.....	47
9. PRACTICAL CASE STUDY: VISESA. TENDER DOCUMENT IMPLEMENTING ENVIRONMENTAL CRITERIA	50
PARTICULAR CONDITIONS RELATED TO PIME'S PROJECT	51
OTHER ENVIRONMENTAL CRITERIA INTRODUCED IN THE TENDER.....	52
10. CONCLUSIONS	56
CONTRIBUTION TO OVERALL PICTURE.....	58
11. RESEARCH STUDY ON GREEN PUBLIC PROCUREMENT CONSTRUCTION PRACTICES IN EU COUNTRIES	59
CONCLUSIONS ABOUT THE TABLES	60
12. RELEVANT EUROPEAN LEGISLATION AND INFORMATION SOURCES	73
ENERGY	73
CONSTRUCTION MATERIALS AND PRODUCTS	73
WASTE AND WATER	73
EUROPEAN LEGISLATION	73
13. STUDIES AND OTHER INFORMATION	74
BEST PRACTICE EXAMPLES OBTAINABLE ONLINE AT:	76
ACKNOWLEDGEMENTS.....	77

REFERENCES 77

ANNEX I..... 78

Abbreviations

OPEN HOUSE	Benchmarking and mainstreaming building sustainability in the EU based on transparency and openness (open source and availability) from model to implementation.
GPP	Green Public Procurement
NAP	National Action Plan
EU	European Union
EMAS	Environmental Management Systems

1. Introduction

This deliverable is part of Task 1.4 "Analysis and selection of Best Practices on Green Public Procurement, using the recommended performance levels in tendering procedures". This task is included in work package 1 "Awareness and methodology for sustainable building assessment baseline definition", aimed at defining an open and transparent concept for building sustainability (OPEN HOUSE baseline) and to widely communicate it among stakeholders.

Task 1.4 aims to identify best practice on green or sustainable public procurement and to analyze the adoption and implementation of green and sustainable public procurement practices by the Member States in EU. In order to achieve this objective, all the information on green purchasing in Europe has been analyzed and specifically, an analysis of the GPP in construction in Europe has been done. Specific measures in different countries have been analyzed and could be considered as best practices of GPP in construction. A tender process of VISESA from one of its last works for building including environmental criteria has also been introduced as a case study. From this real case study, more potential barriers could be identified for future tenders.

The target groups of the presented results are the partners of OPEN HOUSE and stakeholders for public participation.

All participants of the OPEN HOUSE project were involved in this task. VISESA and ACCIONA developed an excel sheet template to be filled by all OPEN HOUSE partners with GPP best practices in both countries inside and outside the consortium.

The outputs of this deliverable will be used by OPEN HOUSE consortium in Task 3.3 "Getting commitment from public bodies for real building procurement cases in the consortium countries" and Task 4.2. "Implementation of the refined methodology in several real sustainable building procurement cases in the consortium countries".

2. Introduction to Green Public Procurement (GPP)

The European Commission defines Green Public Procurement (GPP) in its communication (COM (2008) 400) "Public procurement for a better environment"¹ as a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

Green purchasing is also about influencing the market. By promoting and using GPP, public authorities can provide industry with real incentives for developing green technologies and products. In some sectors, public purchasers command a large share of the market (e.g. public transport and construction, health services and education) and so their decisions have considerable impact. GPP boosts innovation as it promotes the ecological product market while at the same time shows the Public Administration commitment with sustainability. It is a voluntary instrument which:

- Provides environmental improvements.
- Promotes the development of new products markets and environmentally sustainable services.
- Supposes an example for consumers and private enterprises, fostering the competitiveness of the enterprises and their better environmental performance.

At the same time, GPP does not mean a bigger economical cost, as it considers:

- Life-cycle costing (LCC): considering the prices of a product/service throughout its whole lifetime – purchasing price, using costs and maintenance, waste disposal costs.
- Efficient Public Contracting: determining the real needs with an efficient use of the resources.

However, GPP implementation has faced some barriers such as:

- Different considerations for environmental criteria and the way to measure them in the different countries;
- Lack of a common legal framework;

- Wrong considerations about it thinking that GPP makes things more expensive;
- Lack of a common monitoring methodology throughout the EU's countries.

Nevertheless, EC is setting a range of recommendations to avoid these problems:

- Set common environmental criteria to put into practice in GPP.
- Reinforce the legal security related to the environmental criteria inclusion in contracting.
- Inform about the estimated cost of the lifespan of products.
- Define a monitoring system with indicators.

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4. Legal framework

The Action Plan for Sustainable Production and Consumption and Sustainable Industrial Policy of the European Union includes "Green Public Procurement" as one of most important tools to be boosted from Public Administrations. At European level, the target established in the EC COM about GPP for a better environment, is to achieve a 50% of implementation over the share of best GPP performance countries in the EU. Since this commitment was required, many Administrations at national, regional or local level have included GPP in their policies or assumed the engagement acquired in this field.

Regarding the legal framework, there were some uncertainties for a long time, not only about the possibility and suitability to incorporate specifically environmental aspects to the contracting documents, but also about the correct way to introduce these aspects in the different sections of the documents: subject matter, technical specifications, award criteria, contract performance clauses or selection criteria for bidders. In order to clarify these questions the EC published in 2001 the following communication:

- COM(2001) 274 Interpretative communication of the EC about common legislation of public contracts and possibilities to integrate the environmental aspects in the public contracting.

EU Directives of public contracting have been also developed and approved covering this legal gap and where how to implement environmental clauses in public contracts are clearly defined:

- Directive 2004/17/EC about the coordination of the awarding procedures of contracts in water, energy, transports and postal services sectors. (Utilities).
- Directive 2004/18/EC about the coordination of the awarding procedures of contracts in goods, works, services.
-

Moreover, the EC proposes the application of a series of measures aimed at improving the energy and environmental performance of products throughout their whole lifespan, and boosting the demand and supply of better quality products. They are proposed in the following communications among others: COM(2008) 397

"Sustainable Consumption and Production Action Plan and a Sustainable Industry Policy" and COM(2008) 400: "GPP for a better environment"³.

5. GPP situation per countries

The EC had already published a document called "National GPP strategies"⁴ showing the main targets and Action Plans about GPP policies. However, when this report was begun, that document was not updated. In order to have an overview of the current situation about GPP in European Countries, OPEN HOUSE partners carried out an analysis in their respective countries. In addition, the rest of EU countries not represented by the consortium were distributed among the partners. .Therefore, an effort to compile all the information about the current situation of GPP in the different European countries was carried out. Some questionnaires following the same structure as the one of EC's were delivered between partners in order to get their answers back. In the mean time, the formerly mentioned document was updated (in September 2010). As a result of this, most of the answers from the partners were filled in with the information given in it. Some others gave additional information.

The following table combines the EC report with partners' contributions (in green).

As a conclusion to this, it could be said that in general, apart from the information published in the EC's GPP official website, there is a lack of information regarding GPP in most of the countries analysed. Despite most of the EU's countries are currently taken measures for green public procurement, it is not a well-known practice among people not dealing with public contracting.

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Table 1: GPP situation per countries

COUNTRY	AUTHORITIES RESPONSIBLE FOR GPP	GUIDELINES / LINKS	NAP	GPP TARGETS – CRITERIA	a) MARKET ANALYSIS b) COMMUNICATION, TRAINING	a) MONITORING, b) LEGAL PROVISIONS
Austria	<p>Joint responsibility of Ministry of the Environment (MoE), Federal Chancellery, Ministry of Finance.</p> <p>BMLFUW: Federal Government Department of Agriculture, Forestry, Environment and Water.</p>	<p>Current working programme of the Austrian Government 2008-2013: – one chapter on GPP/SPP www.bka.gv.at/DocView.axd?CobId=32965 www.nachhaltigebeschaffung.at</p> <p>Decisions of the Council of Ministers (1998, 2007 and 2010): Austrian ecolabel: http://www.umweltzeichen.at/</p> <p>Different guidance on GPP in the Regional governments/administrations. For regional level: Advices for the realization are given in "baubook" (technical criteria, ingredients, production, application, emissions and disposal) and a similar system called "Ökokauf". In the future they will be combined to a national standard. Vienna (City and province): www.oekokauf.wien.at Vorarlberg: ÖkoBeschaffungService www.umweltverband.at http://www.baubook.at/oeg/?SW=16&oegpk=2</p>	<p>NAP was adopted by the Council of Ministers in July 2010 based on criteria of EU-Toolkit and criteria of pilot phase on GPP (for five product groups - pilot phase concluded). NAP available on: www.nachhaltigebeschaffung.at</p>	<p>General obligation for the federal level to procure sustainable products using at least EU-Toolkit core criteria (10 product groups and 6 additional ones for construction /interior work, etc). Mandatory quantitative targets for the federal level will be fixed by 2012, based on the first monitoring. Continuously extension of GPP is aimed at. Recommendation for regional level and municipalities to adopt similar decrees. The city of Vienna has developed criteria for a broad range of product groups containing 24 topics: www.oekokauf.wien.at "Eco Procurement Service Vorarlberg" has developed criteria for 13 product groups (office equipment, cleaning products, paper, etc) and criteria for construction. GPP in Upper Austria started extension on all 26 product groups, Existing further initiatives on GPP in other provinces.</p>	<p>a) Market analysis by Federal procurement agency (FPA). b) Platform on SPP www.nachhaltigebeschaffung.at with helpdesk, info via email, phone and discussion Forum. Network of procurement officers to exchange experience with GPP/SPP (federal, regional and local level). Training / information together with FPA and other organisations for procurers, decision-makers, representatives of business, suppliers. National conference for public procurers every two years.</p>	<p>a) MoE is going to establish a voluntary monitoring system, additionally and based on the monitoring of the EC to measure progress with GPP/SPP; annual reports on progress of implementation. b) AUT Federal procurement Act (FPA) is the mandatory legal bases for GPP. In case of verifiably and severely violated environmental law the tenderer has to be eliminated by the contracting authority as a legal consequence /§§ 68, Abs 1 Z 5 FPA). Regarding road vehicles (transposition of Dir 2009/33 EC) strong legal requirements in § 80 FPA (energy consumption, carbon dioxide and nitrogen oxide). In case of</p>

				Task force to elaborate social criteria for public procurement.		suggested noncompliance bidders may appeal against the tender procedure with the controlling body.
Belgium	Ministry of Environment, Ministry of Sustainable Development and Regional Authorities (Walloon Region, Brussels Capital region, Flemish Region).	Guidelines for federal level and the Brussels Capital city level: A practical instrument with sustainable criteria for all the different phases of procurement for about 70 product- and service groups. http://www.guidedesachatsdurables.be/ In the Walloon and Flemish region, the procurement of vehicles in line with Ecoscore criteria (www.ecoscore.be). Procurement of 100% green electricity for the region's buildings.	On the 3rd of July 2009, an Action Plan for Sustainable Procurement was adopted at the federal level. Four circulars on different product groups were already in force. In the Flemish Region, an Action plan for Sustainable Procurement was adopted by the regional government the 5 June 2009. Brussels Capital City has a circular on sustainable procurement since February 2009. The Walloon region prepares a decree on sustainable procurement and 4 circulars. Three of them have been already approved.	Target of 50% of GPP at federal level by 2011. Target of 100% SPP at level of Flemish Region by 2020. (AP). - Priority products (listed in the federal action plan) are identified for both environmental and social risks and guidance is available (transport, food and catering, green electricity, sustainable wood and buildings, toxic products and social sensible products). Products and services for which environmental and/or social criteria is being applied: For the federal level, see http://www.gidsvoorduurzameaankopen.be/	a) Market investigations on the availability of products that are conform to rigid environmental criteria. b) Training: the Federal Administration Training Institute at both federal and regional level.	a) A first set of test questionnaires to the federal services is sent out in March 2010.
Bulgaria	Ministry of Environment and Water (MoE), Public Procurement Agency, Ministry of Economy Energy and Tourism.	Practical guidance on Public procurement with examples on how to use GPP criteria, relevant case law, etc. is distributed among contracting authorities and other stakeholders. http://www.moew.government.bg ; http://www.aop.bg	Ongoing consultations for elaborating GPP National Action Plan.	Energy efficiency criteria for 5 priority product groups: Office IT equipment, air conditioning and ventilation, white goods, office lightening and public street lightening, motor vehicles. Drafted but not yet adopted.	b) PP Agency is in charge of Public procurement training; and if any environmental issues are involved the MoE will participate.	After the adoption of the PPL draft-law, the energy efficiency requirements concerning the road vehicles will be compulsory in case of public procurement. The requirement concerning procurement of the

						other product groups will remain optional.
Cyprus	Department of Environment is a coordinating authority for the GPP Implementation, Treasury of the Republic, Competing Authority for Public Procurement.	Leaflets, newsletter, workshops, DVD, GPP Handbook, circulars to all contracting authorities / entities. website: www.moa.gov.cy	The first National action plan adopted in March 2007: http://www.moa.gov.cy/moa/agriculture.nsf/All/22DF8A8CE48A4D4AC22572CF00727069/\$file/GPP_ACTION_PLAN_WEB.pdf?OpenElement The new NAP for GPP has been finalized and now is about to be adopted from the Council of Ministers.	Objectives and targets have been identified as well as 12 products and service group categories (office equipment and paper, electricity and products, save energy methods and products, cleaning products and services, saving water products and sanitary ware, construction (building and road) and renovation, food products and services, furniture, textiles, transport, gardening product and services, mobile phones). All public procurers have to adopt at least the core criteria from the Toolkit, or for some categories that are not included in Toolkit, they have to adopt the criteria that have been set by national experts (50%).	a) The Department of Environment explores the local market for green products and services. All the relevant information is given to the public authorities. b) GPP training is provided at both central and local level by the Department of Environment of the MoE. Dissemination of information through newsletters, meetings and direct contact of Department of Environment and contracting authorities.	a) There is continuous monitoring from the Department of Environment, using questionnaires, letters and direct contact with the public authorities. b) Commitment for the implementation of the GPP NAP from public authorities.
Czech Republic	Ministry of Environment, Ministry of Regional Development.	Handbook GPP, GPP website: http://www.env.cz/AIS/web.nsf/page/s/green-public-procurement National ecolabel: http://www.ekoznacka.cz/	Ministry of the Environment prepared (instead of NAP) "Rules for implementing of environmental requirements in public procurement of state administration and self-administration" which is based on European Commission's toolkits. Not approved by the Government yet.	By the year 2014 - 25% of all vehicles of state and public services "environmentally friendly". Mandatory criteria for furniture and IT, for the other product groups in preparation.	b) MoE and other NGOs provide some training on GPP for public procurers.	b) The GPP is supported by some government decisions which recommends ministries buy ecolabeled products or set some targets of "green" vehicles which should be bought by central states bodies. Rules should be mandatory for central bodies to use particular

						product groups. The same will be recommended to local authorities. Mandatory criteria for furniture and IT so far.
Denmark	The Ministry for Environment, SKI – National Procurement Ltd. – Denmark. The State Procurement Office at the Danish Agency of Governmental Management (Ministry of Finance).	46 product-specific guidelines: http://www.miljoevejledninger.dk/ and at: www.gronindkobsportal.dk 18 Product specific guidelines for electricity using products http://www.elsparefonden.dk/offentlig/vaerktoejer-ogberegner/vejledninger/indkoebsvejledning/find-indkoebskravene http://www.mst.dk/Virksomhed_og_myndighed/Miljoeindsats_paa_tvaers/baeredygtige_indkoeb/	1994 Action Plan. The most important action plans related to green procurement: -Strengthened efforts to enhance green procurement in 2008-2009. -Action Plan for Corporate Social Responsibility 2008.	Denmark has adapted the indicative political target of 50% of GPP as referred to in the communication of GPP. At local level, there is a voluntary partnership for green public procurement. The municipalities participating in the Partnership have to comply with environmental requirements for certain product groups (so far 13 product groups). Strategic focus area in 2010 and after: The Ministry of Environment will focus on sustainable procurement within the following focus area: Transport, building and food products.	b)Two main platforms for dissemination and training: -Partnership for green public procurement (involving the municipalities). -Panel for green procurement (involving 13 public and private sector organisations).	b) Environmental requirements are mandatory for central government and are so far implemented in 20 product groups.
Estonia	Ministry of Environment, Ministry of Finance, Ministry of Economy.	No common GPP guidance.	There is "Estonian Environmental and Sustainable Public Procurement Priorities 2007-2009" http://www.envir.ee/219407	No priority products have been yet identified.		a) Collecting of all statistical data from Register of Public Procurement. When the tender documents are completed they are marked in case the environmental criteria were used.
Finland	Ministry of	Hymonet (product criteria):	Decision on Sustainable	State organisations - 70% GPP by	b) Helpdesk to assist in	b) Sustainable

	Environment, Ministry of Finance, Ministry of Labour and the Economy.	http://www.hymonet.com/hymonet/ Nordic Swan: http://www.ecolabel.fi/ Help desk in environmental technologies: http://www.motiva.fi/julkinen_sektori/julkiset_hankinnat/neuvontaa_ymparistoteknologiahankintoihin/	Public Procurement accepted by the Government 8.4.2009. http://www.ymparisto.fi/default.asp?contentid=323695&lan=fi&clan=en	2010 and 100% by 2015. Municipalities - 25% GPP by 2010 and 50% by 2015. Criteria are developed for 20 product groups which will be updated over time. Link: http://www.hymonet.com/hymonet/	procuring innovative environmental technologies.	procurement is mandatory, but voluntary for municipalities.
France	The Ministry of Ecology; Energy, Sustainable Development and Sea, Ministry of Economy, Industry and Employment.	Guidelines for various product groups: http://www.ecoresponsabilite.ecologie.gouv.fr National ecolabel: http://www.ecolabels.fr/fr/ Ministry of Economy – guides to procurers (check GEM-DDEN for sustainable procurement guides) http://www.minefe.gouv.fr/directions_services/daj/guide/gpem/table.html Several specific administrative guidance were enacted: - Prime minister guidelines ¹ (2005) for an exemplary State in regard to energy savings (n°5.102/SG); - Prime minister guidelines (2008) for an exemplary State in regard to sustainable development (Official Journal, 12th of February 2009) http://www.journalofficiel.gouv.fr/verifier/getpdf.php?fic=../publication/2009/0212/joe_20090212_0036_0004.pdf.sig	National action plan for SPP adopted in March 2007, including 15 specific GPP targets; http://www.ecoresponsabilite.ecologie.gouv.fr/IMG/PNAAP_D.pdf The NAP is to be renewed in the end of 2010.	The national action plan for sustainable procurement (PNAAPD) adopted in 2007 set objectives for 15 product groups. This plan is completed by a Prime Minister circular which set objectives, strategies and courses of actions for 20 product and service groups and indicators to fulfil for 13 of them. Actions for 20 product and service groups: computers, printers, paper, food, clothes, furniture, office equipments, wood products cleaning services, waste management, green areas, cars, eco-driving, transport, water and energy, lightning, energy consumption and CO2 emission monitoring, training, social procurement, social responsibility. General guideline website including 36 product groups: http://www.minefi.gouv.fr/directions_services/daj/guide/gpem/table.ht	b) GPP training programmes are in place and done by government institutions: IFORE (Institute for environmental training – Ministry of Ecology), IGPDE (training institute of the Ministry of Economy) and ADEME (National Agency for Environment and Energy). From 2010 on, the Prime Minister circular makes certain number of hours of training on Sustainable development mandatory. Besides that, ministries will be asked to increase awareness on SPP and SD through the broadcasting of information on the	a) Several tools have been developed by the SPP national action plan to evaluate and monitor SPP: «écoresponsibility» indicators, administrative audits, studies etc... The 2008 PM guidelines on «Etat exemplaire» (public authorities leading by example) contains 12 (out of 20) SPP targets). The other targets relate to environmental management, training, etc...These guidelines are equipped with a strong monitoring system. Each sectorial target factsheet contains indicators that ministries have to regularly fill in. Every Ministry must report yearly on the

