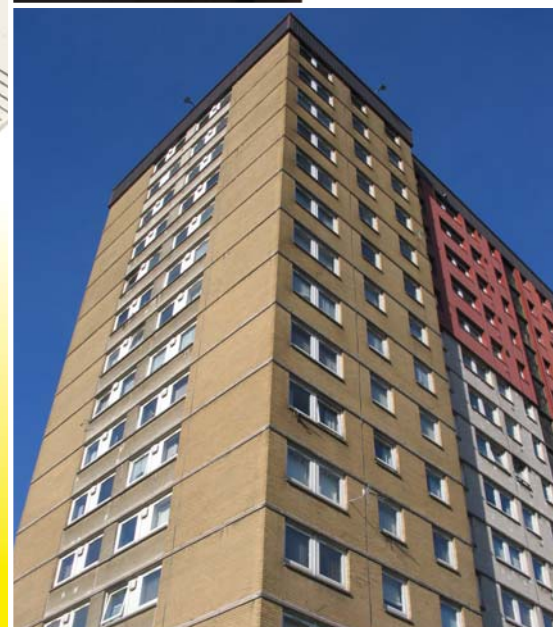
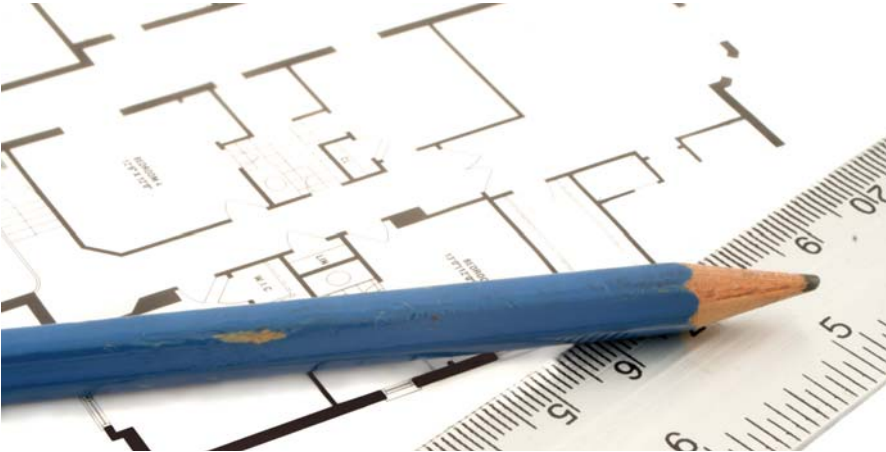




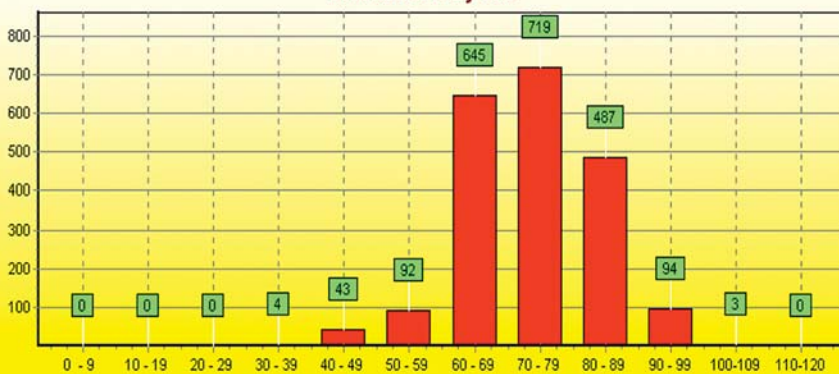
Energy Audit Company



# SETTING SAP TARGETS FOR AFFORDABILITY IN SOCIAL HOUSING



Stock Profile by SAP



GUIDE FOR POLICY AND DECISION MAKERS,  
AND PRACTITIONERS

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The UK Fuel Poverty Strategy set a target for the elimination of fuel poverty in social housing by 2010. To respond effectively, housing managers need practical ways to identify, quantify and approach the problem in their housing stocks. Fuel poverty is a moving target: household circumstances change, people move home, and incomes vary in relation to fuel costs. A simple, targeted approach is needed to plan, prioritise and allocate resources to improvement works and to be clear about outcomes.

