This is a preview of "ISO 23056:2020". Click here to purchase the full version from the ANSI store.

First edition
2020-09

Water reuse in urban areas — Guidelines for decentralized/ onsite water reuse system — Design principles of a decentralized/onsite system

Réutilisation de l'eau en milieu urbain — Lignes directrices concernant les systèmes décentralisés/sur site de réutilisation de l'eau — Principes de conception d'un système décentralisé/sur site

Reference number
ISO 23056:2020(E)

© ISO 2020

This is a preview of "ISO 23056:2020". Click here to purchase the full version from the ANSI store.

COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO 2020 – All rights reserved

This is a preview of "ISO 23056:2020". Click here to purchase the full version from the ANSI store.

Contents

© ISO 2020 – All rights reserved

This is a preview of "ISO 23056:2020". Click here to purchase the full version from the ANSI store.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 282, *Water reuse*, Subcommittee SC 2, *Water reuse in urban areas*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2020 – All rights reserved

This is a preview of "ISO 23056:2020". Click here to purchase the full version from the ANSI store.

Introduction

With economic development, climate change, rapid urbanization and increases in population, water has become a strategic resource especially in arid and semi-arid regions. Water shortages are considered as one of the most serious threats to the sustainable development of society. To address these shortages, reclaimed water is increasingly being used to satisfy water demands that do not require potable water quality. This strategy has proven useful in increasing the reliability of long-term water supplies in many water-scarce areas. The applications of reclaimed water depending on the volumes of reclaimed water available include restricted or unrestricted irrigation, industrial uses, toilet and urinal flushing, firefighting and fire suppression, street cleaning, environmental and recreational uses (ornamental water features, water bodies' replenishment, etc.) and car washing.

While centralized water reuse facilities have been widely implemented under different ownership and management structures, there is also a need to develop decentralized/onsite water reuse systems in cost-effective and resource-efficient ways, which can improve flexibility and convenience. Depending on the size and scope of the system, private and community owned systems can increase the flexibility of the system to the needs of the owner(s). Decentralized/onsite water reuse systems have the advantage that they can be installed for a short-term when needed and have a lower cost than centralized systems due to sewers systems large investments. Moreover, they allow the local reuse of water and therefore increase water productivity. Compared to centralized systems, decentralized/onsite systems still involve local wastewater collection and treatment. They are considered to be much smaller with fewer people connected (single, several or tens or hundreds of households) and less costly, especially when greywater components have been separated from the blackwater for reuse. If the systems are properly situated, designed, operated and managed, they can provide substantial environmental and social benefits (e.g. reduction of freshwater consumption and wastewater generation) as well. The concentrated blackwater can be treated using several treatments (e.g. septic tanks, cesspools, soil drain fields, chemicals, bio-digesters, composting toilets and blackwater recycling systems). Decentralized/onsite water reuse systems can also be integrated into the broader centralized systems in terms of clustered or contracting schemes for decentralized technology with centralized operation.

The design of a decentralized/onsite water reuse system requires a thorough understanding taking into account of scale, system components, end use requirements and other issues. This guideline can be useful for the application of design principles as well as feasible and cost-effective approaches for safe and reliable fit-for-purpose water reuse.

© ISO 2020 – All rights reserved