		<p>- Prime minister guidelines (2009) relating to the real estate and buildings policy of the State.</p> <p>- Administrative guidance : 6 guide books published by the Groupe (Permanent) d'Etude des Marchés «Développement Durable, Environnement » (GEM-DD) including: ecological products and services, timber and wood products, ecological paper, energy efficient services for building (heating and cooling), wood as a building material, environmental quality public buildings, textiles and office cleaning. A guidance note on socially responsible public procurement was also published in 2009.</p>		<p>ml Ministry of Economy –guides to procurers (check GEM-DDEN for sustainable procurement guides) http://www.minefe.gouv.fr/directions_services/daj/guide/gpem/table.html</p>	<p>internal networks.</p>	<p>progress towards the targets and the indicators. A budget-neutral financial “bonus-malus” (reward-penalty) system is introduced in 2010 to reward the well performing ministries and penalise the bad ones.</p> <p>b) In the Grenelle 1 law the article 48 about the responsibility of the administration sets out legal objectives concerning : vehicles, dematerialized communication technology, sustainably managed wood, organic and sustainably-made food, the development of car-sharing transportation, and the making of a carbon footprint on the State buildings.</p>
Germany	<p>Federal Ministry of Economics and Technology (lead ministry for public procurement) Federal Ministry for the Environment,</p>	<p>1. Information on energy-efficient procurement (related ecolabels, general administrative provisions, websites): www.bmwi.de/go/energieeffiziente-beschaffung 2. Ecolabels:</p>	<p>1. National Strategy on GPP (federal level): IKEP, measure 24 – Procurement of energy-efficient products and services (adopted in August 2007).</p>	<p>1. Mandatory target for all authorities at federal level to use life-cycle costing in their procurement procedures to ensure energy-efficient and environment-friendly public procurement (see 3rd point under “Guidelines/Links”).</p>	<p>1. Website of the Federal Ministry of Economics and Technology on energy efficient procurement:: www.bmwi.de/go/energieeffiziente-beschaffung</p>	<p>a) Monitoring: The Federal Government's coalition agreement: the elements newly introduced, in 2009, into the GWB, will be</p>

	<p>Nature Conservation and Nuclear Safety Federal Environment Agency.</p>	<p>http://www.blauer-engel.de/ 3. General administrative provisions on the procurement of energy-efficient products and services (adopted in January 2008): http://www.bmwi.de/BMWi/Redaktion/PDF/A/aav-zur-beschaffungenergieeffizienterprodukte,property=pdf,bereich=bmwi,sprache=de,rwb=true.pdf 4. Information/guidelines on GPP: http://www.umweltbundesamt.de/produkte/beschaffung/www.ITK-Beschaffung.de</p>	<p>2. Common National Strategy on Sustainability (federal, regional/ "Länder" and local level). Proposals for an in-depth cooperation (adopted in December 2008). Task Force on Sustainability: report envisaging an alliance for sustainable procurement, July 2010. Working Group for the implementation of the alliance for sustainable procurement (chaired by the Federal Ministry of Economics and Technology): report "perspectives for a further cooperation of state and "Länder" for a sustainable development, April 2009. Statements of the conferences of the different regional ministers to the above mentioned report, interpretation of these statements by the German Federal Ministry of Economics and Technology, ongoing. Website "Kompass Nachhaltigkeit", activation September 2010.</p>	<p>2. High level political commitment for a close cooperation and exchange of good practices between federal and regional ("Länder") level. 3. Pursuant to the new version of GWB § 97, paragraph 4, sentence 2 (Law against Restriction of Competition) ecological aspects can be taken into account within the public procurement procedure provided that there is a factual link to the order-object. The law applies at the federal and state level. However the final responsibility of the criteria setting lays with each contracting authority for its own procurements. 4. A Common Decree on the procurement of wood products (interministerial decree at the federal level) requires that wood products procured by the federal administration must demonstrably derive from sustainable forestry. http://www.bmwi.de/BMWi/Redaktion/PDF/E/erlassbeschaffungsregelungholzprodukte,property=pdf,bereich=bmwi,sprache=de,rwb=true.pdf Ecological criteria, economical criteria, sociocultural and functional quality, technical quality, quality of the process, quality of the location.</p>	<p>2. Website of the Federal Environment Agency on GPP: http://www.beschaffunginfo.de/php/index.php4 3. A central government procurement platform that cooperates with the German Federal Environment Agency on GPP issues: www.ITK-Beschaffung.de 4. Website of the Federal Ministry of Economics and Technology on Public Procurement: Homepage BMWi: http://www.bmwi.de/BMWi/Navigation/Wirtschaft/Wirtschaftspolitik/oeffentlicheauftraege,did=190676.html 5. Currently ICLEI and the private consuler Öko-Institute.V carry out 20 training sessions on GPP. Target groups are public procurers and political decision makers on regional and local level. The training</p>	<p>monitored concerning their impacts and possibly corrected. Task Force on GPP (chaired by the Federal Ministry of Economics and Technology) to monitor the national strategy on GPP. b) Legal Provisions GWB § 97 (see 2nd point under "GPP Targets – Criteria"). The procurement of legal and sustainable wood is mandatory at federal level (see 3rd point under "GPP Targets – Criteria"). In accordance with the new version of the German Regulation of Procurement (VgV) public procurers are basically obliged to demand an analysis of minimized LCC by tenderers (cf. VgV § 4, paragraph 6, number 1 and § 6, paragraph 2 number 1). The "BNB certification system" will be part of a code of practice</p>
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					<p>project is financially supported by the German Government (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety). Website: http://www.icleieurope.org/events/?cmd=view&uid=d23d9453</p>	<p>concerning sustainable construction. This code of practice called "Leitfaden Nachhaltiges Bauen" will be referred to by national law. http://www.nachhaltiges-bauen.de/bewertungssystem-nachhaltiges-bauen-fuer-bundesgebaeude-bnb/steckbriefe-zum-bnb-bewertungssystem.html</p>
Greece	<p>Legislation preparation declaring the role of Ministry of Environment Energy and Climate Change as coordinator of GPP in Greece and the establishment of a bi-ministerial commission for the development and monitoring of GPP NAP. Co-responsible ministries: Ministry of Economy, Competitiveness and Shipping Ministry of Finance, Ministry of</p>		<p>Legislation under preparation stipulating the development of a GPP NAP.</p>	<p>Several good practices.</p>	<p>b) National contact points trained. National Conference of GPP. Collaboration initiated with Ministry of Education and other relevant training bodies for the establishment of curriculums and programmes for GPP training.</p>	

	Infrastructure, Transport and Networks.					
Hungary	Ministry of Environment and Water.	Manual for green purchasing for municipalities: http://www.ktk-ces.hu/	GPP NAP was drafted during 2006-2007 but is not yet approved.	http://www.kornyezetbarattermek.hu/angism.htm Three product groups have been prioritised, for which the EC GPP common criteria have been adopted: vehicles and fuel, office paper, computer and office equipment. The coming GPP NAP does not concern construction work.		Training and other dissemination activities concerning GPP are conducted by the Centre for Environmental Studies, in conjunction with the MoE.
Ireland	Ministry of Environment (MoE) and National Public Procurement Policy Unit (NPPPU).	Guidelines issued by the National Public Procurement Policy Unit. 1996 Green Government Guide recommends green public purchasing 2002 Policy Statement on Recycling and Preventing Waste recommends use of recycled and recyclable materials in GPP. Central Government Supplies Agency offers a range of environmentally preferable products.	Work on drafting NAP has started.		b) Department of Finance, Institute of Public Administration.	
Italy	Ministry of Environment (MoE), Representatives from Ministry of Economic Development, Ministry of Economy and Finance, Regions, the national	2003 CD with GPP guidelines to promote environmental requirements in public tenders. Website on GPP: http://www.dsa.minambiente.it/gpp/page.asp?id=33	National action plan adopted by Ministers – Decree of 11 April 2008. http://www.dsa.minambiente.it/gpp/ Previous NAP adopted by the Italian Ministry for the Environment, Land and Sea Law 27 December 2006 n. 296 (Finanziaria 2007) art. 1	At least 30 % of goods purchased by public administration shall comply with ecological criteria and at least 30 to 40 % shall have reduced electricity consumption. Objectives and targets have been identified in the GPP NAP as well as 11 priority products and services (furniture, building, waste management, urban and country	b) Dissemination of information is carried out by the Ministry of Environment mainly by its website. Local Authorities implementing GPP are also diffusing their experiences (e.g. 2006 promotion campaign (leaflet and	a) A procedure for monitoring of GPP is being defined by the Ministry of the environment in cooperation with the national Authority for the vigilance on public contracts and the National Agency for

	environmental protection agency (ISPRA), regional environmental protection agencies, CONSIP, ENEA take part in the GPP Committee, coordinated by the Ministry of Environment, which has been formally charged of the management of GPP NAP.		comma 1126-1127-1128.	services, energy services, electronics, textile, stationary, catering, building management services and transport). GPP criteria for the first two products (paper and office equipment) have been adopted by decree of the Minister of the environment, n. 111/2009 of 12/10/2009. GPP criteria for textiles, street lighting, office furniture, food and catering and IT are under way for adoption. Targets have been set also for construction and refurbishment of building with particular attention to construction material. Energy efficiency and resource saving in order to reduce the CO2 emissions. Reduction of dangerous resources in particular within the construction sector. Reduction of the overall production of wastes.	questionnaire) and a white paper, GPPnet – The Green Public Procurement Network” website).	environmental protection (ISPRA).
Latvia	Ministry of Environment, Procurement Monitoring Bureau, Ministry of Economy, Ministry of Agriculture.	Governmental Action Plan Guidance for the national and local authorities how to promote GPP in Latvia and how to green the construction works and services were developed and adopted in 2008.	NAP for GPP (2009-2011) is currently under discussion. Until 2009 the GPP activities were covered by the National Environmental Policy Plan for 2004 - 2008, Latvian action plan EN.DOC	Common GPP guidance refers to the common core and comprehensive criteria for the following product and service categories: 1) Office paper 2) ITC equipment 3) Office furniture	Training is delivered by MoE, Central Procurement Office, Ministry of Economy, Ministry of Agriculture and NGOs - competent for GPP.	

				<p>4) Cleaning products and services 5) Food and catering services 6) Public transport 7) Construction works and services</p>		
Lithuania	<p>Ministry of Environment (MoE), Public Procurement Office, Central Purchasing Body, Ministry of Economy</p>	<p>Information on environmental procurement: www.am.lt</p>	<p>A GPP NAP for 2007-2011 has been approved by the resolution of the Government of the Republic of Lithuania. The list of goods and energy efficiency requirements in public procurement were approved by the Resolution of the Government of the Republic of Lithuania in 2008.</p>	<p>According to the National Programme for Implementation of Green Public Procurement, the Government of the Republic of Lithuania, ministries and their subordinate institutions shall achieve in 2010 20 percent green public procurement contracts of all public contracts for goods, services and works, for the purchase of which core (mandatory) and comprehensive (advisable) environmental criteria are established.</p> <p>There are criteria for the first priority group of products: paper and other office supplies made from paper and cardboard; other office supplies; publishing- and printing-related services; passenger road vehicles (cars and light-duty vehicles), buses, public transport services, maintenance-related services, waste collection trucks, waste collection services; office IT equipment; inks and toners for printers, faxes, photocopiers; cleaning supplies and services; light bulbs; event management services.</p>	<p>a) A questionnaire to the suppliers is sent out in May 2010. b) Trainings/seminars organized by the PPO for purchasing organizations and suppliers. The Trainings Programme of GPP was approved by the Minister of Environment in 2008. This programme was revised in May 2010.</p>	<p>a) The contracting authorities shall submit a report on the procurement procedure to the Public Procurement Office and shall indicate in the reports if the GPP criteria were used during the procurement procedure. b) Environmental requirements are mandatory for central government and voluntary for municipalities.</p>

				There are criteria for the second group of products: furniture; construction; textile goods; goods and services for gardening; food and catering; domestic equipment (dishwashers, washing machines, air conditioners, and refrigerators), circulation pumps.		
Luxembourg	Ministry for Sustainable Development and Infrastructures	Oekologischer Leitfaden: (http://www.crtib.lu/Leitfaden/index.jsp?section=FR)- website with guidelines called "Oekologischer Leitfaden" for sustainable construction works and use of construction products. Information about guidelines for various products: Oekotopten: http://www.oekotopten.lu/ "Eco-technologies action Plan" developed by the Ministry of the Economy and Foreign Trade. http://www.environnement.public.lu	The action plan for sustainability is based on 21 main targets.	General recommendation for sustainable procurement (article 4 of law on public procurement). Main targets are on water quality, CO2 emissions, indoor air quality and waste management. Targets values for the energy performance of building are aligned on the Passiv Haus concept and introduction of energy effective solutions for refurbishment.	b) Procurement training including environmental aspects is provided by the National Institute of Public Administration.	
Malta	Office of the Prime Minister, Ministry of Finance, the Economy and Investment.	Handbook/workshops	NAP Adopted May 2010.	The targets set aim to comply with the core criteria as set out in the GPP toolkit. Fifteen (15) product groups for 'greening' have been identified. Targets have been set as follows: Copying and graphic paper – 100%; gardening products and services – 100%; textiles – 100%; office I.T. equipment – 100%; cleaning products and services – 80%; air conditioning and heat	a) NAP based on Research including market sounding and Expenditure analysis. b) Some procurement training incl. environmental aspects is delivered by the Department of Contracts.	

				pumps – 80%; thermal insulation and wall panels – 80%; transport – 10%; furniture – 10%; food and catering services -10%; hard floor coverings – 10%; windows – 10%; street lighting and traffic signals – 10%; road construction – 10%; traffic signs – 10%.		
Netherlands	<p>Netherlands</p> <p>Ministry of Environment and Spatial Planning, state-agency NL Agency.</p> <p>The umbrella organisations VNG (Association of Netherlands municipalities), IPO (organisation of provinces) and UvW (Dutch Association of Regional Water Authorities) participate in the SPP programme on behalf of decentralised governments.</p>	<p>Website with GPP criteria for 45 product groups (consisting of 52 documents), criteria process, legal framework, stakeholder involvement, best practices, tools, manual helpdesk, etc.: http://www.senternovem.nl/duurzaaminkopen/index.asp In English: http://www.senternovem.nl/sustainableprocurement/index.asp Info on SPP policy and on social criteria: http://www.vrom.nl/pagina.html?id=34352 National ecolabel: http://www.smk.nl/nl/s357/SMK/Programma-s/Milieukeur/c324-Milieukeur</p>	<p>2003 National Action plan on sustainable development including certain specific targets for GPP.</p> <p>The SPP instrument is developed by government order to reach the 100% target.</p>	<p>Federal government and government agencies - 100% GPP by 2010.</p> <p>Provinces - 50% GPP by 2010 and 100% by 2015.</p> <p>Municipalities - 75% GPP by 2010 and 100% by 2015.</p> <p>Waterboards - 50% GPP by 2010 and 100% by 2015.</p> <p>Results of GPP monitoring carried out in 2008: Municipalities 44%, provinces 34% and central government 51%.</p> <p>The Netherlands has developed GPP criteria for 45 product groups (consisting of 52 documents). http://www.senternovem.nl/sustainableprocurement/criteria/index.asp Social criteria will apply generic to all public procurement above the EU threshold. They are expected to become operational by summer 2010. More information: http://www.vrom.nl/pagina.html?id=47308</p>	<p>a) A brief market analysis (both on sustainability developments in the sector and on availability) is part of the criteria development process of each product group.</p> <p>b) A helpdesk (run by SenterNovem) to assist anyone with questions on sustainable procurement.</p> <p>A network-site (Pianoo) where purchasers can consult each other.</p> <p>Other instruments: Handbook on GPP, Implementation Coach (to measure progress), discussion working groups.</p>	<p>a) The Ministry of Housing, Spatial Planning and the Environment monitors the progress of public sustainable procurement by measuring the results every two years. The Minister of Housing, Spatial Planning and the Environment reports the results to Parliament. At the same time, government organisations can track their own performance. Monitoring takes place at quantitative and qualitative level. At quantitative level: sustainable purchasing volume in euro's / total purchasing volume in Euros. A purchase is sustainable if the minimum requirements</p>

						and selection criteria as defined in the SPP criteria documents have been used. At qualitative level: to what extent has the procuring authority implemented SPP in its procurement and/or sustainability policy, its organisation and working procedures. b) It is a political commitment. Central government is bound by a political motion of the parliament. Decentralized governments are bound by covenants between the umbrella organisations and the Minister of Environment.
Norway	Policy: Ministry of Environment Implementation: the Agency for Public Management and Government (Difi) under the Ministry of Government Administration and Reform.	Local and national government procurers have a legal obligation to take environmental aspects and life cycle cost into consideration when planning all public procurement, and must, as far as possible, specify concrete environmental requirements. How this should be done is not specified in detail. Difi therefore provides an official recommended set of "criteria documents" (Nordic standard form)	NAP 2007-2010 Whole NAP (Norwegian): http://www.regjeringen.no/nb/dep/fad/dok/rapporter_planer/planer/2007/Miljo--og-samfunnsansvar-i-offentlige-an.html NAP (shortened English version): http://www.regjeringen.no/en/dep/fad/whatsnew/news/2007/Environmental-	No quantitative targets defined at the national level. Prioritised product groups are identified together with environmental challenges for each. Norway has published recommended environmental criteria for: - hotel services - office furniture - cleaning services - laundry services	a) Most recent market analysis was published in February 2010 (Norwegian): http://www.anskaffelser.no/nyheter/2010/02/mange-stillermiljokrav-men-hvilke-krav Integration with public procurement tools. b) County focal points (19 altogether) – about	a) Monitoring is ad hoc. In the future it will be integrated with Environmental Management Systems (also part of the NAP), which all national institutions are obliged to implement. b) The Norwegian government has a legal obligation to take

		<p>for the prioritized product groups. http://www.anskaffelser.no/ Environmental criteria (Norwegian): http://www.anskaffelser.no/tema/2009/06/miljokriterier www.anskaffelser.no/dokumenter/re-gjeringens-handlingsplan-for-miljo-og-samfunnsansvar-2007-2010</p>	<p>guidelines-for-purchasesi.html?id=473572</p>	<ul style="list-style-type: none"> - textiles - building construction and maintenance. - building planning and design - ICT equipment - copying paper - toner cassettes - envelopes - printed matter and services - institutional nappies - Vehicles and transportation <p>Ambitious energy saving and waste reduction goals in construction.</p>	<p>1 person full time at each focal point providing support and training at county level. Integration and reporting with EMS. Several courses in green public procurements provided annually.</p>	<p>environmental aspects into consideration in all public procurement.</p>
Poland	<p>Public Procurement Office (as a whole), Ministry of Economy, MoE, Ministry of Infrastructure, Polish Centre for Testing and Certification.</p>	<p>Official website for GPP: GPP Guide (containing legal aspects, LCC methodology, and GPP toolkit criteria): http://www.uzp.gov.pl/zagadnienia-merytoryczne/edukacja/publikacjeuzp/poradniki-1/zielone%20zamowienia.pdf GPP on the website of Public Procurement Office: http://www.uzp.gov.pl/zagadnienia-merytoryczne/zielone-zamowienia www.zielonezamowienia.gov.pl (site under construction).</p>	<p>2nd National Action Plan on Sustainable Public Procurement for 2010-2012 was adopted in June 2010. Apart from containing environmental aspects, it also refers to social issues which might be considered in a procurement process. http://www.uzp.gov.pl/zagadnienia-merytoryczne/zielone-zamowienia 1st National Action Plan on GPP for 2007-2009 expired in Dec. 2009.</p>	<p>Criteria developed by working groups under Ministry of Economy and participation of PPO inter alia for:</p> <ul style="list-style-type: none"> - Electro equipment and electronics, - Lighting, - Office equipment, - Construction. <p>(Non-binding character, used for information purpose). Criteria were developed based on GPP training toolkit.</p>	<p>a) Market analysis of 2 product groups: RES and paper, carried out for Public Procurement Office. b) A PP training programme is available for contracting authorities from central and local level. The central Public delivers a series of conferences and workshops on GPP under the NAP. Governmental Action Plan Guidance for the national and local authorities how to promote GPP in Poland and how to green the construction works and</p>	<p>a) The level of GPP and SRPP is measured based on the PPO methodology by means of TED and Public Procurement Bulletin (national) search engines. b) General recommendations, no obligation. General support from the government as the NAP was adopted by Council of Ministers.</p>

					services were developed by KAPE and adopted in 2008, general recommendations, no obligation.	
Portugal	Ministry of Environment (MoE), Central Procurement Office.	Central Procurement Office (ANCP): http://www.ancp.gov.pt/PT/Pages/Home.aspx https://catalogo.ancp.gov.pt/catalogo/	General Action plan on GPP adopted by government April 2007: – implementing measures being established. The legal requirement is to include environment criteria's. This link is done by the national strategy and by other legal requirements like the acquisition of vehicles by the state.	50% Gov Contracts to include green criteria by 2010. 8 priority groups identified : Construction, Transport, energy, Office Equipments, IT equipments, Office consumables including paper, cleaning products, public buildings maintenance services.	a) A market analysis is currently being considered and it is supposed to be done before the revision on the current NAP.	a) Monitoring: ANCP is checking the all compliance with the targets, this is achieved the following the letters of commitment and reports on inclusion of GPP on tendering, that other departments must send to ANCP as well as a track of their own launch tenders. b) GPP is legal binding, it's based on law, the process is centralized, one agency overviews all the government buying. There is a strong political support, most of the currently launch tenders include environment criteria's.
Romania	Ministry of Environment (MoE), National Agency for Environmental Protection, National Authority for Regulating and	GPP website: www.achizitiiecologice.ro Seminars, conferences, etc.	A draft GPP NAP has been developed and is in the process of being adopted. Adopted by Inter-ministerial advisory board. Overall coordination: Ministry of Environment. Governmental	The proposed targets are voluntary for the first year of implementing the NAP and continue the next years with mandatory or voluntary targets. Targets lower than 20 % (except for lighting equipment – 50%).	In 2008, the Ministry of Environment and a private consultant undertook a market analysis that was used in the process of designing the NAP.	a) The National Agency for Environment Protection issues on an annually basis (until 15th April) the Monitoring Report of the implementation of NAP.