This guidance aims to provide social housing providers with advice on how they can establish a system, based on SAP, to measure and monitor progress toward achieving affordability, which is simple to set up and operate and which requires relatively small changes to current practice. For those already using SAP targets, it focuses on some key problem areas and on making sure they deliver results.

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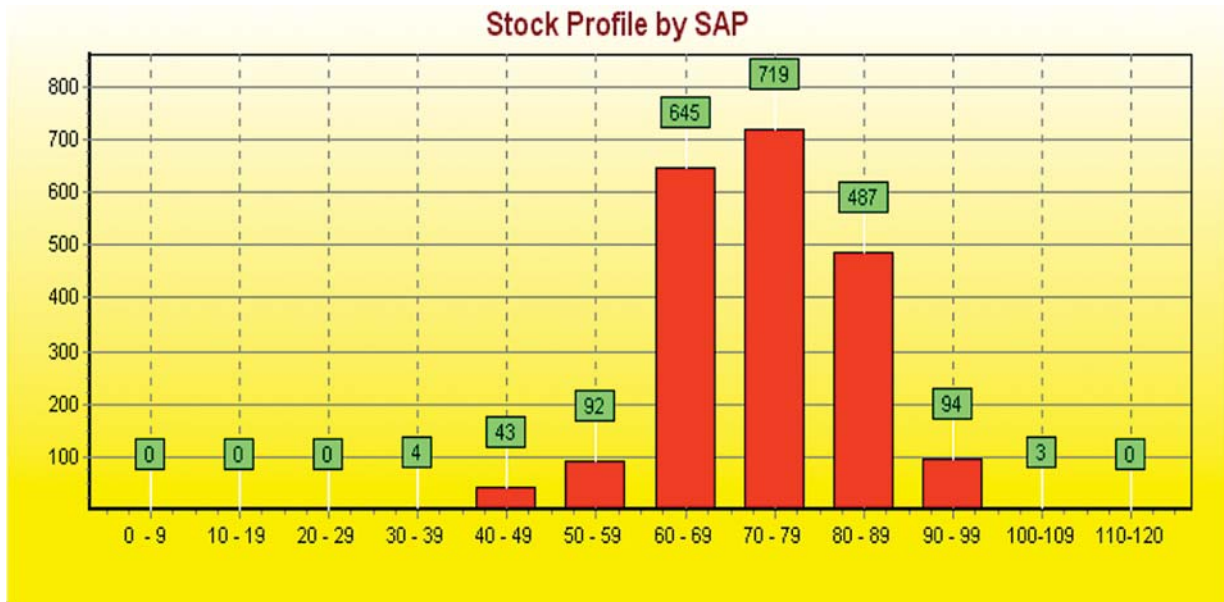
## WHY SAP?

SAP based standards offer several advantages. RSLs already report on average SAP annually. Accurate SAP ratings for individual homes will be needed as part of the Energy Performance Certificate from 2008/2009. All that is needed in addition is a mechanism for reporting on the numbers or percentage of homes that are below the SAP needed for affordability.

The model proposed here suggests recommended and minimum SAP standards, adjusted for regional variations in climate. Simple to introduce, administer and explain, it offers a way to identify and quantify the problem of fuel poverty and to ensure the right measures are put in place to combat it effectively.

Targets that make use of SAP represent a straightforward and sensible way forward. These provide a scoring mechanism that is easy to understand, can be "future proofed" and make use of information that is routinely collected in any case. SAP targets have the additional benefit of also being relatively sophisticated if needed, allowing for very detailed analysis to support policy decisions and resource allocation.

This type of strategy has been adopted by a number of social housing providers, such as Newark and Sherwood District Council, with great success.



## DEFINING AND TACKLING FUEL POVERTY

Since most social housing tenants are on low incomes, all social sector homes should be affordable, not just those that happen to be occupied by a low income household at a particular point in time. Any other approach leads to resources being used inefficiently first to identify households at risk, then to carry out improvements in a sporadic way and finally to evaluate the long term effects.

The UK Fuel Poverty Strategy defines a household in fuel poverty as one that would need to spend more than 10% of its income on energy costs to maintain satisfactory levels of warmth. It defines income in two ways. The “full income” definition includes housing benefit for rent payments or income support for mortgage interest (ISMI). The “basic income” definition, used by most professionals working in the fuel poverty field, excludes housing benefit or ISMI.

Estimates based on the “full income” definition suggest significantly lower numbers in fuel poverty. It is the Government’s preferred definition for target setting, but results in some glaring anomalies. For instance households are effectively removed from fuel poverty if their rent is high enough.

In practical terms a strategy that is overly concerned with real incomes is not really helpful. Accurate information about tenants’ incomes is extremely difficult to come by and even harder to keep up to date.

## SAP TARGETS

Targets should relate affordability to the fuel poverty basic income definition and running costs to the SAP rating, and be based on basic minimum income levels for vulnerable households.

The target can be defined as the SAP necessary to avoid fuel poverty in a 80m<sup>2</sup> house typical of social housing. The **minimum** target, based on income and running costs of a 1 adult 2 children family, should be readily attainable by most social housing providers in the short to medium term and as such represents a reasonable interim standard.

In fuel poverty terms the worst case scenario is where one person aged 60+ occupies the former family home. The SAP needed for a 1 adult, 1 child family in a three bedroom house is similar. This is used to set a **recommended** SAP, which should allow all vulnerable households to have affordable warmth.

**Table 1 Suggested SAP targets**

SAP	Recommended			
	66	71	74	78
Location	Minimum (Interim standard)			
	51	56	59	64
	South West	Home Counties	South East	North West
		Southern	Midlands	Borders (England)
		Severn Valley	West Pennines	North East
		Central Wales	East Pennines	
			East Anglia	

## HOW ACHIEVABLE ARE THE TARGETS?

Table 2 illustrates how the SAP rating varies according to whether the walls are insulated, the property has mainly single or double glazing and the type of main heating system.

For properties with mains gas the minimum SAP is achievable even with solid walls and single glazing though in the coldest locations, the 'Hard to Treat' combination of solid wall and off mains gas would require major expenditure and disruption.

**Table 2**  
**Approximate SAP ratings (80m<sup>2</sup> house) with different wall, glazing & heating combinations**

Heating	Uninsulated wall		Insulated wall	
	Single glazed	Double glazed	Single glazed	Double glazed
Old gas	47	51	67	72
New gas	65	69	83	91
Storage (new)	36	41	58	68
Coal	39	44	60	69
Oil (new)	61	66	82	90
GSH Pump	52	58	75	84
ASH Pump	45	51	65	75
Wood boiler	45	51	67	79

## REGULAR REVIEWS

Recent price increases have effectively reversed at least 5 years of energy efficiency improvements in social housing. It is important that targets are reviewed annually in the light of changes in fuel prices. As an approximate guide we suggest that the target SAP should be increased by 6% for each 10% rise in gas prices *relative to benefits*.

## TACKLING DEFICIENCIES IN DATA COLLECTION AND CALCULATION

For this sort of strategy to be effective data must be accurate and reliable, or properties could be wrongly classified as unaffordable. Unfortunately, most RSLs do not have very detailed information on their older housing. The cost of organising surveys has led most to 'stick' at level 0 data, which is intended to provide only a very approximate average rating. Those holding higher level data, generally do so on only a sample of their stock. *The result is SAP ratings that are around 5 SAP points too low on average, with wide variations at individual house level.*

In the longer term all social housing will have an Energy Performance Certificate, either when the property is let or as part of some other survey such as a Decent Homes inspection, and data bases will gradually become populated with higher level data. In the short term the accuracy of Level 0 should be substantially improved (see guidance for practitioners) and a strategy implemented to ensure that data resulting from surveys is collected and stored in a systematic way which fully meets the needs of any performance monitoring system.

## MEETING THE EPC REQUIREMENTS

The Energy Performance Certificate, required on re-letting after mid 2008, will give an accurate SAP rating. How this is achieved will depend on the size of the housing stock, location and availability of trained staff. The EPC will have to be available before the property can be 'marketed' (although two weeks leeway may be allowed for a transitional period to 2010). Any landlord wishing to minimise void times should therefore be aiming to have the necessary information for the certificate available for each house, or to be able to carry out a survey visit very quickly.