	Monitoring PP.		<p>Decision no. 1568/2008. Romanian National Strategy on Sustainable Development (Governmental Decision no. 1460/2008).</p> <p>According to the Strategy, a system of green public procurement will be phased in with an aim to come close to fulfilling, by 2013, the EU objective to reach, by 2020, the average level attained by the best performing Member States in 2006.</p>	<p>The environmental criteria (some voluntary, some compulsory) will be applied to 7 priority product groups identified in the draft NAP: cleaning products and services, construction, lighting equipment, ecological food products and drinks, furniture, IT equipment, Copying paper.</p>	<p>The Ministry of Environment and Forests runs two projects on dissemination of GPP and the training of the public procurers in central and local administration. The Ministry of Environment and Forests also runs regional and national conferences to disseminate GPP policy.</p>	<p>The Monitoring Report is issued on the basis of the automatic electronic reports of the procurements in the National Electronic Procurement System and on the self reporting of the contracting authorities; Following the Monitoring Report the National Environment Guard (and its local branches) can take actions (financial sanctions) to enforce the NAP against the authorities that did not meet the targets; or Following the Monitoring Report the Ministry can propose the revision of the targets (and the criteria developed until that moment).</p>
Slovakia	Ministry of Environment (MoE) and Slovak Environmental Agency Public Procurement Office Members of national GPP Working Group.	GPP Guideline for procurers in place and refer to common GPP (core and comprehensive) criteria.	<p>National Action Plan adopted for 2007 - 2010;</p> <p>http://www.rokovania.sk/appl/material.nsf/0/7DF24577A9EDC16AC1257384003D2738?OpenDocument</p> <p>See also: http://www.enviro.gov.sk/ser</p>	<p>Key target is to achieve 50% GPP by 2010 by Central Gov Authorities. In October 2008 has been created National Guideline for Public Procurers "Public Procurement for better environment" which contains GPP environmental criteria for 6 product groups (Copying and graphic paper, Energy, Cleaning</p>	<p>b) National training programme on GPP in place and is done by institutions in charge of GPP.</p>	

			vlets/page	products and services, Food and catering services, Construction, IT equipment).		
Slovenia	Ministry of Environment (MoE), Ministry of Public Administration (Public Procurement Service), Ministry of Finance, Government Office for Development and European Affairs.		GPP NAP, including the Policy Statement, was adopted on 21 May 2009.	Key target is to achieve 50% GPP by 2012 by Central Gov Authorities for 8 products categories (paper, electricity, office equipment, furniture, transport, food and catering, construction, cleaning products and services).		
Spain	State government and Inter-ministerial commission.	http://www.boe.es/boe/dias/2008/01/31/pdfs/A05706-05710.pdf At regional level: GPP Practical Manual of the Basque Country- in Spanish & Euskara (IHOBE Basque Agency for Environmental Management- Basque Government). The guide not only includes green criteria for tenders in line with the EC (for more than 15 products) but also recommends rationalising procurement needs, information for bidders and 28 Basque good practices. Works greening guide of Barcelona, And another guides for different product groups in Catalonia as the "Green office guide".	NAP adopted January 2008; http://www.endseurope.com/14530 It is not an aim of the NAP to develop specific environmental criteria for each group of product.	At national level: <ul style="list-style-type: none"> • Draft of codes of good practices before 2010. • Levels of green purchase between 25% and 100% according to the type of product and stage GPP. 8 priority product groups have been identified along with a timescale for achieving specific targets (construction and maintenance, energy, transport, office equipment, paper and publications, furniture, cleaning products and services, events). Energy savings of 9% before 31December 2010 and 20% by 31 December 2016, according to the PAEE-AGE objectives. Water savings of 20% by December 31, 2010.	b) Training for GPP is performed by the MoE (with the support of private institutes like ECOINSTITUTE) for contracting entities at central, regional and local level.	

				Ensure overall environmental improvements of buildings in maintenance and in case of integral rehabilitation.		
Sweden	Ministry of Environment, Swedish Environmental Management Council (MSR) implements GPP Swedish Environmental Protection Agency monitors GPP and develops the action plan.	MSR Guidance for Sustainable procurement. Criteria documents are available in English. www.msr.se/en Report – GPP Taking it to the next level: http://www.msr.se/Documents/rappporter/MSR_2009_3_en.pdf Many other guideline documents are produced (how to follow-up green criteria, social and ethical procurement, procuring services, EPC). MSR has also developed LCC tools to be used in the need analysis and in the award phase.	National action plan, endorsed by government on 8 March 2007. www.msr.se/en/green_procurement/Swedish-National-Action-plan-for-GPP/ New action plan from 2011 is in working progress in the Ministry. Action Plan GPP Sweden. Swedish Environmental Management Council's procurement criteria for Building Contracts - The building of new blocks of flats.	Criteria developed by MSR. Product areas such as Vehicles and transport, IT and telecom, Cleaning and laundry services, Office equipment, Furnishing and textiles, Nursing and hospital care. Target for 2009 – 50 criteria documents (60 by 2010). The following national objectives should be met by 2010 according to The Swedish Environmental Management Council Report "Green Procurement - Taking it to the next level": http://www.msr.se/Documents/rappporter/MSR_2009_3_en.pdf (1) The proportion of public procurements with well-formulated environmental criteria should increase; (2) The proportion of state framework agreements with well-formulated environmental criteria should increase; (3) The proportion of authorities at Government, Municipality and County Council level that regularly make use of well-formulated environmental requirements should increase.	a) Market analysis for example IT-products, telecom products, fuel. b) GPP helpdesk by telephone and E-mail. Free online training. Training/information sessions together with other organisations for procurers, politicians and suppliers. A national conference is held every year and a price is awarded to the greenest contracting authority and the greenest supplier.	a) The Swedish EPA monitors the targets through different surveys. b) Mandatory for government agencies to only purchase/lease green cars and taxi services.
Switzerland	The City of Zürich.	http://www.novatlantis.ch/index.php	2,000-Watt Society.	By the year 2050, the amount of	Dissemination by	The vision of the 2000-

		?id=26&L=1		fossil energy sources can be cut in half from the current figure of 3000 watts to 1500 watts per person. A CO2 output of one ton per capita a year is also an applicable long-term goal for Switzerland.	different projects and events organised by Novatlantis e.g. construction of the new Triemly Hospital will be carried out according to the standards of the 2000-Watt Society.	watt society calls for a continuous reduction in energy needs to 2000 watts per person.
	The corresponding Federal Administration departments are responsible for implementation. The Interdepartmental Sustainable Development Committee (ISDC) is composed of members of the various departments and coordinates the implementation of all measures.	http://www.aren.admin.ch/themen/nachhaltig/00262/00528/index.html?lang=en	Sustainable Development Strategy: Guidelines and Action Plan 2008–2011: Since 1997, the Federal Council has operated a Sustainable Development Strategy as the basis for implementing its constitutional task of sustainable development in Switzerland. Alongside the federal policy guidelines, the current strategy also includes an action plan with concrete aims for the duration of the current legislative period (2008–2011).	An important point of reference for Switzerland is the European Union’s announced target of reducing emissions by 20% of their 1990 level by 2020. Article 89 of the Federal Constitution (energy policy) 24 and the Swiss Energy Act of 26 June 1998 25 both demand that federal and cantonal governments ensure a sufficiently broad based, secure, economical and environmentally-friendly energy supply. They must also act to encourage the sparing and rational consumption of that energy.	Report of 16 April 2008: Federal Office for Spatial Development (ARE) Sustainable Development.	
United Kingdom	Sustainable Procurement policy is developed by the Sustainable Products and Consumers section within Defra, the Department for Environment, Food	Sustainable development in government website: http://www.defra.gov.uk/sustainable/government/ Buy Sustainable – Quick Wins initiative: http://www.defra.gov.uk/sustainable/government/what/priority/consumpt	Sustainable Procurement Action plan delivered on 12 June 2006 http://www.defra.gov.uk/sustainable/government/documents/fulldocument.pdf CESP Delivery Plan can be found at:	Currently a series of sustainable operations targets for the Government office estate (SOGE), including a pledge to go carbon neutral by 2012 and to reduce carbon emissions by 30 per cent by 2020. These targets expire in March 2011. From April 2011, they will be	Sustainable Procurement policy is developed by the Sustainable Products and Consumers section within Defra, the Department for Environment, Food and Rural Affairs.	a) Monitoring of compliance with the SOGE targets and procurement criteria within central government is the responsibility of the Centre of Expertise in

	<p>and Rural Affairs. Public procurement policy is developed by the Finance Ministry's Office of Government Commerce - OGC. CESP (part of OGC) leads on supporting Departments in delivering their sustainable procurement commitments.</p>	<p>ionproduction/quickWins/index.htm The SOGE targets until March 2011 are at: http://www.defra.gov.uk/sustainable/government/gov/estates/targets.htm The SDiG targets (from April 2011) are at: http://www.defra.gov.uk/sustainable/government/gov/estates/sdigtarget.htm The flexible framework can be found at: http://www.dft.gov.uk/adobepdf/187604/ANNEX_A.pdf The new Government Buying Standards web site for priority product groups are at: http://www.defra.gov.uk/sustainable/government/advice/public/buying/index.htm Buying Solutions- procurement partner for public services: http://www.buyingsolutions.gov.uk and their new service that identifies compliant Quick Wins products: http://online.ogcbuyingsolutions.gov.uk/products/all?environmentalcompliancelevels%5BBest+Practice%5D=on&environmentalcompliancelevels%5BMinimum%5D=on Centre of Expertise in Sustainable Procurement (CESP): http://www.ogc.gov.uk/cesp.asp</p>	<p>http://www.ogc.gov.uk/sustainability_programme_progress.asp Local Government Sustainable Procurement Strategy: http://www.idea.gov.uk/idk/aio/7643299 Scottish Government Sustainable Procurement Action Plan: http://www.scotland.gov.uk/Publications/2009/10/sspap Welsh Assembly Government's Procurement Policy: http://wales.gov.uk/topics/improvingservices/better/vfm/smartpurchasing/wob/wagpolicy/?lang=en Northern Ireland's plan: http://www.cpdni.gov.uk/sustainable-procurement-action-plan-ni.pdf</p>	<p>replaced by a revised set of targets called Sustainable Development in Government (SDiG). There will also be targets for Departments to achieve level 3 of a maturity matrix for sustainable procurement, known as the "Flexible Framework" by 2012, and level 5 by 2015. The UK currently sets criteria in around 60 product groups at 2 levels - 'mandatory minimum' and best practice'. Previously known as 'Buy Sustainable Quick Wins' these have been rebranded and relaunched as 'Government Buying Standards'. They include Construction, Food, Clothing and other textiles, Paper, Cleaning Products, Energy, Consumables – Office machinery and computers, Furniture, Transport and Gardening Services. They are being revised and updated, during 2010, and are also being expanded to include new product groups, such as food. In relation to each of the criteria for goods and services, the current Standards (in April 2010) can be found in detail at: http://www.defra.gov.uk/sustainable/government/advice/public/buying/products/index.htm</p>	<p>Public procurement policy is developed by the Finance Ministry's Office of Government Commerce - OGC. CESP (part of OGC) leads on supporting Departments in delivering their sustainable procurement commitments. a) The Government Buying Standards are developed through a process of thorough consultation with procurers and stakeholders (including suppliers), and are underpinned by an assessment of costs and benefits, including potential impacts on the market, and the ability of the market to meet demand. These are generally based on existing studies. Expecting to undertake original market analysis in relation to some groups, such as food. b) Guidance for central</p>	<p>Sustainable Procurement (CESP), a body within the Office of Government Commerce (an independent Office of the Finance Ministry). b) It is a mandatory administrative requirement in the UK that all central government departments and their executive agencies incorporate environmental criteria into their procurement procedures across a series of priority product groups— as set out in Government Buying Standards (which are also included in the revised flexible framework).Note: this is not a legal requirement.</p>
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					<p>Government and agencies is available on the CESP website and CESP organises practitioner networking events and sustainability conferences.</p> <p>Defra is responsible for communicating GPP across the wider public sector, with the co-operation of a series of local and regional stakeholders. Currently piloting a series of training courses for local authorities.</p> <p>Training is provided by the National School of Government (NSG), and Chartered Institute of Purchasing and Supply (CIPS).</p> <p>Supplier events are organised by OGC and some individual Ministries.</p>	
Turkey				<p>NOTE: the Public procurement Authority intends to raise awareness on the new turkey public procurement and deals in particular with:</p> <p>Regulation on Implementation of Goods Procurement</p>		<p>No policy on green procurement has been implemented yet. According to the European Commission Screening Report on Turkey, the integration</p>

				<p>Regulation on Implementation of Services Procurement Regulation on Implementation of Works Procurement Regulation on Implementation of Consultancy Procurement Regulation on Administrative Applications Against Procurements.</p>		<p>of environment considerations in procurements is foreseen, in light the EU Acquis requirements.(OECD (2008), "Eco-Innovation Policies in Turkey", Environment Directorate.</p>
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6. Introducing Green Criteria in tender documents

Contracting processes are strongly regulated by public contracting regulations, which objectives are to protect both the purchaser and the contractor. The introduction of environmental criteria in specifications documents without infringing European and national regulations is possible while respecting the fundamental principles of free commerce set by the Organization for Cooperation and Economic Development and the Treaty of the European Union.

New Directives clearly define where and how these environmental considerations can be introduced in contracting documents. These sections are:

- **Subject matter:** What is going to be bought
- **Technical specifications:** Minimum compulsory requirements that goods, services or transports must fulfil / Valuable requirements for contract awarding.
- **Selection criteria on bidders:** exclusion criteria, technical capacity and financial capacity.
- **Award criteria:** the lowest price, the most economically advantageous offer, environmental criteria.
- **Contract performance clauses:** special clauses in the contract performance such as criteria about how to accomplish it.

Referring to environmental awarding criteria, it must be guaranteed that:

- They are related to the subject matter.
- They are quantifiable criteria, non subjective.

Using environmental criteria in the awarding phase has two main advantages:

- Rather than establishing a normative to be fulfilled, it boosts offers which go beyond that, and therefore, pushes the market towards innovation and improvement.
- If it exists an uncertainty about a price or green products or services availability in the market, this is a non-riskily way to indicate that a higher environmental medium standard is preferred, but not at any price.

Therefore, environmental criteria can be referred to the product or to the bidder:



These aspects are further explained in the guideline “**Buying green - A handbook**” published in 2005 by the European Commission about how to introduce environmental criteria in each of these sections. http://ec.europa.eu/environment/gpp/toolkit_en.htm

Other tool for environmental criteria implementation is the Law 30/2007 which also includes different techniques to rationalize services and goods acquisitions as the following ones:

- Framework agreement.
- Dynamic systems of acquisition.
- Purchasing head offices.

Specially, framework agreements and purchasing head offices can be a useful tool to ease the incorporation of environmental criteria in public acquisitions.

7. Existing guidelines at European and International level

A number of national governments and NGOs assist purchasers in implementing sustainable procurement by providing guidance on setting environmental requirements in tendering together with other practical advice on green or sustainable procurement. In addition, some governments and non-governmental organisations maintain databases of green products that contain environmental criteria and links to possible suppliers. Most of this information is freely available and accessible online.

- **European Commission:** The EC has extensive guidance on the implementation of green public procurement (GPP): ec.europa.eu/environment/gpp
- **Austria:** Procurement Service Austria has developed extensive guidelines for several product groups at www.oekoeinkauf.at
- **Denmark:** Green procurement guidelines and more relevant information are available on Greenet (www.ski.dk/greenprocurement), sponsored by the Danish Environmental Protection Agency.
- **Finland:** Hymonet (www.hymonet.com) is an internet-based decision support system for environmentally friendly procurement.
- **France:** Website on responsible purchasing for public administration: www.ecoresponsabilite.environnement.gouv.fr
Platform for public procurement and sustainable development: www.achatsresponsables.com
- **Germany:** German website containing product specifications: www.beschaffung-info.de
- **Japan:** The Green Purchasing Network (GPN) maintains guidelines on sustainable procurement, including product criteria and a database of suppliers: www.gpn.jp
- **Netherlands:** Dutch website on GPP: www.senternovem.nl/duurzaamkopen/English/Index.asp
- **Norway:** The GRIP Foundation for Sustainable Production and Consumption's guidelines on eco-efficient purchasing: www.grip.no/Innkjop/English/Hoved.htm
- **Sweden:** The Swedish instrument for Ecologically Sustainable Procurement: www.eku.nu/eng

- **The United Kingdom:** UK Task Force on sustainable procurement, and sustainable procurement strategy: www.sustainable-development.gov.uk/government/taskforces/procurement/index.htm
UK Office for Government Commerce, sustainability policy and buying support: www.ogc.gov.uk/index.asp?id=1004338
- **The USA:** The US Environmental Protection Agency (EPA) Database of Environmentally Preferable Products: www.epa.gov/oppt/epp/pubs/about/about.htm
- **IGPN:** The International Green Purchasing Network is an organisation which promotes Green Purchasing around the globe: www.igpn.org
- **EUROCITIES:** Guidelines and best practice on Cities as Responsible Purchasers: www.eurocities.org/carpe-net
- **UNEP:** Website containing background information and a products database: www.uneptie.org/pc/sustain/design/green-proc.htm
- **Sustainable building guideline for dwellings:** Document written by IHOBE (Organism belonging to Ministry of Environment of Basque Country Government).