Certification has to be carried out "in an independent manner", currently interpreted as allowing social landlords to use either an external certification organisation or their own trained and qualified staff as part of a wider certification scheme with external monitoring.

The intention is for the EPC information to be stored in a database to allow for updating when improvements are carried out. Revisits may not be needed to issue a new certificate.

There are several ways that this can be carried out. The most obvious is for existing staff who carry out void inspections to be trained and accredited as Domestic Energy Assessors. **(A)**

Another way is to assess the whole housing stock in a planned way using visits and collating data sources (floor plans, records of work, inspections of 'types'). This would normally be with external companies, or using temporary staff or secondees. **(B)**

### **(A)**

#### **Void inspections (usually own staff )**

##### **Advantages**

Cost of visits minimised  
Confidence in results  
Gradual expenditure

##### **Disadvantages**

Training needed  
Extra turnover of staff (demand for qualified DEA staff)  
Possible delays on re-letting  
Impact on existing workload

### **(B)**

#### **Whole stock assessment**

##### **Advantages**

Cheaper unit cost  
Re-let can be organised quickly as the EPC is already in place  
Externalised  
Strategic view of stock in one year

##### **Disadvantages**

Timescale difficult  
Large initial expenditure, budget provision for 2007- 2008 needed

## ACTION PLANNING

### 1. Establish the base line position

- a. A database holding energy data on all properties, capable of carrying out or allowing calculations of accurate SAPs is essential. There are a number of proprietary systems on the market. A good system should enable identification of homes with low SAP ratings and allow potential improvements to be easily assessed.
- b. The quality of data should be reviewed with a view to addressing the problems outlined above (see practitioners' guide).
- c. A skills audit should be carried out to determine whether staff have the right skills and knowledge and, if necessary, identify either appropriate sources of training or external expertise.
- d. Appropriate resources should be identified to address any technological or skills deficiencies and address capacity issues (e.g. Data collection / entry / quality assurance).
- e. Energy stock profiling should be carried out to illustrate the current position; i.e. Number and type of dwellings below recommended and minimum targets.

### 2. Formulate policy aims and objectives

- a. If they have not done so already, housing providers should put in place an affordable warmth strategy, presenting clear policy aims, such as "The Association will ensure that all of its housing is capable of delivering affordable energy by 2011". Existing strategies should be reviewed.
- b. SAP targets should form part of key, measurable objectives such as "As a minimum, all housing will have a SAP rating of 64", and " All housing intended for those over 60 will have a SAP of 78 by 2008", and "All housing to have a SAP of 78 by 2011".
- c. Timescales and action plans to achieve the targets should form part of the strategy together with an undertaking to report regularly on the number of properties below the targets so that progress towards the key objectives is monitored.

### 3. Institute a system of monitoring, reporting and review

- a. Responsibility for maintaining accurate and up to date data, reporting and analysis should be attributed to key personnel at practitioner and senior levels.
- b. A strategy to improve data collection should be drawn up, to include stock condition surveys where appropriate. The brief for surveys should include RDSAP.

### 4. Consider how you will meet the requirements of the EPC

### 5. Consider a range of alternative policy responses

- a. Fuel switching: non gas fuels generally give much lower SAP ratings and higher bills for tenants. Consider whether solid fuel or electric heating can be switched to gas in the longer term.
- b. Some special or "social" tariffs have been developed by fuel suppliers, aimed at certain categories of household. The Equipower tariff (available to all consumers) has no standing charge and with no premium for prepayment meters means almost all social housing households would save on this tariff.
- c. Given the relatively short timescales for eradicating fuel poverty in vulnerable households, it seems unlikely that electricity from renewables or micro chp could have a significant short term impact, but may have a role in the longer term as capital costs come down.
- d. At a national level fuel vouchers / rent discounts may be an option: paid on a sliding scale based on the difference between the target and actual SAP these could be instituted until the necessary improvements had been carried out to make the property affordable and would ensure that the household was not disadvantaged compared to those living in upgraded properties. (e.g. if the SAP target were 80, the difference in running cost would be around £300 a year if the actual rating were 55).
- e. Letting restrictions: serious consideration should be given as to whether properties below the minimum SAP should be let to tenants in receipt of housing benefit.

When monitoring for affordability an accurate SAP rating is needed for each individual property. The information currently held by social landlords tends to fall into three categories: very accurate information on newer or refurbished properties, less accurate information on a small percentage of properties as a result of stock surveys, and low level data on the remainder.

This section looks at ways to improve the accuracy of lower level data, integrate those on newer properties, and begin to prepare to collect the accurate RDSAP data that will be needed for the Energy Performance Certificate.

## ADAPTING EXISTING SOURCES OF ENERGY DATA

### NEW BUILD

Properties built in the last 12 years or so have needed a SAP rating for Building Control Approval, Scheme Development Standards, and more recently Ecohomes.

The SAP calculation has gone through four versions in that time from the original in 1994 to the latest, SAP 2005. The calculations use different fuel prices and scales, so that the SAPs calculated may not be comparable. Properties of average size with gas heating and an average SAP are likely to see least variation. Smaller, well insulated homes, of the type more common in social housing may produce quite different results.

**Table 3 The different versions of SAP**

	<b>SAP 98</b>	<b>SAP 2001</b>	<b>SAP 2005</b>
1 bed flat, built in 2000	94	107	82
3 bed house built in 2000	85	84	73
3 bed house built in 1955	67	67	63

Ideally calculations should be repeated using a more up to date SAP program. The SAP worksheets provided to Building Control, if available, may be used to re-enter data, either at RDSAP or full SAP level. This need not be done for every unit since there are often types that are common across the development, and features such as heating or insulation are unlikely to have changed since built. Unfortunately in many cases only a print out of the original SAP result may now be available, and the new results may have to be estimated.



## EXISTING STOCK

The quality of stock condition energy data, normally from sample surveys carried out every five years, can vary enormously, with much being at Level 0 or only slightly better. Energy data should not be 'cloned' if the intention is to give a reasonably accurate individual SAP rating – factors such as boilers, controls, secondary heating have a significant effect on the SAP and may well be different in those properties not surveyed.

Traditionally, **low level data** (less than 20 data items per property) have been used to give stock profiles and average SAP ratings. Even for average SAPs this method's results are inaccurate (see full report), since the assumptions or defaults used to 'fill in' missing items are biased, quite correctly, towards a worst case for that type. For instance in the case of a condensing boiler, in the absence of actual efficiency information, an efficiency of 83% is assumed, although the true value is likely to be close to 90%. This default alone can make 5 SAP points difference.

## RDSAP DATA AND THE ENERGY PERFORMANCE CERTIFICATE

The Reduced Data SAP (RDSAP) has been developed in response to the problem of the variety of assumptions (defaults) in different software and the range of differing levels of data collected. It is intended to ensure a common data collection and calculation method for SAP ratings on existing (rather than new) properties. This method will become the 'norm' for quoting SAP ratings and will be the method used to produce the Energy Performance Certificate being introduced for existing homes for sale in June 2007, and in 2008 for all rented homes.



## 'UPGRADING' LOWER LEVEL DATA TO RDSAP LEVEL

As a result of implementing the EPC, Communities and Local Government seem to expect that accurate energy performance data will be available for all social housing by 2010 (see later EPC section). In the interim, the accuracy of SAP results for use in decision making about affordability can be improved significantly.

The major factors affecting accuracy of the SAP are insulation and heating. Insulation values assumed in RDSAP for cavity wall insulation, loft insulation, and double glazing are sufficiently close to those in the low level calculation to mean that it is sufficient for the fact of the insulation measure to be recorded, without the need for further detail.

Heating variations are very important for gas systems, though much less important for other fuels such as storage heaters. Some simple steps can be taken to significantly improve the data on gas-heated properties.

The requirement for gas safety certificates to be issued each year means that in most instances the boiler make, model, and identifier is known for every property. The actual SEDBUK efficiency can therefore be determined and used instead of a (lower) default.