8. GPP in construction sector

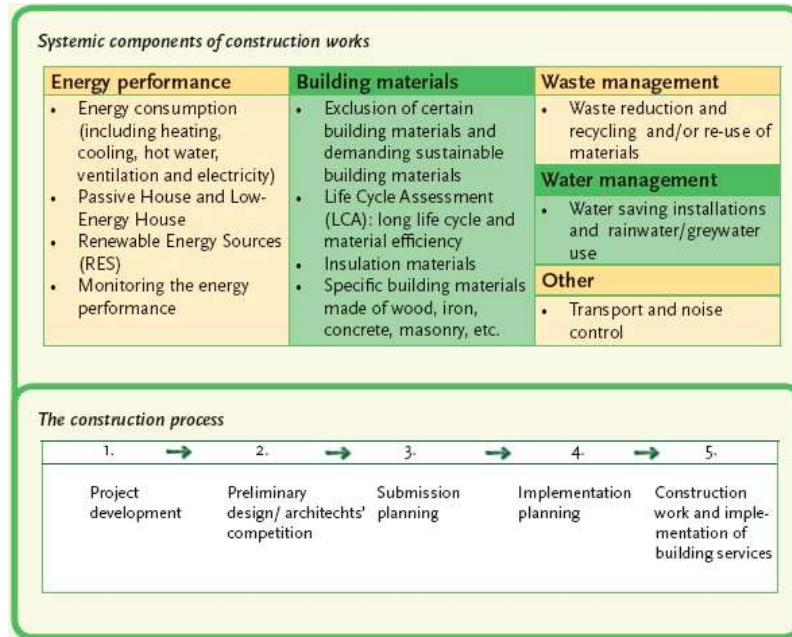
Main documents analyzed to write this report are:

- **European Commission GPP Training Toolkit.** Module 3: Purchasing recommendations. Construction Background product report. Construction GPP product sheet.
- **Relief project.**
- **Procura+ Manual.**

8.1 European Commission GPP Training Toolkit

European Commission GPP Training Toolkit establishes the reasons about green purchasing recommendations and sets the product/service groups' environmental criteria.

According to the guideline, Green Public Procurement (GPP) should consider the overall environmental profile of the entire building. This implies the need to take into account many different issues, ranging from types of building materials used to various approaches to achieve high energy efficiency. The Report focuses on buildings as systems instead of just an accumulation of components. It highlights certain aspects of construction works and addresses the relationship between those aspects. The following figure illustrates the relevant content categories and the systemic approach that are included in the guideline:



The **GPP Training Toolkit** developed by the EC is intended to be a support tool for the European authorities that want to implement environmental criteria in their tenders providing guidance for the following aspects to consider when including environmental criteria:

- **Subject matter:** What is going to be bought
- **Technical specifications:** Minimum compulsory requirements that goods, services or transports must fulfill / Valuable requirements for contract awarding. This information can be based on: Ecolabel defined criteria, Technical standards, Production methods, Use requirements, Variant use.
- **Selection criteria on bidders:** exclusion criteria, technical capacity and financial capacity.
- **Award criteria:** the lowest price, the most economically advantageous offer, environmental criteria.
- **Contract performance clauses:** special clauses in the contract performance such as criteria about how to accomplish it.

Examples of how to include these criteria are given below:

Section of the tender documents	"Green" examples
Subject matter	<ul style="list-style-type: none"> • "Construction works for a primary school building meeting the passive-house standard" • "Architects' competition for the design of an office building meeting environmental construction criteria"
Technical specifications	<ul style="list-style-type: none"> • "The primary energy demand of the building should be at least 10% [percentage depending on the level of ambition already set in the legislative framework] lower than the required minimum standard for new buildings based on the standards of [include national standard, e.g. for Germany EnEV 2004]"
Selection criteria	<ul style="list-style-type: none"> • "The technical capability of the bidder for building a bridge in a protected area must be demonstrated, for example by having a certified Environmental Management System (EMS) for such projects"
Award criteria	<ul style="list-style-type: none"> • "Additional points will be awarded for the percentage of final energy demand provided by localised renewable energy sources [include acceptable RES], above the minimum standard set in the technical specifications. [Following: specification of the assessment scheme (e.g. bonus system)]"
Contract performance clauses	<ul style="list-style-type: none"> • "For the avoidance, use and disposal of waste on the construction site the contracted company must fulfil the obligations of the provided instructions on recycling facilities/ possibilities and waste treatment."

Table 02- Including green criteria in different sections of the tender

(Source: EC Green Public Procurement (GPP) Training Toolkit - Module 3: Purchasing Recommendations)

Other aspects that can be considered according to the EU guideline are shown below:

- **Environmental site and building design:** Decisions about the location and appraisal of the site will fundamentally influence the sustainability of a building.
- **Alternative Cost Models:** cost models such as Third party financing or Energy Performance Contracting offer ways to overcome the gap between construction costs and life-cycle costs.
- **Behavioural Aspects:** training of building users in energy- and water-saving behaviour, establishing of an energy accounting system or environmental management system.

GPP Training Toolkit includes concrete examples of environmental criteria which can be readily introduced in tender documents. It establishes examples of criteria for the priority product and service groups identified.

For each product/service group it presents two sets of criteria:

- **Core GPP criteria** address the most significant environmental impacts, and are designed to be used with minimum additional verification effort or cost increases.
- **Comprehensive GPP criteria** are intended for use by authorities who seek to purchase the best environmental products available on the market, and may require additional administrative effort or imply a certain cost increase as compared to other products fulfilling the same function.

In particular, the EU GPP product sheet for the “Construction” includes recommendations for the procurement of construction works, including the supply of related services such as cooling, heating and ventilation services and the provision of electricity. It addresses the design, construction, use and disposal phase of buildings such as public services buildings and office buildings. Criteria address energy consumption, the use of RES, construction materials and products, waste and water management as well as other aspects influencing the environmental impacts of construction: architects’ experience, monitoring and user aspects. An example of these criteria is given below:

Core criteria	Comprehensive criteria
3. CONSTRUCTION	
3.1 Subject matter and selection criteria	
Subject matter	Subject matter
<ul style="list-style-type: none"> • Construction of new energy efficient [insert building type], using environmental friendly construction materials and products or • Renovation of building stock of [insert building type] to high energy efficiency standards using environmental friendly construction materials and products. 	<ul style="list-style-type: none"> • Construction of new/renovation of [insert building type], achieving an energy performance similar to the low energy house or passive house standard, using sustainable construction materials, considering intelligent energy service solutions, sustainable water and waste water management aspects and healthy living conditions.

Selection criteria	Selection criteria
<p>Exclusion of certain contractors</p> <p>1. Construction companies, which have repeatedly acted against environmental legislation or regulations or have been found guilty of grave professional misconduct as outlined in Articles 53 and 54 of Directive 2004/17/EC and Article 45 of Directive 2004/18/EC, will be excluded from the tendering procedure.</p>	<p>Exclusion of certain contractors</p> <p>1. Construction companies which have repeatedly acted against environmental legislation or regulations or have been found guilty of grave professional misconduct as outlined in Articles 53 and 54 of Directive 2004/17/EC and Article 45 of Directive 2004/18/EC, will be excluded from the tendering procedure.</p>
<p>Experience of the architect in environmental construction</p> <p>2. The architect must demonstrate sufficient experience with environmental building design. This may include reference to associated specialists e.g. engineering consultants for heating/cooling systems. Each applicant is required to submit a 2-page document outlining (past and on-going) experience in the following areas (indicative list):</p> <ul style="list-style-type: none"> • Energy efficient and RES friendly construction design. Including, if available, specific energy demand per m² including heating, cooling, lighting and ventilation for a previous construction. • The use of high-efficiency cogeneration • The use of renewable energy sources • The use of guaranteed performance contracts with Energy Service Companies • Design of air-tight and air exchange systems with heat recovery. • Bio-climatic architecture, to achieve energy efficiency, thermal and optical comfort, and good indoor air quality standards, avoiding mechanical systems, e.g. light supply with daylight systems. • Use of construction materials and products, complying with environmental criteria • Water efficiency • Waste reduction 	<p>Experience of the architect in environmental construction</p> <p>2. The architect must have sufficient past and associated experience with environmental building design. This can include reference to associated specialists e.g. engineering consultants for heating/cooling systems. Each applicant is required to submit a 2-page document outlining (past and on-going) experience in the following areas (indicative list):</p> <ul style="list-style-type: none"> • Energy efficient and RES friendly construction design. Including, if available, specific energy demand per m² including heating, cooling, ventilation and lighting for a previous construction. • The use of high-efficiency cogeneration • The use of renewable energy sources • The use of guaranteed performance contracts with Energy Service Companies • Air-tightness and air exchange systems with heat recovery. • Bio-climatic architecture, to achieve energy efficiency, thermal and optical comfort, avoiding mechanical systems, e.g. light supply with daylight systems. • Use of construction materials and products complying with environmental criteria • Water efficiency • Waste reduction • Use of LCC and LCA tools in design. • Achievement of good indoor air quality standards.
<p>Technical capacity to take the necessary environmental management measures in order to ensure that the construction works are executed in an environmental friendly way</p> <p>3. Bidders must demonstrate their technical capacity (either by having the expertise within the company or by co-operation with experts) to put in place certain environmental management measures that meet the following requirements:</p> <ul style="list-style-type: none"> • Ensuring effective protection of fauna and flora in the building area and its surroundings (where construction takes place in an environmentally sensitive area). • Measures to prevent any harmful waste and hazardous substance flows that may adversely impact the area. • Environmental management measures aimed at minimising waste production on the site, respecting noise regulations and avoiding traffic congestion. • Measures to ensure energy and water efficiency <p>Verification:</p> <p>Possible means of proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European or international standards concerning certification based on environmental management standards. Other means of evidence provided by the company that can prove the required technical capacity will also be accepted.</p>	<p>Technical capacity to take the necessary environmental management measures in order to ensure that the construction works are executed in an environmental friendly way</p> <p>3. Bidders must demonstrate their technical capacity (either by having the expertise within the company or by co-operation with experts) to put in place certain environmental management measures that meet the following requirements:</p> <ul style="list-style-type: none"> • Ensuring effective protection of fauna and flora in the building area and its surroundings (where construction takes place in an environmentally sensitive area). • Measures to prevent any harmful waste and hazardous substance flows that may adversely impact the area. • Environmental management measures aimed at minimising waste production on the site, respecting noise regulations and avoiding traffic congestion. • Measures to ensure energy and water efficiency <p>Verification:</p> <p>Possible means of proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European or international standards concerning certification based on environmental management standards. Other means of evidence provided by the company that can prove the required technical capacity will also be accepted.</p>

Table 03- Example of criteria included in the Construction [Product sheet template](#) of the GPP Training Toolkit

EU Commission's GPP Training Toolkit can be downloaded from the GPP website: http://ec.europa.eu/environment/gpp/toolkit_en.htm

8.2 RELIEF project

The RELIEF project was developed to compile and (re)draft existing European green purchasing guidelines for the six product groups: buses and bus services, cleaning products and services, buildings, energy, food, and IT equipment.

Regarding the building group, the document summarises some of the most important aspects which should be considered in the design and planning phase and for the assessment of buildings. Green building measures are drafted in four different areas:

- Sustainable site and building design,
- Energy efficiency in buildings,
- Resources and materials,
- Indoor quality.

Reference values for some technical or building features are compiled to provide an overview about performance levels which are considered to be standard or to be best practice in various national or international green building assessment systems. The reference values are given in the following categories:

- Benchmark – basic environmental requirements, values which have been set as basic standards in progressive regulations or are basic standards of assessment tools (to get no deduction of scores),
- Good/better – noticeable improvement compared with benchmark values, values which get medium scores within assessment tools,
- Best – best practice, values which get the highest scores within assessment tools

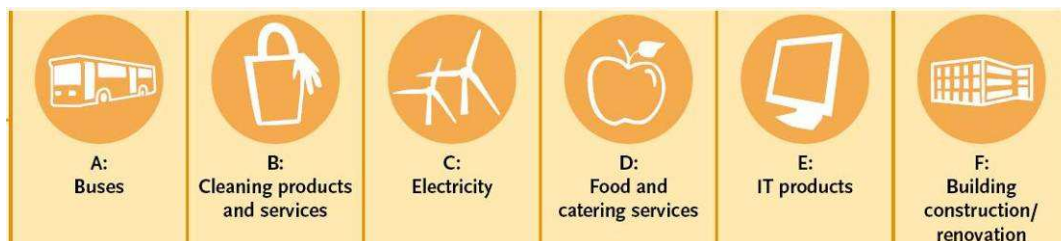
Further information of the RELIEF Background Report can be found at:

www.iclei.org/procurement/relief/

8.3. The PROCURA+ Manual

The Procura+ Manual has been developed by and for European Public Authorities in order to provide advice on how to implement sustainable procurement. It presents the implementation model and purchasing criteria developed for Procura+, ICLEI's (Local Governments for Sustainability) Sustainable Procurement Campaign.

The Procura+ Manual defines the key criteria to be introduced in the Procurement process classified into six different groups of products and services. These groups are:



Regarding the building construction/ renovation PROCURA+ principally apply to the energy performance of buildings and the use of sustainable building materials. The guidance indicates where in the construction process the tendering criteria can be applied:

- a) **Preliminary design/architects’ competition.**
- b) **Tendering of the building construction.**
- c) **Tendering of the building services** – “Building services” are: heating, ventilation, air conditioning and refrigeration (HVACR).

Procura+ establishes the following approaches to minimize the construction’s key environmental impacts:

Impact	Approach
The consumption of energy for heating, cooling, ventilation, hot water, and electricity, and resulting CO ₂ emissions	Ensure high energy efficiency standards Encourage the use of localised renewable energy sources (RES) ^[1]
The consumption of natural resources	Encourage the use of sustainably harvested resources
Emission of toxic substances during the production or disposal of building materials leading to air and water pollution	Encourage the use of non-toxic building materials
Negative health impacts on building users due to building materials containing toxic substances	Encourage the use of non-toxic building materials

Examples of criteria that can be implemented in tender procedures according to the guideline are shown below:

➤ **Preliminary design/architects' competition**

- **Energy Consumption:** Minimum standards for net energy demand; Competition around net energy demand; Minimum standards for U-Values and/or shape/volume ratio;
- **Use of RES:** Minimum use of solar power
- **Experience of the architect:** Selection based on experience with sustainable building design, Compulsory use of LCA tool during design

➤ **Tendering for the building construction**

- **Energy consumption:** Competition around U-Values – evaluation on price and U-Values
- **Use of sustainable building materials:** Exclusion of certain materials, Minimum quantity of sustainable building materials, Competition around the use of sustainable building materials

➤ **Tendering for the building services**

- **Energy consumption:** Minimum standards for primary/final energy consumption; Competition around primary/final energy consumption
- **Monitoring and end user aspects:** Regular book keeping; Energy consumption display panel; Training session for building manager.

9. Practical case study: VISESA. Tender document implementing environmental criteria

VISESA has recently implemented some environmental criteria in its last building works tender. The project for this tender takes part on other European project, a CONCERTO one called PIME's (Project's website:

<http://www.pimes.eu/index.php/hun/About-PIME-S/The-Concerto-Initiative>).

Some of the conditions for energy consumption reduction are a consequence of the commitments within this project. Some others have been introduced like environmental criteria in order to begin to put into practice the concepts of GPP. Here are the paragraphs related to these criteria:

All the improvements realized on the Building project without damaging the architectonic design of the building will be valued.

All the improvements proposed by the bidder will be described and justified correctly, including the analysis and proposed solution, the consequences or possible affections which directly or indirectly might suppose on working units, over what is defined previously in the project, and also over the standards fulfilment.

Points will be distributed according to the following criteria:

- Up to a maximum of 2.5 points: Proposals which will mean an improvement on dwellings' air tightness will be valued. Identification and correction of leakages points will be valued, according to the Particular Conditions leading this tender.
- Up to a maximum of 1.5 points: Quality improving proposals related to a LCA approach of materials and to their maintenance conditions, according to the Particular Conditions leading this tender.
- Up to a maximum of 1 point: dwellings' monitoring improving proposals, especially on those topics which enable a better knowledge for users about their energy consumption.

- Up to a maximum of 1 point: carpentries improvements according to a justification study and its corresponding accreditation, which would improve energy performance of dwellings, by reducing the transmittance according to their orientation or by improving the shadowing elements in western orientation by means of movable elements.
- Up to a maximum of 1 point: justified proposal which guarantees an significant improvement in machine room soundproofing according to general or local standards requirements, including the corresponding certification by means of in situ tests in the most unfavourable dwelling.
- Up to a maximum of 1 point: Proposals meaning an improvement over thermal bridges in dwellings will be valued.

Particular conditions related to PIME's project

1. Construction improvements for a higher energy efficiency of buildings, including, among other, the reduction of at least a 30% on energy demand required for these buildings by CTE (Spanish Standards for Buildings), considering a mechanical ventilation of 1 renovation/hour.
2. Thermal energy production (heating and DHW) and electricity by poli-generation, based on integrated renewable energy sources according to an optimum economical profit, using a microgrid. Subscribed proposal means that energy production will be carried out by the following high efficiency systems: cogeneration plant based on gas (thermal energy and electricity production), Building integrated photovoltaic, micro- wind turbines, etc.
3. Other changes or improvements of any kind, which may be an indirect consequence from some of the previous ones, or which commitment is generalist and not concreto, as the following ones:
 - Low emittance glazing (in all windows due to the commitment in transmittances);
 - Building integrated photovoltaic;
 - Consumption reducers for DHW and temperature and lighting management systems;
 - Passive systems for thermal storage;
 - Kitchen electrical appliances class A;

- Weather station and electric car.

Energy management by an ESCO (constituted by EVE and VISESA), which will control the central system of the electric microgrid, through previously referred to poly-generation and its distribution, buying/selling from/to the grid when prices would be favourable. Regarding the conditions for this ESCO, it will belong to EVE and VISESA initially; it will be in charge of carrying out each of the actions, guaranteeing electricity, heating and DHW supply, realizing the maintenance of generation and distribution elements, selling the different kinds of energy. As an innovative proposal it is proposed that each dwelling would owe a percentage of the ESCO property in the future.

4. Real functioning test of implemented improvements and of the microgrid, by monitoring occupied dwellings during a year in their working regime.
5. Transmittances: The bidder is committed to achieve the transmittances described in the PIME's program, independently from what could result from the development of the project:
 - Enclosure transmittance $< 0'35 \text{ W/m}^2\text{K}$.
 - Roof transmittance $< 0'24 \text{ W/m}^2\text{K}$.
 - Ground floor transmittance $< 0'30 \text{ W/m}^2\text{K}$.
 - Window-glazing transmittance $< 2'00 \text{ W/m}^2\text{K}$.

Other environmental criteria introduced in the tender

6. **Improvement in the air-tightness of the building:** special attention will be paid to eliminate leakages during buildings construction. As soon as the builder in coordination with the facultative direction considers it convenient, building air-tightness will be quantified by a blower door test. Air renovation rate will be obtained at a reference pressure of 50 Pa (n50) according to UNE EN 13829 standards. Afterwards, weak points will be identified such as different constructive elements joints (internal walls with concrete pillars, façade-window, ceiling-structure, blind boxes)-façades, dwellings-conductions), plugs, lighting points, installations register boxes, etc., where sealing will be applied. Finally, leakages will be measured again by the previously mentioned test, having to

achieve a renovation rate at n50 less than 2ac/h in a minimum of 4 dwellings. Essays will be repeated, as well as identification and improvements over weak points as many times as it would be necessary to achieve the referred objective, spreading the improving works in the tested dwelling to the whole of them. It will be valued as an improvement of this point the reduction of the maximum leakage flow rate in dwellings.

7. **Quality improvement related to materials LCA approach and/or with maintenance conditions of them:** Those meaning the following points will be considered:

- **Use of materials and construction products fulfilling certain environmental criteria.** It will be valued the higher percentage of products (windows, paints, insulating materials, etc.) which have been produced fulfilling the underlying standards to an ecolabel Type I according to ISO 14024 standard or provide clear and transparent information about products performance based on product declarations of an ecolabel Type II. Without affecting the previous conditions, it will also be valued:
 1. The use of materials which would be of low primary energy, as far as possible.
 2. A LCA approach, considering its maintenance and possible dismantling.
 3. The use of recycled materials (expressing the content of recycled material used in the product production) and recyclable.

- **Use of construction materials based on renewable raw materials:** It will be valued the higher percentage of products (windows, paints, insulating materials, etc.) used in construction based on renewable raw materials.

- **Timber. Sustainable forestry sources:** It will be valued the use of timber coming from legal sources, i.e. wood coming from forests certified as implementing principles and measures focused on guaranteeing a sustainable management of forests, by certificates of chain of custody of wood products such as FSC, PEFC or any equivalent verification proof, which will be accepted as fulfilment measures.