Similarly the controls that ensure the efficient operation of the boiler (interlock) have, for years, been standard for new or replacement systems in social housing. For a combination boiler these include room thermostat and programmer and in addition, for system boilers with stored hot water, a cylinder thermostat.

The assumption in the SAP calculation is that a boiler lacking these controls will fire up even when there is no demand for heat (cycling) wasting energy, and reducing the boiler efficiency by 5 percentage points.

Where a large number of homes have had new high efficiency boilers fitted in the last few years this can have a significant impact on the numbers of low SAP ratings as well as affecting the average.

If not already held centrally, the data can be collected by the servicing engineer on the annual gas safety inspection. The energy and stock condition / maintenance databases used by the majority of RSLs and local authorities incorporate an option to use the actual SEDBUK efficiency of the boiler if known, as well as the controls appropriate for newer systems.

This issue alone can produce results that suggest homes are not affordable when in fact they meet affordability criteria. In the example given below where the SAP target is 70, the default boiler efficiency combined with the default about lack of interlock indicate that the house fails to meet the target, whereas the opposite is true.

**Table 4**  
**Older house with solid walls, double glazing and new condensing boiler**

	SEDBUK efficiency	Efficiency in SAP calculation	SAP result (2001)
Actual SEDBUK, good controls	91	91	73
Defaulted heating/controls	83	78	64

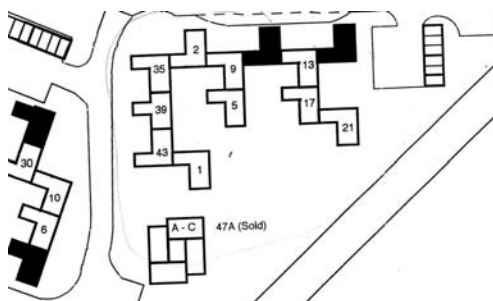
## IMPROVING DIMENSIONAL INFORMATION

Apart from heating, the most likely errors in the individual Level 0 or enhanced Level 0 SAP ratings involve wall area predictions for flats. The use of 'the degree of detachment' (or walls exposed) to estimate heat loss areas is less accurate than the equivalent for houses (semi, mid terraced etc.) as there are considerable variations, especially for flat conversions or odd layouts.

**Table 5 Effects of detachment**

Assumption	SAP
Level 0 (3 sides joined)	93
Level 0 (2 sides joined, mid terr)	77
Level 0 (1 sides joined, semi)	65
Level 0 ( 0 sides joined, detached)	57
Actual perimeter	65

This layout of a 1970s estate (flat types) shows the limitations of the detachment method in estimating the exposed wall area for individual flats. Although flat 9 is joined on 3 sides, the exposed perimeter is almost identical to that predicted for a semi detached flat (1 side joined). Where possible actual wall areas should be obtained, for example from floor plan drawings.



## ACTION PLANNING

1. Review SAP ratings for properties built or subject to major refurbishment in the last 12 years. Check what version of SAP was used.
2. For previous versions of SAP consider options to update using previous SAP worksheet if available, or drawings.
3. Assemble sources of accurate information on insulation, boiler types and controls and update data base.
4. Where the above information is not available, arrange for it to be collected during routine servicing.
5. For flats, using floor plans of blocks where possible, work out correct perimeters or wall areas and update database.

# FURTHER INFORMATION ACKNOWLEDGEMENTS

## SOURCES OF FURTHER INFORMATION

For more information on the methodology behind SAP targets and the other points covered in this guidance, see our report **SAP targets and affordability in social housing**, Energy Audit Company/Eaga Partnership Charitable Trust, available from [www.eagagroup.com/downloads/eagapct/finaleagactreport\\_saptargets\\_finalversion1](http://www.eagagroup.com/downloads/eagapct/finaleagactreport_saptargets_finalversion1)

For more information on the SAP 2005 methodology itself, see [www.projects.bre.co.uk/sap2005/](http://www.projects.bre.co.uk/sap2005/)

For more information on the implementation of the Energy Performance Certificate in social housing, go to the Certs for Success website at [www.esd.co.uk/HAs/CFS.html](http://www.esd.co.uk/HAs/CFS.html)

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