- **Low/easy maintenance materials:** Materials with a low or zero maintenance, such as concrete with photocatalitics, reducing the need of maintenance and cleaning will be valued.
8. **Quality Control Essays:** Without damaging what is established in the Construction Quality Control Programme and what is established in other articles of this document, ventilation test will be realized with tracer gasses, acoustic essays and enclosure, roof and windows transmittances essays will be performed in the Basque Government Quality Control Laboratories and blower-door tests at 50 Pa in the working site.
 9. **Monitoring system:** It will be included by the bidder a small weather station on the roof of the building (wind, temperature, humidity) with data transmission to the data control system in the machine room.
 10. **Machine room works execution:** They will be carried out with the assistance of an enterprise specialist in acoustics. Once finished the works, it will be certified that it fulfils with the minimum acoustic insulation set by standards by essays in the working site.
 11. **Transport and recycling of construction materials:** The bidder will have to establish a minimum level and a target level for the use of reusable containers to transport materials to the working site, in it and from it. Construction materials suppliers must establish a minimum level and a target level for wrapping wastes (to achieve, for instance, by a collection, recycling and reusing system for the containers used in the working site).
 12. **Waste management:** Without damaging what is established in the corresponding project, the contractor must establish convenient measures in the site to reduce and recover (reuse or recycle) wastes produced during the demolition and construction process. It is required a recovery percentage of at least 60% respecting to a discrimination by weight percentage (30%). As a proof of verification it will be accepted an Environmental Management System (EMS) or any other evidence of equivalent measures of environmental management.

13. Facultative Direction coordination: Because of its singularity, this work includes a specific project of special energy installations which will have a specific work direction which will be integrated inside the Facultative Direction.

14. Certifications during the works: VISESA promotes in this tender the energy installations which will be cost by the ESCO which will develop their management. Therefore, it is necessary to distinguish each part of the budget clearly, being necessary certifications in site and invoicing according to the division of budgets of this tender:

- Building works (civil works and conventional installations).
- Special Energy Installations (heating, gas, microgeneration and BIPV)
- Bound urbanization.

10. Conclusions

- Green Public Procurement is a useful and powerful tool as it allows to:
 - Provide environmental improvements.
 - Promote development of new products markets and environmentally sustainable services, boosting innovation.
 - GPP does not mean bigger economical costs as it considers LCC and implies to determine the real needs with an efficient use of resources.
- There is already a great work done in this field and many guidelines, books and standards related to GPP. The European Commission has already published some manuals and a toolkit explaining how to implement GPP in tendering documents.
- There are also Directives and policies supporting GPP, though a bigger political support is still needed. There is a lack of consciousness about the benefits that GPP implementation means. Anyway, it is difficult to introduce it as there are not EU's unified criteria nor enough data and also a lack of knowledge about many data related to LCA, LCC, and GPP. Therefore, its implementation is still difficult and slow.
- Some communities have joint their efforts into Joint Procurement campaigns which is quite beneficial for those Public Administrations which are beginning to implement GPP and which are small sized as this helps to set criteria, common objectives, prices and tendering models.
- EU has already established a monitoring method to measure results about GPP implementation although it is under revision. It is not an easy task as each country uses different tools and methods to calculate their energy savings or sustainability indicators.
- However, there is an increasing tendency to implement GPP. EU supports sustainable policies and Public Administrations must set an example to the private sector in order to spread sustainable criteria in all sectors.

- Related to the construction sector, there is also a great work done, although it is more difficult to establish common criteria in all European Union's countries.
- Introducing environmental criteria in construction has a great impact, as this sector consumes a lot of energy and raw materials and produces a great amount of wastes and greenhouse gases.
- European Commission has published a Construction sheet and a construction background report that have already been analysed in this document. As conclusions of the analysed documents related to the construction sector, the following ones could be outlined:
 - The main sustainable criteria for construction products and services can be taken from the ecolabels and other sustainable criteria sources. This helps to establish environmental criteria for these products although it is not easy to set common indicators for all the EU's countries. There are different climates and different methods to calculate energy demand of buildings or quantitative sustainability indicators. There are also different social and traditional factors that also affect these criteria. Different ways of building, sustainable materials availability, etc. that make it difficult to set a common methodology to measure sustainability in construction and to set criteria for GPP. In some countries, there is also a lack of data related to LCA and LCC, and consequently it is difficult to set this approach to establish GPP implementation.
 - Environmental criteria can be introduced in the different stages of the construction process, from the previous design to the construction, use and maintenance of the building and its installations.
 - Different factors are considered for green buildings: Sustainable site and building; energy efficiency in buildings; resources and materials and indoor quality.
 - European Union provides economical support for research projects on GPP field. RELIEF project and PROCURA+ campaign are some examples which have also provide the basis to develop the construction product sheet of the EU GPP toolkit. This sheet establishes the "core" and "comprehensive" criteria

to introduce the environmental criteria in each stage of the construction process.

- **From VISESA's experience** when drawing up the last tendering document for construction works, there was a great fear about bidders not submitting the tender, as some environmental criteria were introduced, as it is shown in the previous chapter, and not many companies in the market are ready to fulfil these objectives.

Contribution to overall picture

- This report shows the importance given from the Public Authorities and from the European Union to sustainable practices.
- Referring to the construction sector, it is difficult to set these environmental criteria. Nevertheless, some of them have already been established.
- There is a close relationship between GPP and sustainability in the construction sector. Besides, it has a great impact on putting sustainability criteria into practice and providing an example for the private sector.

A general view, and more specifically on the construction sector, shows the need of an interaction between setting environmental criteria for GPP and indicators for a methodology of sustainability in buildings. Therefore, a joint effort for GPP and this methodology should be established. **The OPEN HOUSE methodology created for sustainability of buildings could stand for a verification proof of environmental criteria for GPP in construction.**

11. Research study on Green Public Procurement construction practices in EU Countries

In the framework of OPEN HOUSE project a research study was done by the Consortium about the implementation of GPP in their countries as well as in the other countries not present in the Consortium.

The analysis shows nine tables from different countries of the EU which provide an example of the degree of implementation of GPP in the construction sector.

As previously reported in this document, some countries have an advanced level of GPP implementation such as Austria, Germany or Switzerland which have complex tables with a wider range of indicators and which also have many guidelines and regulations related to it.

Some other countries such as Denmark, France, Poland, Slovakia or Spain have a standard level of implementation and are on the process of working on it and continue progressing in its implementation, as European Union fosters.

Other countries are in the beginning of the implementation process such as Estonia or Luxembourg.

This analysis shows the lack of knowledge on GPP. Despite it can be included in different degrees in public contracting documents of a country, sometimes bidders are not conscious of it, and this becomes much more evident when dealing with people or enterprises not related with the Public Administrations. It has not been easy gathering the information for this analysis and many countries are still missing as many partners don't know to which extent their countries practice GPP policies nor how to get this information.

This report will be under review during the time that OPEN HOUSE project will last in order to update it. It aims to be useful for those partners that were confused about GPP practices and more countries are expected to get back their questionnaires filled in after reading it.

Conclusions about the tables

When preparing the questionnaires about GPP in construction, the EU's Construction product sheet was used in order to elaborate the papers. The main issues considered by EU were translated into the following tables. Partners filled them in with the respective practices of each country. Some conclusions can be drafted from the answers:

- There are different levels of implementation. Those for experimented countries; for standard implementation countries; and for countries beginning to implement these policies.
- Between standard countries, the EU's construction product sheet with the Core criteria is introduced in Public Contracting through their National Action Plans.
- Advanced countries also implement Comprehensive criteria and some other environmental criteria in the different stages of the construction process.
- In general terms, criteria have been grouped into:
 - Energy performance
 - Building materials
 - Water management
 - Waste management
 - Other

Most considerations are taken during the implementation and use/maintenance stages. Most considered aspects are:

- Energy performance, especially dealing with energy consumption, RES and innovative energy efficiency building services.
- Building materials, mainly considering the use of environmentally friendly construction materials, avoiding products containing harmful substances and looking for good R-values.
- Water saving installations.
- Waste reduction and management.
- Internal noise reduction.
- Conditions of construction sites, caring to reduce noise and using reusable containers during the works.

- The use of LCA like a tool in design.

Hereunder, tables are shown. At the end of them all, a summary table has been created summing up each aspect on each respective construction phase.

Austria, Germany and Switzerland have transposed their GPP practices into more complex tables according to their National Action Plan and in the case of Austria there are also indicators from another GPP guideline. All of them are added in the Annex I, at the end of this document.

Project development	Preliminary design	Implementation	Construction work	Use/maintenance	Disposal phase
COUNTRY: Austria					
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation	X	X	X
		Energy performance standard (referred to a Passive House standard)	X	X	X
	Display panel (Monitoring)	Energy consumption for the whole building	X		
		Outdoor climate conditions			
		Current use (working schemes)			
		Other			
		% net, final, primary energy provided by RES			
		% energy provided by integrated-RES			
		Innovative energy efficient building services			
		Energy efficiency training			
BUILDING MATERIALS	Exclusion of certain materials	Products which contain HFCs	X	X	X
		Products which contain sulphurhexafluoride	X	X	X
		Indoor paints and varnishes with a exceeding content of solvents	X	X	X
		VOC			
		Recycled/ re-used content			
WASTE MANAGEMENT	Other	LCA comparison of construction materials			
		Competition around R-values	X	X	X
OTHER	Water saving installations	Environmental construction materials and products	X	X	X
	Rainwater and grey-water use				
	Waste reduction and management				
OTHER	Compulsory blower door test	Where mechanical ventilation included	X		
	Book keeping	Monthly figures on energy consumption			
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels			
		Suppliers must take back, recycle and reuse packaging from building materials			
		Use of reusable containers to transport materials	X		
		Use of LCA tool in design			
		Construction site noise reduction			
		Internal noise reduction			
		Risks to the regional environment			
			Proposals on how to reduce acoustic bridges in the interior		
Case studies	http://www.baubook.at/oeq/?SW=16&oeqpk=2 NAP: www.nachhaltigebeschaffung.at				

COUNTRY: Denmark		Project development	Preliminary design	Implementation	Construction work	Use/ maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation	x	x	x	x	
		Energy performance standard (referred to a Passive House standard)					
		Energy consumption for the whole building				x	
		Outdoor climate conditions					
		Current use (working schemes)					
		Other					
		Localised RES	x	x	x		
		% net, final, primary energy provided by RES					
		% energy provided by Integrated-RES	x	x	x		
		Innovative energy efficient building services					
BUILDING MATERIALS	Energy efficiency training	For building managers	x	x			
	Exclusion of certain materials	Products which contain HFCs					
		Products which contain sulphurhexafluoride.					
		Indoor paints and varnishes with a exceeding content of solvents					
		VOC					
		Recycled/ re-used content					
		Other					
		LCA comparison of construction materials					
		Competition around R-values	x	x	x		
		Environmental construction materials and products					
WASTE MANAGEMENT	Water saving installations						
	Rainwater and grey-water use						
	Waste reduction and management				x		
	Compulsory blower door test	Where mechanical ventilation included					
OTHER	Book keeping	Monthly figures on energy consumption	x	x			
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels Suppliers must take back, recycle and reuse packaging from building materials					
	Use of LCA tool in design	Use of reusable containers to transport materials					
	Construction site noise reduction	Low-Noise Construction Machinery					
Case studies	Internal noise reduction	Proposals on how to reduce acoustic bridges in the interior					

COUNTRY: Estonia		Project development	Preliminary design	Implementation on planning	Construction work	Use/maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation					
		Energy performance standard (referred to a Passive House standard)	x				
	Display panel (Monitoring)	Energy consumption for the whole building					
		Outdoor climate conditions					
		Current use (working schemes)					
		Other					
		Localised RES					
		% net, final, primary energy provided by RES					
		% energy provided by Integrated-RES					
		Innovative energy efficient building services	x				
BUILDING MATERIALS	Energy efficiency training	Specific proposals	x				
		For building managers	x				
	Exclusion of certain materials	Products which contain HFCs					
		Products which contain sulphurhexafluoride.					
		Indoor paints and varnishes with a exceeding content of solvents					
		VOC					
		Recycled/ re-used content					
		Other					
		LCA comparison of construction materials					
		Competition around R-values					
WATER MANAGEMENT	Water saving installations	Environmental construction materials and products					
		Not exceeding standards by EN ISO 16009 to 16011					
	Rainwater and grey-water use						
	Waste reduction and management						
	Compulsory blower door test						
	Book keeping	Where mechanical ventilation included					
		Monthly figures on energy consumption					
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels					
	Suppliers must take back, recycle and reuse packaging from building materials						
OTHER		Use of reusable containers to transport materials					
		Use of LCA tool in design					
		Construction site noise reduction					
		Internal noise reduction					
Case studies		Proposals on how to reduce acoustic bridges in the interior					

	Project development	Preliminary design	Implementation planning	Construction work	Use/maintenance	Disposal phase		
COUNTRY: France	ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation	X	X	X		
			Energy performance standard (referred to a Passive House standard)					
			Energy consumption for the whole building					
			Outdoor climate conditions					
			Current use (working schemes)					
			Other					
			Localised RES	% net, final, primary energy provided by RES	X	X	X	
			Innovative energy efficient building services	% energy provided by Integrated-RES	X	X	X	
			Energy efficiency training	Specific proposals				
			For building managers					
BUILDING MATERIALS		Exclusion of certain materials	Products which contain sulphurhexafluoride.	X	X			
			Indoor paints and varnishes with a exceeding content of solvents					
			VOC	Not exceeding standards by EN ISO 16009 to 16011	X	X		
			Recycled/ re-used content					
			Other	LCA comparison of construction materials				
OTHER		Water saving installations	Competition around R-values					
			Environmental construction materials and products					
			Water saving installations					
			Rainwater and grey-water use					
			Waste reduction and management					
			Compulsory blower door test	Where mechanical ventilation included				
			Book keeping	Monthly figures on energy consumption				
			Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels				
			Use of LCA tool in design	Suppliers must take back, recycle and reuse packaging from building materials				
Case studies		Construction site noise reduction	Use of reusable containers to transport materials	X	X	X	X	
			Low-Noise Construction Machinery					
		Internal noise reduction	Proposals on how to reduce acoustic bridges in the interior					

COUNTRY: Germany		Project development	Preliminary design	Implementation planning	Construction work	Use/ maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation		X	X	X	X
	Display panel (Monitoring)	Energy performance standard (referred to a Passive House standard) Outdoor climate conditions Current use (working schemes) Other		X	X	X	X
	Localised RES	% net, final, primary energy provided by RES		X	X	X	X
	Innovative energy efficient building services	% energy provided by integrated-RES		X	X	X	X
	Energy efficiency training	Specific proposals		X	X	X	X
	Exclusion of certain materials	For building managers Products which contain HFCs Products which contain sulphurhexafluoride. Indoor paints and varnishes with a exceeding content of solvents Not exceeding standards by EN ISO 16009 to 16011		X	X	X	X
	Recycled/ re-used content	LCA comparison of construction materials Competition around R-values Environmental construction materials and products		X	X	X	X
	Water saving installations			X	X	X	X
	Rainwater and grey-water use			X	X	X	X
	Waste reduction and management			X	X	X	X
OTHER	Compulsory blower door test	Where mechanical ventilation included					
	Book keeping	Monthly figures on energy consumption					
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels Suppliers must take back, recycle and reuse packaging from building materials Use of reusable containers to transport materials					
	Use of LCA tool in design	Low-Noise Construction Machinery					
	Construction site noise reduction	Proposals on how to reduce acoustic bridges in the interior		X	X	X	X
Case studies	Risks to the regional environment			X	X	X	X
	Buildings that have been certified according to the BNB-certification system (three categories: gold, silver, bronze): - Extension of the Custom Office in Rosenheim: award in silver, february 2010 - New development of the Federal Government Department of Health in Bonn: award in gold, february 2010 - Extension of the Federal Office for Radiation Protection in Berlin: award in silver, february 2010						

COUNTRY: Lithuania		Project development	Preliminary design	Implementati on planning	Construction work	Use/ Maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation				X	
		Energy performance standard (referred to a Passive House standard)			X		
	Display panel (Monitoring)	Energy consumption for the whole building			X	X	X
		Outdoor climate conditions			X	X	X
		Current use (working schemes)			X	X	
		Other					
		% net, final, primary energy provided by RES			X	X	X
		% energy provided by Integrated-RES			X	X	X
		Innovative energy efficient building services			X	X	X
		Energy efficiency training	Specific proposals		X	X	X
BUILDING MATERIALS		For building managers		X	X	X	
		Products which contain HFCs				X	X
		Products which contain sulphurhexafluoride.				X	X
		Indoor paints and varnishes with a exceeding content of solvents				X	X
		Not exceeding standards by EN ISO 16009 to 16011			X	X	X
		VOC				X	X
OTHER	Recycled/ re-used content		X	X			
	Water saving installations	LCA comparison of construction materials	X	X	X	X	X
	Rainwater and grey-water use	Competition around R-values	X	X	X	X	X
	Waste reduction and management	Environmental construction materials and products	X	X	X	X	X
	Compulsory blower door test		X	X	X	X	X
	Book keeping	Where mechanical ventilation included	X	X	X	X	X
	Transport and recycling of building materials	Monthly figures on energy consumption	X	X	X	X	X
	Use of LCA tool in design	Vehicles meeting at least the EURO III standard or using alternative fuels	X	X	X	X	X
	Construction site noise reduction	Suppliers must take back, recycle and reuse packaging from building materials	X	X	X	X	X
	Internal noise reduction	Use of reusable containers to transport materials	X	X	X	X	X
Case studies		Low-Noise Construction Machinery	X	X	X	X	X
		Proposals on how to reduce acoustic bridges in the interior	X	X	X	X	X
		2010-05-10 in Panevezys in Darius ir Gireno str. is certified multistory building, which was refurbished (modernized). Building energy efficiency category B. 2010-01-29 in Vilnius region in Bukiskio village in Ukmeniges str 427 is certified new building. It is commercial building. Building energy category B. There is a lot of this kind of examples in Lithuania, those are just a few from one of the certification institution.					

COUNTRY: Poland		Project development	Preliminary design	Implementation on planning	Construction work	Use/ maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation		X		X	
		Energy performance standard (referred to a Passive House standard)		X		X	
	Display panel (Monitoring)	Energy consumption for the whole building					
		Outdoor climate conditions					
		Current use (working schemes)					
		Other					
		% net, final, primary energy provided by RES				X	
		% energy provided by Integrated-RES				X	
		Innovative energy efficient building services		X			
		Energy efficiency training		X			
BUILDING MATERIALS	Exclusion of certain materials	Products which contain HFCs				X	
		Products which contain sulphurhexafluoride.				X	
		Indoor paints and varnishes with a exceeding content of solvents				X	
		VOC				X	
		Recycled/ re-used content	Not exceeding standards by EN ISO 16009 to 16011			X	
		Other	LCA comparison of construction materials			X	
			Competition around R-values			X	
			Environmental construction materials and products			X	
		Water saving installations				X	
		Rainwater and grey-water use					
OTHER	Waste reduction and management				X	X	X
		Compulsory blower door test					
		Book keeping					X
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels			X		
		Suppliers must take back, recycle and reuse packaging from building materials			X		
		Use of reusable containers to transport materials			X		
		Use of LCA tool in design		X			
		Construction site noise reduction	Low-Noise Construction Machinery			X	X
		Internal noise reduction	Proposals on how to reduce acoustic bridges in the interior			X	X
	Case studies	Not yet					

COUNTRY: Slovakia		Project development	Preliminary design	Implementati on planning	Construction work	Use/ maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation		x			
		Energy performance standard (referred to a Passive House standard)					
	Display panel (Monitoring)	Energy consumption for the whole building				x	
		Outdoor climate conditions					
		Current use (working schemes)					
		Other					
		% net, final, primary energy provided by RES		x			x
		% energy provided by Integrated-RES		x			x
		Innovative energy efficient building services	Specific proposals				
		Energy efficiency training	For building managers				
BUILDING MATERIALS	Exclusion of certain materials	Products which contain HFCs		x			
		Products which contain sulphurhexafluoride.		x			
		Indoor paints and varnishes with a exceeding content of solvents		x			
		VOC	Not exceeding standards by EN ISO 16009 to 16011		x		
		Recycled/ re-used content			x		
WASTE MANAGEMENT	Water saving installations	LCA comparison of construction materials					
		Competition around R-values		x			
		Environmental construction materials and products					
	Water saving installations						
	Rainwater and grey-water use						
	Waste reduction and management						
		Compulsory blower door test		x			
		Book keeping	Where mechanical ventilation included				
			Monthly figures on energy consumption				x
		Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels				
OTHER		Suppliers must take back, recycle and reuse packaging from building materials					
		Use of LCA tool in design	Use of reusable containers to transport materials				
		Construction site noise reduction	Low-Noise Construction Machinery				
Case studies		Internal noise reduction	Proposals on how to reduce acoustic bridges in the interior				
				x			

COUNTRY: Spain		Project development	Preliminary design	Implementat on planning	Construction work	Use/ maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	(X)% of overall energy demand lower than the maximum defined in national legislation		x			
		Energy performance standard (referred to a Passive House standard)					
	Display panel (Monitoring)	Energy consumption for the whole building			(x)	(x)	(x)
		Outdoor climate conditions				(x)	
		Current use (working schemes)				(x)	
		Other					
		% net, final, primary energy provided by RES					x
		% energy provided by Integrated-RES					x
		Innovative energy efficient building services	(x)	(x)	(x)	(x)	
		Energy efficiency training					x
BUILDING MATERIALS	Exclusion of certain materials	Products which contain HFCs		(x)	x	x	
		Products which contain sulphurhexafluoride.		(x)	x	x	
		Indoor paints and varnishes with a exceeding content of solvents		(x)	x	x	
		Not exceeding standards by EN ISO 16009 to 16011		(x)	x	x	
		VOC		(x)	(x)		
		Recycled/ re-used content		(x)	(x)		
		Other		(x)	(x)		
		Competition around R-values	x	x	(x)		
		Environmental construction materials and products	(x)	x	x		
		Water saving installations			x	x	
WATER MANAGEMENT	Rainwater and grey-water use			(x)	(x)		
	Waste reduction and management			(x)	x		x
OTHER	Compulsory blower door test	Where mechanical ventilation included			x		
	Book keeping	Monthly figures on energy consumption				(x)	
	Transport and recycling of building materials	Vehicles meeting at least the EURO III standard or using alternative fuels			(x)		(x)
		Suppliers must take back, recycle and reuse packaging from building materials			(x)		(x)
		Use of reusable containers to transport materials			(x)		(x)
		Use of LCA tool in design					
		Construction site noise reduction			(x)		
		Internal noise reduction	Low-Noise Construction Machinery				
			Proposals on how to reduce acoustic bridges in the interior			(x)	
				x			
Case studies	Refurbishment and extension of the Town-Hall building in Amorebieta Etxano (Basque Country) Works directed by the Town-Hall of Durango (Basque Country) Local policies for urbanisation works by the Town-Hall of Barcelona The Town-Halls of Madrid, Legazpi (Basque Country) and Sant Just Desvern (Catalunya) have developed some strategies for GPP implementation at local level There are also programs of GPP in the Spanish Government and at the Regional Government of Aragón						

COUNTRY: Switzerland		Project development	Preliminary design	Implementation planning	Construction	Use/maintenance	Disposal phase
ENERGY PERFORMANCE	Energy consumption/ performance	X	X	X			
	Display panel (Monitoring)	X	X	X		X	
	Localised RES	X	X	X			
	Innovative energy efficient building services	X	X	X			
	Energy efficiency training	X	X	X		X	
	Exclusion of certain materials	X	X	X		X	
	VOC	X	X	X		X	
	Recycled/ re-used content	X	X	X		X	
	Other	X	X	X		X	
	Water saving installations	X	X	X		X	
BUILDING MATERIALS	Water saving installations	X	X	X		X	
	Rainwater and grey-water use	X	X	X		X	
	Waste reduction and management	X	X	X		X	
	Compulsory blower door test	X	X	X		X	
	Book keeping	X	X	X		X	
	Transport and recycling of building materials	X	X	X		X	
	Use of LCA tool in design	X	X	X		X	
	Construction site noise reduction	X	X	X		X	
	Internal noise reduction	X	X	X		X	
	Proposals on how to reduce acoustic bridges in the interior	X	X	X		X	
OTHER	Where mechanical ventilation included	X	X	X		X	
	Monthly figures on energy consumption	X	X	X		X	
	Vehicles meeting at least the EURO III standard or using alternative fuels	X	X	X		X	
	Suppliers must take back, recycle and reuse packaging from building materials	X	X	X		X	
	Use of reusable containers to transport materials	X	X	X		X	
	Low-Noise Construction Machinery	X	X	X		X	
	Proposals on how to reduce acoustic bridges in the interior	X	X	X		X	
	Forum Chriesbach: http://www.forumchriesbach.eawag.ch/index.htm						
	Triemli Hospital: http://www.nzz.ch/nachrichten/zuernich/die_2000-watt-gesellschaft_ist_machbar_1.1223542.html						
	Seniors' Residence Trotte, Zürich: http://www.stadt-zuerich.ch/hbd/de/index/hochbau/geplante_bauten/altersheim_trotte.html						
Letzigrund Stadium, Zürich: http://www.stadt-zuerich.ch/hbd/de/index/ueber_das_departement/m Medienmitteilungen/2009/august/090803c.html							
Eulachhof: http://www.eulachhof.ch/							
Swiss Federal Office of Statistics							
Glatt 1 - CCEM Retrofit							
Federal Office for the Environment FOEN: http://www.bafu.admin.ch/org/index.html?lang=en							
Swiss Federal Office of Energy SFOE: http://www.bfe.admin.ch/index.html?lang=en							
Administrative center Guisanplatz 1 Bern: http://www.bbl.admin.ch/themen/0061202209/02458/index.html?lang=de							
School Leutschenbach: http://www.stadt-zuerich.ch/hbd/de/index/entwicklung/gebiete/leutschenbach.html							
Office building floor lamp that would meet the MINERGIE standard							
Science City Campus: http://www.sciencecity.ethz.ch/nachhaltigkeit/index_EN							
Information Science Laboratory (HIT) Science City campus: http://www.sciencecity.ethz.ch/nachhaltigkeit/nachhaltige-bauten/index_EN							
Sports Centre Science City: http://www.sciencecity.ethz.ch/nachhaltigkeit/nachhaltige-bauten/index_EN							
Case studies							

COUNTRY: Summary	Project development	Preliminary design	Implementation on planning	Construction work	User/maintenance	Disposal phase	
ENERGY PERFORMANCE	3	2	8	3	5	1	
	(X)% of overall energy demand lower than the maximum defined in national legislation						
	Energy consumption/ performance	1	2	4	2	3	1
	Energy performance standard (referred to a Passive House standard)						
	Energy consumption for the whole building	0	0	1	0	5	1
	Outdoor climate conditions	0	0	0	2	2	1
	Display panel (Monitoring)	0	0	0	1	2	0
	Current use (working schemes)	0	0	0	0	0	0
	Other	0	0	0	0	0	0
	% net, final, primary energy provided by RES	2	2	5	3	7	2
% energy provided by Integrated-RES	1	1	4	3	6	2	
Specific proposals	4	4	5	4	3	2	
Innovative energy efficient building services							
Energy efficiency training	0	1	2	1	4	0	
For building managers							
BUILDING MATERIALS	1	1	6	5	7	2	
	Products which contain HFCs						
	Exclusion of certain materials	1	1	5	4	7	1
	Products which contain sulphurhexafluoride.						
	Indoor paints and varnishes with a exceeding content of solvents	1	1	5	4	7	1
	Not exceeding standards by EN ISO 16009 to 16011	1	1	5	5	6	1
BUILDING MATERIALS	2	2	4	3	3	1	
	Recycled/ re-used content						
	LCA comparison of construction materials	2	2	3	3	2	1
	Other	2	3	4	2	3	2
	Competition around R-values	3	4	6	5	5	3
Environmental construction materials and products							
WATER MANAGEMENT	2	2	5	4	4	1	
	Water saving installations						
WASTE MANAGEMENT	2	2	3	3	1	1	
	Rainwater and grey-water use						
OTHER	2	2	5	5	3	4	
	Waste reduction and management						
	Compulsory blower door test	3	3	4	2	1	0
	Where mechanical ventilation included						
	Book keeping	1	0	0	0	5	0
	Monthly figures on energy consumption						
	Transport and recycling of building materials	1	1	1	4	0	2
	Vehicles meeting at least the EURO III standard or using alternative fuels						
	Suppliers must take back, recycle and reuse packaging from building materials	1	1	1	4	0	2
	Use of reusable containers to transport materials	1	1	1	4	1	3
Use of LCA tool in design	4	4	3	3	1	1	
Case studies	1	1	2	6	4	1	
	Construction site noise reduction						
Internal noise reduction	1	1	4	4	5	2	
Proposals on how to reduce acoustic bridges in the interior							
Low-Noise Construction Machinery							

12. Relevant European legislation and Information sources

As the construction sector is highly complex this section refers to the most relevant and common EU regulations when addressing GPP practices in the area of construction. This European legislative framework relates to the above mentioned environmental impact categories (see Information sources).

Energy

- European Directive on the Energy Performance of Buildings, Directive 2010/31/EU , (recast)⁵
- European Directive on the promotion of cogeneration (2004/8/EC)⁶
- Directive on Energy End-Use Efficiency and Energy Services (2006/32/EC)⁷
- Mandate 343 to CEN - Comité Européen de Normalisation

Construction materials and products

- Thematic Strategy on the Urban Environment
- Construction Products Directive 89/106/EEC and its amendments (revision)⁸
- REACH regulation 1907/2006
- European Directive on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products (recast), Directive 2010/30/EU

Waste and water

- European Directive on waste 2008/98/EC (Waste Framework Directive)⁹
- European Directive establishing a framework for Community action in the field of water policy, "Water Framework Directive", 2000/60/EC (WFD)¹⁰

European legislation

- Mandate (343) to CEN, CENELEC and ETSI for the elaboration and adoption of standards for a methodology calculating the integrated energy performance of buildings and estimating the environmental impact, in accordance with the terms set forth in Directive 2002/91/EC¹¹
- Standardisation mandate to CEN for the development of horizontal standardised methods for the assessment of the integrated environmental performance of buildings (Mandate 350)¹²
- Directive 2004/42/EC of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in decorative paints and varnishes and vehicle refinishing products¹³

13. Studies and other information

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Best practice examples obtainable online at:

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Annex I

As previously reported in this document, some countries have an advanced level of GPP implementation such as Austria, Germany or Switzerland which have complex tables with a wider range of indicators and which also have many guidelines and regulations related to it. These countries have transposed their GPP practices into more complex tables according to their National Action Plan and in the case of Austria there are also indicators from another GPP guideline. All of them are added in the following tables:

Austria

INDICATORS NAP		SPECIFICATIONS	VERIFICATION	CASE STUDY	Project development	Preliminary design	Submission planning	Implementation planning	Construction work	Use/maintenance	Disposal phase	
BUILDING CONSTRUCTION	general claims	the planning team should confirm experience with green buildings	documentation of practice experience concerning green buildings				X	X				
		building companies which have violated ecological laws have to be disqualified					X	X	X			
		the offerer has to confirm technical capacity for ecological management activities	certification according to EMAS or ISO 14001				X	X	X			
	energy performance	The overall (net/final/primary) energy demand of the building is 25 % lower than the maximum defined in OIB						X	X	X	X	
		A training session must be given to the building manager on the energy efficient use of the building (including passive components)						X			X	
	brickwork and timber	exclusion of building stones containing halogenated organic compounds	producer confirmation, natureplus-certification					(X)	X	X	X	
		minimum 5 % of mineral building materials have to be recycled	producer confirmation recycling-certification					(X)	X	X	X	
		wood should be from sustainable forestry	FSC-/PESC-certification, FLEGT-license, information of the provenance					(X)	X	X	X	
	water saving appliances	All sanitary and kitchen water facilities must be equipped with the latest water-saving technologies available on the market	Technical data sheets that verify compliance with the specifications					(X)	X	X	X	
	contract appointments	if a mechanical ventilation is used a blower door test has to be accomplished						X				
		the contractor has to accomplish an energy monitoring						X				
		the contractor should define a minimum and a target value of reusable containers						X				
the provider of building materials should define a minimum and a target value of waste from package							X					
the contractor has to separate waste according to BMLFUW		confirmation according to EMAS or ISO 14001					X					
INTERIOR	wall paints	Max. 3 % organic, non-halogenated solvents, all other products: max. 8 % VOC	producer confirmation, natureplus-certification, Austrian ecolabel				(X)	X	X	X		
		Max. 1 % of materials that are dangerous to the environment according to 67/548/EWG	producer confirmation, natureplus-certification, Austrian ecolabel				(X)	X	X	X		
		exclusion of products containing antimony, arsenide, cadmium, chrome , plumb, quicksilver, nickel, selenium, tellurium, thallium	producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel					(X)	X	X	X	
		avoiding of cancer-causing, mutagenic and toxic to reproduction materials	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X	
		Products with max. 10 ppm formaldehyde	producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel, experts' inspection report according to VdL					(X)	X	X	X	
		exclusion of packing materials containing halogenated organic compounds						(X)	X	X	X	
	fire prevention coatings	in indoor rooms: only water-based products with max. 10 % VOC/SVOC	producer confirmation					(X)	X	X	X	
		exclusion of phthalate, 2-butoxyethylacetat, diethylenglykolmethylether, ethylen-glykoldimethylether, triethylenglykoldimethylether	producer confirmation, safety data sheet according to 2001/58/EG					(X)	X	X	X	
		avoiding of cancer-causing, mutagenic and toxic to reproduction materials	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X	
		exclusion of biocides	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X	
		Products with max. 10 ppm formaldehyde	producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel, experts' inspection report according to VdL					(X)	X	X	X	
		exclusion of products containing antimony, arsenide, cadmium, chrome , plumb, quicksilver, nickel, selenium, tellurium, thallium	producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel					(X)	X	X	X	
		Max. 1 % of materials that are dangerous to the environment according to 67/548/EWG	producer confirmation, natureplus-certification, Austrian ecolabel					(X)	X	X	X	
		exclusion of special flame resistant	producer confirmation, safety data sheet according to 2001/58/EG					(X)	X	X	X	
	floor and concrete coatings	exclusion of packing materials containing halogenated organic compounds						(X)	X	X	X	
		In indoor rooms: only water-based products with max. 10 % VOC/SVOC	producer confirmation					(X)	X	X	X	
		exclusion of products containing antimony, arsenide, cadmium, chrome , plumb, quicksilver, nickel, selenium, tellurium, thallium	producer confirmation, safety data sheet according to 2001/58/EG					(X)	X	X	X	
		avoiding of cancer-causing, mutagenic and toxic to reproduction materials	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X	
exclusion of biocides		safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X		
Products with max. 10 ppm formaldehyde		producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel, experts' inspection report according to VdL					(X)	X	X	X		
floor covering coatings	Max. 1 % of materials that are dangerous to the environment according to 67/548/EWG	producer confirmation, natureplus-certification, Austrian ecolabel					(X)	X	X	X		
	exclusion of packing materials containing halogenated organic compounds						(X)	X	X	X		
	in indoor rooms: only water-based products with max. 10 % VOC/SVOC	producer confirmation					(X)	X	X	X		
	exclusion of phthalate, 2-butoxyethylacetat, diethylenglykolmethylether, ethylen-glykoldimethylether, triethylenglykoldimethylether	producer confirmation, safety data sheet according to 2001/58/EG					(X)	X	X	X		
	exclusion of biocides	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X		
	avoiding of cancer-causing, mutagenic and toxic to reproduction materials	safety data sheets, natureplus-certification, Austrian ecolabel					(X)	X	X	X		
	Products with max. 10 ppm formaldehyde	producer confirmation, safety data sheet according to 2001/58/EG, Austrian ecolabel, experts' inspection report according to VdL					(X)	X	X	X		
	Max. 1 % of materials that are dangerous to the environment according to 67/548/EWG	producer confirmation, natureplus-certification, Austrian ecolabel					(X)	X	X	X		

products for the laying of floor coatings	exclusion of elastomeric coatings that deliver n-nitrosamine	experts' inspection report according to EN 13419-1, natureplus- or GuT-certification, Austrian ecolabel	(X)	X	X	X
	exclusion of packing materials containing halogenated organic compounds		(X)	X	X	X
	avoiding of cancer-causing, mutagenic and toxic to reproduction materials	experts' inspection report; GEV-license	(X)	X	X	X
	very low emission products according to EMICODE EC 1 or EC1/R should be used	experts' inspection report; GEV-license	(X)	X	X	X
	Max. 1 % non-volatile chloral organic compounds	producer information, safety data sheet	(X)	X	X	X
	Max. 0,1 % volatile chloral organic compounds	producer information, safety data sheet	(X)	X	X	X
	exclusion of packing materials containing halogenated organic compounds		(X)	X	X	X
	avoiding of cancer-causing, mutagenic and toxic to reproduction materials	safety data sheets	(X)	X	X	X
	Max. 0,5 % VOC	safety data sheets, natureplus-certification, Austrian ecolabel	(X)	X	X	X
	Max. 1 % SVOC	safety data sheets, natureplus-certification, Austrian ecolabel	(X)	X	X	X
surface conditioning of mineral floor coatings	Max. 1 % non-volatile chloral organic compounds	producer information, safety data sheet	(X)	X	X	X
	Max. 0,1 % volatile chloral organic compounds	producer information, safety data sheet	(X)	X	X	X
	exclusion of packing materials containing halogenated organic compounds		(X)	X	X	X
	products do not contain HFKW	experts' inspection report, producer information	(X)	X	X	X

Austria

				Project development	Preliminary design	Submission planning	planning	Construction work	Use/ maintenance	Disposal phase					
INDICATORS Baubook.at				SPECIFICATIONS				VERIFICATION				CASE STUDY			
TECHNICAL CRITERIA	assembly	specialists place cellulose fibre flocks	confirmation, reference list			X		(X)							
	maintenance, consistency, long-life cycle	avoiding microbiological growth and mildews	experts' inspection report according to DIN IEC 68, CE-identification			X			(X)						
		consistency against insects	confirmation, that requirements after ISO 3998 are fulfilled			X			(X)						
		minimum top layer thickness	material proof			X			(X)						
		cleaning concept	presentation of the cleaning concept			X			(X)						
	constricted electrostatic charge of laminate and elastic layers	producer confirmation, maybe experts' inspection report			X			(X)							
INGREDIENTS	organic additives	avoiding of more than 3 M.-% synthetics in mineral products	producer confirmation, natureplus-identification			X									
		avoiding of more than 15 M.-% organic components	producer confirmation, natureplus-identification			X									
		avoiding of more than 5 M.-% organic components in mineral colours	producer confirmation, natureplus-identification, Austrian ecolabel			X									
		avoiding of more than 5 M.-% synthetics in gluelam colours	producer confirmation			X									
	dangerous ingredients	preparations without CMR-ingredients (cancer-causing, mutagenic, toxic to reproduction)	EG-safety data sheet, natureplus-identification, Austrian ecolabel, German "Blauer Engel"-identification			X									
		without substances that are harmful to the climate	producer information, Austrian eco-label			X									
		without preparations that are harmful to the environment	producer confirmation and EG-safety data sheet, natureplus-identification, Austrian ecolabel, German "Blauer Engel"-identification			X									
		preparations without aromatic carbon hydride	producer confirmation and EG-safety data sheet, maybe also an expert's inspection report, natureplus-identification, Austrian ecolabel, German "Blauer Engel"-identification			X									
		without non phenoethoxylates	producer confirmation			X									
		nitrosamine poor elastomeric layers ((natural-)rubbers)	expert's inspection report according to guideline 93/11/EWG and according to DIK-standard operation procedure			X									
	heavy metal	preparations without heavy metal	safety data sheet after 91/155/EWG			X									
	PVC and halogen organic compound	avoiding of toxic heavy metals	producer confirmation, maybe experts' inspection and measuring report			X									
		packing materials without PVC	producer confirmation			X									
	VOC	products without PVC	producer confirmation			X									
		avoiding halogen organic compounds	producer confirmation			X									
	biocides	VOC poor preparations	producer confirmation and safety data sheet after 91/155/EWG, maybe expert's inspection report, natureplus-identification, Austrian ecolabel, German "Blauer Engel"-identification			X									
		preparations without SVOC indoor	producer confirmation and safety data sheet after 91/155/EWG			X									
		without halogenated biocides	producer confirmation and safety data sheet after EG, natureplus-identification			X									
		avoiding of free formaldehyde	producer confirmation and safety data sheet after EG, maybe also an expert's inspection report, natureplus-identification, Austrian ecolabel, German "Blauer Engel"-identification			X									
		insulating materials without pesticides	expert's inspection: maximal 1 mg/kg pesticides is used			X									
flame resistant	additional criterion: facade plasters and -paintings without biocides	producer confirmation			X										
	blue stain inhibition of window frames	producer confirmation and confirmation of the entry in the Austrian timber preservative catalogue			X										
pigments	without extra environment problematic flame resistant	producer confirmation			X										
	using healthy inorganic pigments	producer confirmation, natureplus-identification			X										
	without azoth dyes that split cancer-causing amines off	producer confirmation, natureplus-identification			X										

	Total primary energy demands and proportion of renewable primary energy	percentage of renewable energy compared to the total primary energy demands for the construction and use is evaluated over a period of 50 years	result of the LCA ("Ökobilanz") according to DIN EN ISO 14040 and 14044				X	X	X	X
	Potable water consumption and sewage generation	generation of the "specific water-use value" by adding the ascertained potable water consumption and the sewage emergence	calculation of the "specific water-use value"			X	X		X	
	Surface area usage	areas shall be used that are already assigned as traffic or settlement areas or that are allocated for the recovery of contaminated locations	previous use of the area: certificates of title or extracts from the land survey register previous contamination of the property: survey reports realization of compensation measures: planning documents		X	X	X		X	
ECONOMICAL CRITERIA	Building-related life cycle costs	The life cycle costs are divided into three cost categories: production costs, follow-up costs, and deconstruction and disposal costs, calculation according to the cash-value method ("Barwertmethode")	result of the LCC (in €/m²NFA)				X	X	X	X
	alternative appropriate uses	adaptability of buildings under the criterion of sustainability is present, if the alteration can be realized with a small amount of resources	documents / information about: proof of inspection of the area efficiency, modularity of the building, structure of the building, electrical- and media provision, heating, climate control (HVAC), water supply, and sewage disposal			X	X		X	
SOCIOCULTURAL AND FUNCTIONAL QUALITY	Thermal comfort in the winter	relevant criteria: operative temperature, draught, asymmetry of radiation temperature and flooring temperature, relative humidity, vertical thermal gradient	documentation of the heating and the air conditioning system, maybe also characteristics of the air exhausts			X	X	X	X	
	Thermal comfort in the summer	relevant criteria: operative temperature, draught, asymmetry of radiation temperature and flooring temperature, relative humidity, vertical thermal gradient	certification according to DIN 4108-2, the print out of the results from the thermal building simulation the characteristics of the air conditioning plant			X	X	X	X	
	Indoor hygiene	avoiding of fugitive organic substance (VOC), unwanted odours and mould build-up	product-certifications			X	X	X	X	
	Acoustical comfort	parameters, that are necessary for the evaluation: average resulting overall noise pressure level as expression of the level of interferences, reverberation absorption of sound propagation in multiple-person offices	ascertaining of the sound propagation via calculation or measurement			X	X	X	X	
	Visual comfort	relevant criteria: daylight availability, visibility to the exterior, non-glaring, light distribution, colour reproduction and spectral colour	building documents, lighting concept			X	X	X	X	
	Influences by users	evaluation of the user influence capabilities in the sectors ventilation, sun protection, visor, temperature as well as regulation of daylight and artificial light at the workplace	building documents				X	X	X	
	Roof design	areas for technical superstructures have to be reduced to a minimum and the louvers shall be integrated in the design, functional surfaces for the general welfare are to be integrated in the roof area	planning documents			X	X	X	X	
	Safety and risks of failure	evaluation of: subjective sensation of safety and assault prevention, reduction of the extent of loss in the case of damage	fire prevention concept, planning documents, evacuation concept, other prevention concepts			X	X	X	X	
	Barrier free accessibility	as much parts of the building (also external feature areas) as possible should be adapted to the needs of disabled persons	confirmation of barrier free areas according to DIN 18024			X	X	X	X	
	Area efficiency	areas should be handled as economical as possible, specific value area efficiency corresponds to the proportion between usable floor space to gross floor area	specific value area efficiency (in m²/m²), building documentation			X	X		X	
	Feasibility of conversion	evaluation of: modularity of the building, spatial structure, supply of electricity and other media, heating, supply and disposal of water	building documentation			X	X		X	
	Accessibility	evaluation of: basic accessibility of a building, opening of the external areas for public, opening of building's facilities to public such as library or cafeteria, possibility of a third party renting building space	building documentation			X	X		X	
	Bicycle comfort	evaluation of the building-specific infrastructure for bicycles in praxis	building documents, confirmation of bicycle storing positions and their locations			X	X		X	
	Assurance of the quality of the design and for urban development for competition	Extent and quality of the conducted competitions have to be identified: competition according to GRW95, RPW2008 (or a similar method)?, which competition method?, award-winning design?	bid and building documents			X	X			
	Art within Architecture	evaluation of: the need for "art within architecture", the implementation of the guidelines "art within architecture", the implementation of the process "art within architecture" communicated to the public	bid and building documents			X	X		X	
TECHNICAL QUALITY	Noise protection	relevant criteria: airborne noise protection against surrounding noise and against other and the own workplace, impact-sound protection against other and the own workplace, structure-borne sound protection against other and the own workplace	confirmation of the noise protection, bid documents			X	X	X	X	
	Energetic and moisture proofing quality of the building's Shell	relevant criteria: average heat transmission coefficient, consideration for thermal bridges, permeability of joints, formation of condensate, air change rate	calculation according to EnEV			X	X	X	X	

	INDICATORS	SPECIFICATIONS	VERIFICATION	CASE STUDY	Project development	Preliminary design	Submission planning	Implementation planning	Construction work	Use/ maintenance	Disposal phase
QUALITY OF THE PROCESS	Ease of Cleaning and Maintenance of the Structure	the building is divided into the following three categories of building parts: Bearing structure, external non-bearing structure, incl. windows and doors and interior non-bearing non-bearing structure, the technical implementation of each section is evaluated	technical building documentation				X	X			X
	Quality of the project's preparation	evaluation of quality-oriented planning for the needs, discussion to identify the objective, agreement on an objective, architectural or design contest with special consideration for "Sustainable Building"	of: planning and bid documents, other confirmations	X	X	X	X				
	Integrated planning	evaluation of an interdisciplinary design team, the integration of targeted certification criteria into the planning, the inclusion of the future users into the design, involvement and participation of the public	of: information about the members of the planning team, confirmation of the integration of certification criteria into the work phases, documentation of the inclusion of the future users and the public	X	X	X	X				
	Optimization and complexity of the approach to planning	evaluation of the availability, extent, and quality of the building-related concepts and documentation	Health and Safety Plan, Energy Concept, Water Concept, Waste Concept, Measurement Concept for supporting the abilities of alteration, revitalization and recycling, Concept for assurance for ease of cleaning and maintenance, Verification of the design documentation by independent third party beyond the legal requirements, Comparison of alternatives	X	X	X	X				
	Evidence of sustainability considerations during bid invitation and awarding	evaluation of the inclusion of sustainability aspects in the bid invitation and of the integration of sustainability aspects during the selection of companies	bid list of requirements, that have been considered		X	X	X				
	Establishment of preconditions for optimized use and operation	evaluation of the presence and quality of the documentation	Building documentation / building certification, Instructions for maintenance, inspections, operation, and care, Update of the drawings and calculations with the realized building, Users' guide,								
	Construction site, construction phase	evaluation of: Low-waste construction site, Low-noise construction site, Low-dust construction site, Environmental protection at the construction site	of: Announcement and bidding documents, documentations or measurement records			X	X	X			
	Quality of executing companies, prequalification	evaluation of the pre-qualification according to § 8 VOB/A of the executing contractors	list of the confirmed pre-qualified executing contractors			X	X	X			
	Quality assurance of the construction activities	documentation of the used materials, additives, and safety data sheets, measurements for quality control (procedures to measure the energy quality and the acoustical qualities of a building)	documentation, test results (Blower Door Test or thermal imaging, checking the footfall sound insulation)			X	X	X	X		
Systematic commissioning	evaluation of the performance of a systematic commissioning according to the instructions and of the existing documentations	Contract documents with an appropriate specialist for the execution of a systematic commissioning, confirmation of the performance of a systematic commissioning								X	
QUALITY OF THE LOCATION	Risks at the micro location	relevant risk from Man-Made-Hazards and criteria: risks caused by weather and nature (earthquake, avalanches, storm) and terrorism,	location studies, confirmations by means of liability index of CEDIM Risk Explorers or avalanche chart of cities and local authorities (as far relevant)	X					X	X	
	Circumstances at the micro location	evaluation of: ambient air quality, ambient noise level, building ground circumstances, ground pollution, electromagnetic fields, appearance of radon, city and landscape / visual context	of: location study	X						X	
	Image and condition of the location and neighbourhood	relevant criteria: image, crime rate, condition of the local building development	location study	X						X	
	Connection to transportation	evaluation of: accessibility of the nearest main railroad station (train), accessibility of the nearest station of local public transport (bus, street car, underground, etc.), availability of bicycle tracks	of: confirmation of accessibilities and distances, location study	X						X	
	Vicinity to usage-specific facilities	evaluation of density and extent of the respective user specific facilities and the distances to them, facilities that shall be gathered: Catering, Local suppliers, Parkways and free spaces, Education, Public administration, Medical care, Sport facilities, Recreation	the facilities are to be localized from cartographical material	X						X	
	Adjoining media, infrastructure development	description and evaluation of: connect ability of pipeline-bound energy, solar radiance supply, provision of broadband connection, possibilities of storm water seepage on the property	of: confirmation from communes and telecommunications providers, geological survey	X						X	

Switzerland

Project development	Preliminary design	Submission planning	Implementation planning	Construction work	Use/ maintenance	Disposal phase
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ENERGY PERFORMANCE	Energy consumption/ performance	The overall (net/final/primary) energy demand of the building is (X)% lower than the maximum defined in (insert relevant national legislation)	This is verified by the Minergie standard . Specific energy consumption is used as the main indicator to quantify the required building quality. Only the final energy consumed is relevant. The standard requires that general energy consumption must not be higher than 75 % of that of average buildings and that fossil-fuel consumption must not be higher than 50 % of the consumption of such buildings. MuKE 2008 : Mustervorschriften der Kantone im Energiebereich (Example regulations of the cantons in the area of energy). Voluntary building energy identification card of the cantons.	Forum Chriesbach, Seniors' Residence Trotte Zurich, Swiss Federal Office of Statistics, Administrative centre Bern, Eulachhof	X	X	X	X						
		Energy performance standard (referred to a Passive House standard (name and internet address of a relevant Passive House specification))	Minergie-P standard : Defines buildings with very low energy consumption, it is especially demanding in regard to heating energy demand. This standard corresponds to the internationally-known passive house standard (http://www.minergie.ch/publications.478.html).			X	X	X	X					
ENERGY PERFORMANCE	Display panel (Monitoring)	Energy consumption for the whole building	Smart metering	Pilot study "Smart Metering" developed by ewz (Swiss power company) and Swiss Federal Office of Energy started July 2010. Aim: Information about energy consumption in households. (http://www.stadt-zuerich.ch/ewz/de/index/netz/smart_metering.html)								X		
		Outdoor climate conditions	Temperature and humidity sensors											
		Current use (working schemes)	Consumption metering according to different areas, appliances, and schedules.											
		Other												
ENERGY PERFORMANCE	Localised RES	% net, final, primary energy provided by RES	Minergie, SIA 11271 (energy), EDV-Tool bSol for energetic building optimisation (www.bsol.ch), SIA Efficiency Path Energy	Triemli Hospital : Aims of the 2000-watt society: Energy and CO2 reduction. Renewable energy: Solar system on the roof of the Letzigrund Stadium, Zurich ; Energy from waste wood: A furnace that runs off waste wood and that is equipped with the latest clean air system has been planned for Zürich's new Letzigrund Stadium.	X	X	X	X						
		% energy provided by L-RES (Integrated in the building)	Minergie, SIA 11271 (energy), EDV-Tool bSol for energetic building optimisation (www.bsol.ch), SIA Efficiency Path Energy		X	X	X	X						
ENERGY PERFORMANCE	Innovative energy efficient building services	Specific proposals for achieving energy efficient lighting, heating, cooling and ventilation in the building	Since 2000 the city's Building Department has carried out lighting plans in its buildings according to the SIA standard 380/4 (Swiss Engineers and Architects Associations standards). In addition to coaching the project team, there tasks include controlling, carrying out training courses and support for development projects. The implementation of these basic principles for building projects and management is being carried out in the 7 Mile Steps Program (3rd mile step for the lighting): New buildings and 50% refurbished buildings meet the "MINERGIE Standard" for lighting. All refurbished lighting systems are 25% below the limits recommended by SIA 380/4. BKP 230 Elektroanlagen	Zurich's lighting campaign of the Building Department City of Zurich. The Zürich Administrative Center was refurbished according to MINERGIE standards. The refurbishment also included highly efficient floor lamps and ecofriendly building materials.	X	X	X	X	X					
ENERGY PERFORMANCE	Energy efficiency training	A training session must be given to the building manager on the energy efficient use of the building (including passive components)	User's manual or guide	Forum Chriesbach, Zurich's lighting campaign								X		
BUILDING MATERIALS	Exclusion of certain materials	Recycled wood-based products, plastics, steel or other materials not containing hazardous substances	Ecolabels or similar documents: - Minergie-Eco criteria - ECO-BKP (Baukostenplan = construction cost plan)-data sheets " Ecological construction" - SIA 112/1 Sustainable Construction (Swiss Engineers and Architects Associations standards) - eco-devis -KBOB-recommendations (Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren = Coordination conference of the construction and property organs of the public builders) - Platform LCA in construction Declaration from bidders of not using these materials in the building.	Forum Chriesbach, Federal Office for the Environment, Swiss Federal Office of Energy. The Zürich Administrative Center was refurbished according to MINERGIE standards. The refurbishment also included highly efficient floor lamps and ecofriendly building materials. A project to develop an office building floor lamp that would meet the MINERGIE standard was carried out by the Building Department with the support of the municipal energy saving fund and the local utility (EWZ).	X	X	X	X	X	X	X	X		
		Products which contain HFCs			X	X	X	X	X	X	X	X		
		Products which contain sulphurhexafluoride.			X	X	X	X	X	X	X	X	X	
		Indoor paints and varnishes with a content of solvents exceeding the limits considered as not healthy or environmentally unfriendly			X	X	X	X	X	X	X	X	X	
	VOC	Not exceeding standards by EN ISO 16009 to 16011	Planning tool: Indoorair quality , Minergie-Eco	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern	X	X	X	X	X	X	X	X		
BUILDING MATERIALS	Recycled/ re-used content	Relevant construction materials from recycled or reused content	Minergie-Eco elimination criteria: Health: Use-oriented elimination criteria • Biocide and timber preservative in interior rooms • Specific solvent-based products • Extensive use of derived timber products which emits formaldehyde Use-oriented criteria are to be full filled on main usable areas (offices, classrooms ...). Building ecology: Absolute elimination criteria • Construction materials with heavy metals (plumb, copper, titan-zinc) • No use of recycled concrete • Non-European wood without sustainability certificate • Noise protection glazing • Fitting foam glue	Forum Chriesbach, Eulachhof, Federal Office for the Environment, Swiss Federal Office of Energy. Pilot project: Together with partners from government agencies, suppliers and research institutes, tests are being carried out on recycled concrete with mixed aggregate of bricks and mortar to determine the right conditions for future practical applications.	X	X	X	X	X					
BUILDING MATERIALS	Other	LCA comparison of construction materials	Platform LCA in construction; Bauteilkatalog (building element catalogue) financed by Swiss Federal Office of Energy.	Forum Chriesbach, Eulachhof, Federal Office for the Environment, Swiss Federal Office of Energy.	X	X	X	X	X	X	X	X		
		Competition around R-values			X	X	X	X	X	X	X	X		
		Environmental construction materials and products	ECO-BKP data sheets " Ecological construction"; Minergie-Eco		X	X	X	X	X	X	X	X		
WATER MANAG. EM.	Water saving installations	All sanitary and kitchen water facilities must be equipped with the latest water-saving technologies available on the market Waterless installations	SIA 112/1; ECO- BKP data sheet 250 sanitary facilities; SIA-data sheet 2026; Efficient water-saving attachments Swiss Federal Office of Energy (http://www.bfe.admin.ch/energielabel/01734/index.html?lang=en)	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern	X	X	X	X	X					

WASTE MANAGEMENT	Rainwater and grey-water use	Proposals on how to maximise the use of rainwater and grey-water in the water supply and return system of the building	SIA 112/1; Federal Office for the Environment: Where with the rainwater? (http://www.bafu.admin.ch/publikationen/publikation/00352/index.html?lang=de);	Forum Chriesbach; Eulachhof	X	X	X	X	X												
	Waste reduction and management	Measures to reduce and recycle waste produced during the construction process. It is required to have a recycling rate of at least 60% related to weight percentage segregation	<p>Guidelines: Disposal of Wastes in Cement Plants (Swiss Agency for the Environment, Forests and Landscape SAEFL); Other regulations which concern excavated earth are the regulation on contaminated area sites (Altlastenverordnung AltIV) and the regulation on the charge for the remediation of contaminated area sites (Verordnung über die Abgabe zur Sanierung von Altlasten VASA) Guideline for the Utilization of Mineral Waste Material; Excavation Guideline; The most important standards in view of construction waste reduction are:</p> <p>- SIA 112/1, SIA 162/4, SIA 430 - SN 640 141 to 144, SN 670 062 (Swiss Association for Standardization SNV (Schweizerische Normenvereinigung))</p> <p>The most important Guidelines for construction waste handling are the Directive for Utilization of Mineral Waste Material (Richtlinie für die Verwertung mineralischer Bauabfälle, 2006), the Excavation Guideline (Aushubrichtlinie, 1999) and the Guideline for the Utilization of excavated earth (Wegleitung zur Verwertung von ausgehobenem Boden, 2001).</p> <p>The disposal directory or „marker“ is a web page on disposal questions established by the cantons, the FOEN, ARV and VBSA. It provides a compilation of relevant information on waste management in Switzerland in general and in the different cantons. (www.abfall.ch/).</p> <p>The Multi Dell Concept (Mehrmuldenkonzept MMK) was developed and published by the Association of Swiss Construction Entrepreneurs (SBV) based on the Technical Waste Regulation. It is an aid for site managers to correctly treat and separate waste on the construction site. The MMK defines different standardised contents of waste containers and ways of disposal. It aims at facilitating quick and rational disposal ways within close proximity to the construction site.</p>	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern; AWEL Project: Gravel for generations (Kies für Generationen): The project „Gravel for generations“ was initiated by the department for wastes, water, energy and air (AWEL) in the canton Zurich . Its aim is to support the construction industry in recycling of “waste” construction materials to high quality materials, recognizing that such materials still have a bad reputation. The canton of Zurich can be introduced as a positive example of efforts in construction waste mitigation. A strong focus is put on seeing waste materials as resources and the aim is to close the cycle of mineral construction material: waste economy should change into a resource economy. The project “Gravel for generations” has been initiated by the cantonal department for waste, water, energy and air.	X	X	X	X	X	X	X										
OTHER	Compulsory blower door test	Where mechanical ventilation is included in the building, the contractor must assure the test is carried out. It must be repeated until the standard is achieved	Minergie standard.	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern	X	X	X	X													
	Book keeping	Providing monthly figures on energy consumption during the first 3 years:	see Smart Metering (Display panel (Monitoring))	Swiss Federal Office of Statistics, Federal Office for the Environment, Swiss Federal Office of Energy															X		
		Heating																		X	
		Cooling																			X
		Ventilation																			X
		Hot water																			X
	Electricity																	X			
Transport and recycling of building materials	<p>Preference to transport goods with vehicles meeting at least the EURO III standard or vehicles using alternative fuels.</p> <p>Suppliers must take back, recycle and reuse packaging from building materials</p> <p>Use of reusable containers to transport the materials to, on and from the construction site</p>	KBOB recommendation: concrete from recycled aggregate;The regulation on the transport of waste (Verordnung über den Verkehr mit Abfällen VeVa, 2005) aims to guarantee the delivery of waste only to appropriate dumping enterprises. It focuses on special waste and other waste being liable to control. In construction waste management, this could be waste containing asbestos or contaminated excavated material.	Stadion Letzigrund EURO V standard													X	X				
Use of LCA tool in design	In the design work LCA tool must be used	Building element catalogue based on ecoinvent (The international ecoinvent database is currently the world leading life cycle inventory data source); Guidelines Sustainable Real Estate Management (KBOB, IPB); KBOB recommendations: LCA in the area of construction (2009/1); In Switzerland, a list of ecological indicators for various construction materials has been developed. Data are representing Swiss averages and are based mainly on the ecoinvent Database. This list is a basis for various Swiss building assessment tools such as the “electronic constructional element catalogue” or the Software “LTE Ogip”). Recently KBOB, as coordination platform for governmental building owners, together with many private companies from the material and construction industry launched a project to expand and update life cycle inventory data for construction materials and products. These data should be part of the ecoinvent data base 3.0 that should be available by the end of 2011. A rough calculation of ecological impacts of specific components can be made with the help of a “checklist for components” (Bauteilkatalog). Calculations integrate production phase, renewal and deposition of the materials over a building lifetime of 100 years. Impacts are shown for environmental burdens, grey energy and greenhouse effect.	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern	X	X	X	X	X										X			
Construction site noise reduction	Construction machinery used must comply with the basic criteria of the Blue Angel ecolabel for Low-Noise Construction Machinery	BKP 130 building site equipment; Guidelines on building noise from the Federal Office for the Environment FOEN (http://www.bafu.admin.ch/publikationen/publikation/00006/index.html?lang=en)	Forum Chriesbach, Seniors' Residence Trotte Zurich, Eulachhof																X		
Internal noise reduction	Proposals on how to reduce acoustic bridges in the interior to improve healthy living conditions	Minergie-Eco , SIA 181 Noise protection; SIA 112/1	Forum Chriesbach, Swiss Federal Office of Statistics, Administrative center Bern																X	X	X

Tools & regulations

MINERGIE-ECO	http://www.eco-bau.ch/index.cfm?Nav=15&ID=32&Con=19
Indoor air climate (planning tool)	http://www.eco-bau.ch/index.cfm?Nav=15&ID=17
Schallschutz im Hochbau (Noise protection in construction) (SIA 181)	
Elektrische Energie im Hochbau» (SIA 380/4)	
Technische Anforderungen an Lüftungstechnische Anlagen» (SIA 382/1)	
ECO-BKP data sheets (ECO-BKP 2009 - Merkblätter "Ökologisch Bauen")	http://www.eco-bau.ch/index.cfm?Nav=15&ID=15
eco-devis	http://www.eco-bau.ch/index.cfm?Nav=15&ID=16
KBOB-recommendations	http://www.eco-bau.ch/index.cfm?Nav=15&ID=18
KBOB 2009/1 Ökobilanzdaten im Baubereich	-
SIA 112/1 Sustainable Construction (Swiss Engineers and Architects Associations standards)	
Plattform Ökobilanzdaten im Baubereich (Platform LCA in construction)	
Bauteilkatalog	http://www.eco-bau.ch/index.cfm?Nav=15&ID=14

Initiative	Link	Content / Goals / Targets	AUTHORITIES RESPONSIBLE FOR GPP
2,000-Watt Society	http://www.novatlantis.ch/index.php?id=26&L=1	The vision of the 2000-watt society calls for a continuous reduction in energy needs to 2000 watts. pro person . By the year 2050, the amount of fossil energy sources can be cut in half from the current figure of 3000 watts to 1500 watts per person. A CO2 output of one ton per capita a year is also an applicable long-term goal for Switzerland.	The City of Zürich
Sustainable City of Zurich – on the way to the 2000-Watt-society		Legislature goal of city council 2006 - 2010 – Excellent quality of life and standard of living for present and future generations – Focus in environmental, energy and climate protection policy with long term perspective (at least 2050) – Reduction until 2050 (2150) of –primary energy to 3500 (2000) W/P - 45 (68) % –greenhouse gas emissions to 2 (1) t/P - 77 (89) %	
Methodical guide for the balance of the primary power demand in watt per person and the greenhouse gas issues	http://www.novatlantis.ch/index.php?id=117&L=1	For the balance of the primary power demand in watt per person and the greenhouse gas issues the city of Zurich and the Federal Office for energy have concluded the development of a methodical guide. The bases correspond to the methodology of the 2000-watt society. Besides, the methodology paper contains primary energy factors according to the ecoinvent data bank. With the help of the primary energy factors the final energy on the primary energy and the CO2 issues linked with it can be converted. The guide considers the relations of the city of Zurich.	the city of Zurich and the Federal Office for energy
Brochure "Smarter living: The 2000-watt society".	http://www.novatlantis.ch/index.php?id=27&L=1	Novatlantis is already putting the 2000-watt society into practice today in an exemplary fashion. However, in addition to the implementation of research results, a dialogue with political and economic decision makers is of decisive importance. At the beginning of 2005, Novatlantis published a brochure entitled "Smarter living: The 2000-watt society". A new understanding of our resources as a key to sustainable development will be fostered by pointing out the vision of the 2000-watt society and displaying its implementation.	
Steps towards a sustainable development. A White Book for R&D of Energy-Efficient-Technologies	http://www.novatlantis.ch/index.php?id=60&L=1	A detailed technical-scientific analysis by 10 Swiss scientists came to the conclusion that such a vision is indeed "technically feasible".	
ECO2-Calculator	http://www.novatlantis.ch/index.php?id=29&L=1	ECO2-Privat shows you how much energy and CO2 you consume as well as where you consume an especially large amount or astoundingly little in comparison to people in other countries. The tool also shows you how much energy or CO2 you could save where with which measures. In addition, ECO2-Privat calculates the energy required for production of the goods and services that you consume (so-called grey energy).	
Topten online search tool for energy efficient appliances	http://www.topten.ch/	originally developed in Switzerland, is available for use in 17 countries and also assists public purchasers in their sustainability actions.	
7 Mile Steps for Energy and Resource Efficient Building Construction and Management.	http://www.stadt-zuerich.ch/hbd/de/index/hochbau/nachhaltiges_bauen/englissh.html	The 7 Mile Step program applies to municipal buildings and building projects that are entitled to municipal subsidies (e.g building regulations, financial support). Reasons must be given in exceptional cases. After examining a building project's feasibility, a decision will be taken whether it meets the general specifications for the 2000 Watt Society. - Determine the energy standard for municipal buildings according to the Master Energy Plan. - Prepare the path towards the 2000 Watt society as a long term perspective. - Provide a far-reaching stimulus to the sustainable development of the city's municipal buildings. 7 Mile Steps: 1 New Buildings New buildings are to achieve the MINERGIE-ECO standard. ECO corresponds to Mile Step 5). The MINERGIE-P-ECO standard will be met. 2 Existing Buildings For refurbishments, the standard for MINERGIE modernisation must be implemented as first priority. All refurbishment work will meet the MINERGIE-modernisation threshold. Comfort ventilation is not necessary. The standard for MINERGIE in new buildings (or even MINERGIE-P) will be met. 3 More efficient use of electrical power All new and refurbished non-residential buildings will meet the additional MINERGIE specifications for lighting. First priority will be given to the procurement of highly efficient office and household appliances according to www.topten.ch. All household appliances must meet the energy category class A or A+ (cooling appliances) at minimum. In larger non-residential buildings the power requirements for «processes» (e.g. kitchen, laundry) are to be identified and optimised. 4 Renewable energy sources At least 40% of the total heating requirements of new buildings are to be provided by renewable energy sources. For existing buildings it is 50% of the heating for warm water. Total heating requirements are to be provided by renewable energy sources. 5 Health and building materials The building must provide a healthy indoor environmental quality. Values will be well below limits or recognised guidelines. Eco-friendly building materials with no health risks according to ECO-BKP are to be used. www.eco-bau.ch, Grey energy associated with building construction is to be determined during planning and optimised. 6 Architectural competitions and study assignments Ecological sustainability is a decision-making criteria in architectural competitions and study assignments. The building concept will contain measures to ensure energy-efficient and environmentally friendly mobility. 7 Management Energy statistics will be collected and building operations optimised. Goals will be agreed upon with large energy users and other energy-intensive buildings. The energy consumption of buildings will be assessed according to a defined energy standard. Energy procurement is to be carried out according to ecological criteria (Power: at least naturmade basic).	Building Department for municipal buildings
7 Miles Steps and Master Energy Plan	-	The 7 Mile Steps Program defines the energy standard for buildings in accordance to the municipal energy policy. In 2002, the city council adopted a Master Energy Plan that calls for: > reducing fossil fuel (oil and gas) consumption in municipal buildings by 15% by 2010 (compared with 2000 levels), > reducing carbon dioxide (CO2) emissions from fossil fuel used in municipal heating and vehicles by 15% by 2010 (compared with 1990 levels), stabilizing the consumption of electrical power in municipal buildings by 2010 to the level used in 2000. In addition to promoting efficient and renewable energy use, the Master Energy Plan requires municipal buildings to be exemplary beyond government regulations. As with the MINERGIE standard, this also applies to buildings that receive support from the city.	The City of Zürich

Best practice on green or sustainable public procurement and new guidelines OPEN HOUSE: GA no.: 244130 D1.4

7-mile steps – effect analysis by the building park model of the City of Zurich	http://www.novatlantis.ch/index.php?id=20&L=1&tx_ttnews[1_news]=103&tx_ttnews[backPid]=1&cHash=fd25f72abc	The city of Zurich estimated the effect of the urban 7 mile step politics on the future primary energy consumption and the greenhouse gas issues of the building sector. Result: The model calculations show a big effect of the 7 mile step politics. To reach the 2000-watt aims, nevertheless, it is essential to complement the existing mile steps. This concerns in particular the building-related electric uses as well as devices, lighting, commercial cold, wash / dry and other areas.	The City of Zürich
ICLEI – Local Governments for Sustainability Climate Alliance / Alianza del Clima e.V.	http://www.stadt-zuerich.ch/prd/de/index/stadtentwicklung/aussenbeziehung/en/zuerich_international/taedtenetze/iclei_klima_buendnis.html	City of Zürich has been represented in both networks since 1993	
Eurocities	http://www.stadt-zuerich.ch/prd/en/index/stadtentwicklung/aussenbeziehung/en/zuerich_international/taedtenetze/eurocities.html	As part of Zürich city council's legislative focal point to create alliances and take politics actively beyond country borders, the City of Zürich was represented in the Eurocities city association in the summer of 2007.	
eco-bau building label for sustainability and public building	http://www.eco-bau.ch/index.cfm?Nav=15&ID=18&is=1	Sustainability in public construction Common platform of public builder from cantons and cities with recommendations for sustainable planning, construction and operation of buildings. 'Eco-bau' is a common platform of the public building departments from federal, cantonal, and city governments with recommendations for sustainable planning, building and maintaining of buildings and systems. Eco-bau offers checklists and other instruments for sustainable material decisions, mainly for tenders	
ECO-BKP Merkblätter	http://www.eco-bau.ch/index.cfm?Nav=15&ID=15		
Empfehlung SIA 112/1	http://www.eco-bau.ch/index.cfm?Nav=15&ID=11		
KBOB	http://www.bbl.admin.ch/kbob/00481/00492/index.html?lang=de	Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren KBOB	
Sustainable Procurement	http://www.iclei-europe.org/index.php?id=procurement		
Procura+ Campaign	http://www.procuraplus.org/	Procura+ is an initiative designed to help support public authorities in implementing Sustainable Procurement – and help promote their achievements.	Zurich is member of the campaign
RUMBA	http://www.rumba.admin.ch/de/rumba_fachgruppe.htm	Ressourcen- und Umweltmanagement der Bundesverwaltung (RUMBA) = Federal Resources and Environmental Management	The Federal Authorities of the Swiss Confederation
European Energy Award GOLD	www.energiestadt.ch	The City of Zurich is committed to implementing the 2008 building standard as a guideline. In 2000, the City of Zürich was awarded the national label "Energy City" for its efficient energy use and promotion of renewable energy. In 2005, it has been recertified on a higher level and has received the European Energy Award GOLD for continuing their legacy of consistent, long-term energy policy and planning	The City of Zurich
naturemade	http://www.naturemade.ch/Englisch/Label/label_e.htm	naturemade is the quality mark for ecologically produced energy (naturemade star) and energy from renewable sources (naturemade basic). The mark is awarded after thorough inspection by the Association for environmentally sound energy (VUE). naturemade stands for credible quality and ecological improvement. naturemade enjoys wide support. Environmental and consumer organizations, renewable energy associations, major energy consumers and large, medium and small energy suppliers and producers are all represented in VUE and on its Board.	
Minergie	http://www.minergie.ch/basics.html	MINERGIE® is a registered quality label for new and refurbished buildings. MINERGIE®-Standard: The standard requires that general energy consumption must not be higher than 75 % of that of average buildings and that fossil-fuel consumption must not to be higher than 50 % of the consumption of such buildings. The MINERGIE-ECO®-Standard adds ecological requirements such as recyclability, indoor air quality, noise protection etc. to the regular MINERGIE®-Requirements.	

Case Studies	Link	Content / Goals / Targets
Forum Chriesbach	http://www.forumchriesbach.eawaq.ch/index.htm	Zero-heating-energy construction of new research establishments in Dübendorf A Sustainable New Building for Aquatic Research: Eawaq, the nationally and internationally active aquatic research institute, is committed to the responsible management of water and other vital resources. Its Forum Chriesbach office building is the embodiment of its own sustainability principles. It functions without conventional heating and cooling systems (HVAC) and, besides electricity, needs only marginal energy supply. The innovative sanitary system – NoMix toilets with urine separation and rainwater flush – not only furthers environmental protection but is also used in current research. Thanks to low operating costs, the 5 % additional investment capital required to construct the building is fully paid back within about 13 years.
Triemli Hospital	http://www.nzz.ch/nachrichten/zuerich/die_2000-watt-gesellschaft_ist_machbar_1.1223542.html	A competition for an energy concept was carried out for the refurbishment of the Triemli city hospital. The winning concept responded to the energy standard set by the 2000-Watt-Society. The target is a reduction in energy use per person in Switzerland from the current amount of 6000 W to 2000 W (with 500 W from non-renewable sources) by 2050.
Seniors' Residence Trotte, Zurich	http://www.stadt-zuerich.ch/hbd/de/index/hochbau/geplante_bauten/altersheim_trotte.html	2000-Watt-Society; Verification of sustainability in the project competition: Seniors' Residence Trotte, Zurich
Letzigrund Stadium, Zürich	http://www.stadt-zuerich.ch/hbd/de/index/ueber_das_departement/medien/medienmittellungen/2009/august/090803c.html	2000-Watt-Society
Eulachhof	http://www.eulachhof.ch/	Zero-Energy-Building complex, Minergie-P-Eco
Swiss Federal Office of Statistics		2000-Watt-Society
Glatt 1 - CCEM Retrofit		2 storey residential; Specifications for project planning 7 milestones: towards MINERGIE-P, appliances www.topten.ch, renewable energies 60% from waste incineration plant; solar power contracting on roof area, pilot project für MINERGIE-P-ECO retrofit, provisions for energy efficient mobility; Special features of Glatt 1: Minergie-P modernisation, Ecological selection of materials, Renewable energy, Optimisation of grey energy and material flow
Federal Office for the Environment FOEN	http://www.bafu.admin.ch/org/index.html?lang=en	Minergie
Swiss Federal Office of Energy SFOE	http://www.bfe.admin.ch/index.html?lang=en	Minergie
Administrative centre Guisanplatz 1 Bern	http://www.bbl.admin.ch/themen/00612/02209/02458/index.html?lang=de	MINERGIE-P-ECO®-Standard; Vorgaben des Bundes bezüglich Nachhaltigkeit http://www.infodienst-ausschreibungen.ch/ausschreibungen/?id=467e2640-b2a5-102c-80bf-001f29e7574e ; http://www.nachhaltigkeit.org/201004084506/stadtplanung-bauen/nachrichten/nachhaltige-qualitaet
School Leutschenbach	http://www.stadt-zuerich.ch/hbd/de/index/entwicklungsgebiete/leutschenbach.html	
Office building floor lamp that would meet the MINERGIE standard		A project to develop an office building floor lamp that would meet the MINERGIE standard was carried out by the Building Department with the support of the municipal energy saving fund and the local utility (EWZ). Instead of developing its own lamp at a high cost, the city conducted a competition, which had the added benefit of promoting the development of innovative products in the market place. A range of products from various manufacturers met the strict technical specifications for energy and lighting that had been developed. In the end, the city was able to obtain the lamps at a very reasonable cost, and will save US\$660,000 (800,000 Swiss francs) over a period of 20 years. The other partners gained market advantages due to an innovative and competitive product. The 800 lamps purchased by the city triggered extra sales of over 5,000 floor lamps that correspond to a power saving of around 600 MWh per year.
Science City Campus	http://www.sciencecity.ethz.ch/nachhaltigkeit/index_EN	Lighthouse for sustainability: Science City is also ETH Zurich's largest sustainability project. Thanks to a favourable transport policy, over 80 percent of the students and staff can reach the campus by public transport; a dynamic underground storage system ensures that ETH Zurich will massively reduce the CO2 emissions in Science City; moreover, the campus buildings were constructed and redeveloped in such a way that they are energy-efficient and can be run with the maximum possible conservation of resources. Numerous experimental projects also contribute toward the sustainable operation of the university, such as the student-run solar cinema in the summer months.
Information Science Laboratory (HIT) Science City campus	http://www.sciencecity.ethz.ch/nachhaltigkeit/nachhaltige-bauten/index_EN	Built to the Minergie Eco standard <ul style="list-style-type: none"> • Photovoltaic cells (20 kWp) on the roof • Connected to a dynamic earth storage system (from approx. 2013) • Flexible room dividers in the usage-neutral outer zone

Sports Centre Science City	http://www.sciencecity.ethz.ch/nachhaltigkeit/nachhaltige-bauten/index_EN	Minergie Eco certificate (No. ZH – 001) The basic Minergie standard means the buildings offer a higher degree of comfort thanks to a high-quality shell and an efficient air replacement system. The additional Eco standard indicates that the method of construction is healthy and ecologically sound. • The building is connected to the new energy concept for Science City so it will be able to make use of the planned energy storage facility (resulting in a further reduction of over 200 tonnes of CO2 per year)
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Notes:

1. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF>
2. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF>
3. For further information, visit the EU official website: http://ec.europa.eu/environment/gpp/index_en.htm
4. http://ec.europa.eu/environment/gpp/action_plan_en.htm
5. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:FULL:EN:PDF>
6. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:052:0050:0060:EN:PDF>
7. http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_114/l_11420060427en00640085.pdf
8. <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1989/L/01989L0106-19930802-en.pdf>
9. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006L0012:EN:NOT>

10. <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2000/L/02000L0060-20011216-en.pdf>
11. http://ec.europa.eu/enterprise/standards_policy/mandates/database/index.cfm?fuseaction=search.detail&id=221
12. http://ec.europa.eu/enterprise/standards_policy/mandates/database/index.cfm?fuseaction=search.detail&id=228#
13. http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=Directive&an_doc=2004&nu_doc=42

